



Building a Healthy Boston

Health of Boston 2009

Thomas M. Menino, Mayor
City of Boston

Prepared by the Boston Public Health Commission
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Introduction

Welcome to the *The Health of Boston 2009!* True to its name, this annual report will provide information about the health of our city. A fundamental change in this year's report is a focus on social determinants of health. These social factors, such as income, education, employment, and housing have a profound impact on a population's health. These social factors are so directly connected with health status that we cannot effectively address health issues without addressing racism, discrimination, poverty, education, and other social and economic conditions. For this reason, a full discussion about the health of a population must include not only a review of disease burden, but an analysis of the unequal distribution of that burden, and an understanding of the social determinants of health.

Health is influenced by a complex web of social factors including living conditions, physical environment, socioeconomic status, food security, lifestyle, available health services and existing health policies. Social determinants describe the context within which people live, and influence health in significant and measurable ways. What resources and assets are available to a particular community? How do people feel about their communities? These and other factors play a significant role in health experiences and outcomes.

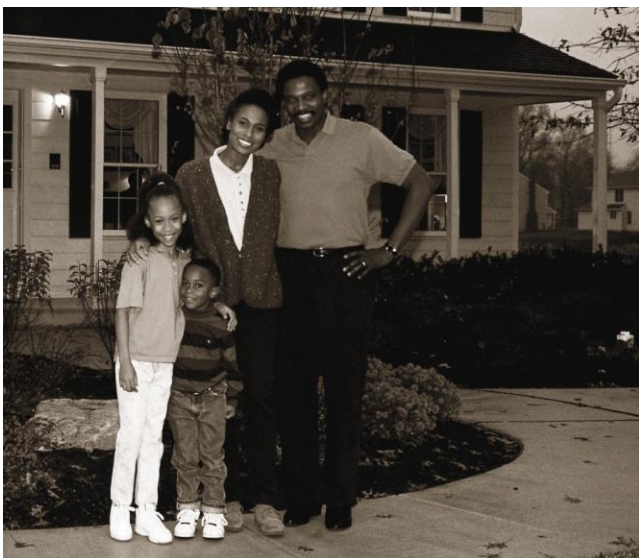
Individuals at higher incomes have better health compared with those at lower incomes. Boston's Black and Latino residents experience higher levels of chronic disease, mortality, and poorer health outcomes than White residents even when income status is identical. These health inequities are driven by the interaction of several factors including racism and socioeconomics.



To address these differences, the role of racism and social determinants must be understood and acknowledged by individuals, communities, providers, programs, policymakers, and government agencies. Critical to the successful creation of policies and interventions to combat disparities in health is a detailed understanding of social determinants. Programs and policies that exist in silos, ignoring the social and cultural context of disease, will be ineffective in disease prevention and management.

The primary purpose of this report is to share information. It does not aim to identify causality or make recommendations. Its intent is to provide a broader picture of health in our city, identify individuals and communities at greatest risk for certain conditions, and stimulate discussion among individuals and within communities. In addition, the report hopes to encourage and support further work to define the disparities in health experiences presented here and identify policies, programs, and interventions to combat these inequities.

The entire 2009 report and additional data can be found on the Boston Public Health Commission's website at www.bphc.org/hob.



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EXECUTIVE SUMMARY

The *Health of Boston 2009* provides a review of select health conditions, risk behaviors, and social determinants of health. It presents a broad picture of health in our city and identifies individuals and communities at greatest risk for certain conditions. This report does not attempt to identify causality or make recommendations. Instead, it provides information needed to stimulate dialogue among individuals and within communities.

The report is divided into 16 sections. Each section begins with an introduction describing the featured health indicators, followed by a short explanation of emerging trends and/or changes in the data elements. Each chapter concludes with a summary, list of references, and notes that clarify the data analysis. This executive summary highlights significant findings from each of the sixteen sections, and discusses the persistence of disparities in health outcomes among Black and Latino Boston residents.

Health Disparities

Boston's Black and Latino residents experience higher levels of chronic disease, mortality, and poorer health outcomes than White residents. These health inequities are driven by the interaction of several factors including racism, poverty, and residential segregation. Data presented in the HOB2009 report consistently demonstrate the health inequities. For Boston's Black residents, these inequities in health begin early in life and persist throughout the lifetime of an individual. Birth data demonstrate the percentage of low birthweight births and preterm births has been higher among Black infants than other racial/ethnic groups for the last 15 years. The infant mortality rates have consistently been highest for Black infants since data has been collected on infant mortality by race. Data on health conditions for Boston residents demonstrate several alarming trends across numerous diseases. The incidence of new cases of chlamydia, gonorrhea and HIV is consistently higher for Black residents of Boston than Asian, Latino and White residents. Compared to White adults, higher percentages of Boston's Black adults reported having asthma and diabetes. Hospitalizations for asthma in children under age 5, diabetes, and heart disease were highest among Black residents when compared with other racial/ethnic groups from 1998 to 2007. Black residents have higher overall mortality rates as well as higher diabetes, heart disease and cancer mortality rates than Asian, Latino or White residents. In addition to poorer disease outcomes and higher rates of death, the rates for nonfatal assault-related gunshot and stabbings and homicides were highest for Boston's Black residents in each year from 2000-2007.

Latino residents also consistently experience poorer health outcomes than White residents in Boston. Data on health conditions for all Boston residents suggest Latino residents consistently had the second highest HIV and AIDS incidence rates from 1999 to 2006 among all racial/ethnic groups. Incidence rates for chlamydia, gonorrhea and syphilis among Latino residents have time and again been higher than the rates for White residents. Higher percentages of Latino women reported having asthma than White and Asian women. Among racial/ethnic groups, Black Bostonians consistently had the highest diabetes hospitalization rate and heart disease hospitalization rate from 1998 through 2007. However, the diabetes hospitalization rate for Latinos increased 200% from 1998 to 2006 and heart disease hospitalization rates for Latinos increased 87% from 1998 to 2004. Compared to White adults in 2006, a higher percentage of Latino adults reported depressive symptoms 15 or more days during the past month. Mortality data from 2007 reveal that Latinos had the highest

substance abuse mortality rate among the reported racial/ethnic groups. From 1999 to 2007, the Latino rate increased more than 500%. Additionally, Latino residents had the second highest rate for nonfatal assault-related gunshot and stabbing victims in each year from 2000 to 2008.

Efforts to eliminate these inequities must acknowledge and address the role of social determinants. Under Mayor Menino's leadership, individuals, community based organizations, health care providers, policymakers, and city agencies came together to create a blueprint for eliminating health inequities. By creating programs and policies that acknowledge the social and cultural context of disease, progress can be made in preventing and managing disease.

Demographics

The city has become more racially and ethnically diverse over the past several decades. In 2007, approximately 28% of Boston residents were foreign born, originating from a wide array of countries such as Haiti, China and Colombia. This diverse population brings with it fluency in a variety of languages including Spanish, French, Chinese, and Vietnamese. The percentage of Latino residents in Boston has continued to increase from 1980 (6.4%) to 2007 (16.9%). Understanding the diversity within our city is essential to combating racial/ethnic disparities that persist in medical care for a number of health conditions and services.

Socioeconomic Status

Socioeconomic status (SES) is a measure of an individual's or family's economic and social position relative to others based on income, education, and occupation. Low socioeconomic status is associated with limited access to regular health care, adequate housing, quality education, nutritious food, recreational opportunities, and other resources associated with a healthy lifestyle. The socioeconomic status of Boston residents varies dramatically by racial and ethnic groups, gender and age. Key Points from the Socioeconomic Status section include:

- 20.4% of Boston residents had income below the poverty level and almost one-third of Boston's children lived in households with income below the poverty level.
- 51.8% of female-headed households with children under age 5 lived below the poverty level.
- Over one-third (37%) of Latino adults had less than a high school diploma.
- The unemployment rate among Black males (18.8%) was almost four times the rate among White males (5.0).
- Thirty percent of those who were homeless in 2008 were children.

Community Assets

Community assets are the resources that improve the quality of community life and provide a healthier environment for residents. The maps presented in this section demonstrate that Boston residents have access to an array of community assets. Boston has a considerable amount of green space dispersed throughout the city. Boston neighborhoods are fairly well resourced in terms of community and religious organizations, and public institutions. Each neighborhood has numerous houses of worship, community organizations, a public library, a community center, and a large supermarket. Most also have a health center, and a YMCA or Boys and Girls Club. Less evenly distributed are Farmer's markets, community gardens, and food pantries.

In addition to physical assets, social assets can impact health. A survey conducted to assess components of social cohesion among Boston neighborhood residents revealed the following key points:

- 60% of Boston residents reported agreeing or strongly agreeing that there are adults in their neighborhood that can be counted on to look out for children and teens.
- 70% or more of residents in each Boston neighborhood reported agreeing or strongly agreeing that people in their neighborhood are willing to help each other.
- Less than half of Boston residents reported their neighborhood as being very safe. While about 70% of residents in Back Bay and West Roxbury reported their neighborhoods as being very safe, only a quarter or less of residents in Mattapan, North Dorchester, and Roxbury did so.

Access to Health Care

Individuals at greater risk of not accessing the health care they need include low income residents, people with physical and mental disabilities, those whose primary language is not English, the uninsured and underinsured, recent immigrants, and certain racial/ethnic groups. The data presented in the Access to Health Care section were collected prior to the institution of Massachusetts' laws to cover the uninsured population. Key points from the Access to Health Care section:

- A lower percentage of adults living in East Boston (79%) reported having health insurance coverage compared to Boston overall (92%).
- Among insured residents in both 2005 and 2006, higher percentages of Black and Latino adults reported cost as a barrier to seeing a doctor in the preceding 12 months than White adults.
- In 2006, a lower percentage of Asian (71%) adults reported having a personal doctor or health care provider than White (88%) adults.
- In 2005, a lower percentage of Latino adults (61%) visited the dentist within the past year compared to White adults (74%).
- A lower percentage of East Boston residents (58%) reported visiting the dentist within the past year compared to Boston overall (72%).
- A lower percentage of Latino residents (53%) reported having insurance to cover routine dental care compared to Black residents (69%) in 2005.

Environmental Health

The environment can influence the health of a population. Several diseases are linked to environmental conditions including, but not limited to diarrheal diseases, unintentional injuries, respiratory infections, and lead poisoning. Elevated blood lead levels in children have been linked to nervous system damage, behavior and learning difficulties, stunted growth and hearing disorders. A review of data on elevated blood lead levels demonstrates the follow key point:

- There has been a 91% decline in the percent of children who were screened and had elevated blood lead levels from 1995 to 2008. This percentage has declined every year since 1995. In 1995, 13.5% of children screened for lead in the blood had elevated blood lead levels while in 2008, 1.2% of those screened had elevated blood lead levels.

Health Behaviors

Personal health-related behaviors, such as tobacco use, diet, physical activity and alcohol consumption, have a substantial influence on overall health outcomes. Influencing individuals

to adopt more positive personal health behaviors can be one of the most cost-effective tools for achieving and maintaining good health.

Health Behaviors data suggest progress in smoking among high school students and adults:

- There was a decrease in the percentage of high school students who reported smoking from 2001 (15%) to 2007 (7%).
- There was a decline in the percentage of adults who smoked cigarettes from 2001 (24%) to 2006 (16%).

These data also suggest additional need for improvement in the areas of physical activity and binge alcohol drinking:

- Lower percentages of Asian (22%), Black (29%), and Latino (27%) Boston public high school students engaged in regular physical activity than White high school students (40%). This was also true for Asian (41%), Black (47%), and Latino (46%) adults compared to White adults (64%).
- Higher percentages of White high school students (32%) and White adults (32%) reported binge drinking alcohol than Black high school students (12%) and Black adults (12%), respectively.

Nativity and Infant Deaths

Birth and infant death data provide important measures of the well-being of infants, children, and pregnant women. Several factors including maternal health, infant birth weight, socioeconomic conditions, racism, and access to medical care, play a role in the birth of healthy infants and having infants survive to their first birthday.

Nativity and Infant Deaths data suggest progress or sustained improvement in the areas of maternal smoking during pregnancy and access to adequate prenatal care:

- Self-reported maternal smoking during pregnancy declined by 61.9% between 1995 and 2007 for Boston overall. This decline was evident in Black, Latino and White women.
- The majority of births to Boston women in all racial/ethnic groups had adequate prenatal care.

These data also suggest additional need for improvement in the areas of adolescent births, low birthweight births, preterm births, and infant mortality:

- Boston's adolescent birth rate declined slowly from 1995 to 2005, falling 53.9%; however, Boston's adolescent birth rate increased 12.2% from 2005 to 2007
- From 2005 to 2007, the percentage of low birthweight (LBW) babies to Black women decreased; however, for each year of 1995-2007, Black women have had the highest percentage of LBW babies.
- With the exception of 1997, Black women in Boston had the greatest percentage of preterm births every year between 1995 and 2007.
- Boston infant mortality rates (IMR) have consistently been highest for Black infants and continue to be so despite the 14.4% decrease in IMR from 2006 to 2007. The IMR for Black infants was 11.3 deaths per 1,000 live births. Black infants accounted for 27.0% of all Boston births in 2007, but 48.0% of all infant deaths.

Sexual Health

Sexual health is a critical component of physical and mental well-being. Effective sexual health promotion must include awareness and education for residents of all ages, providing appropriate promotion and prevention services, supporting service providers to play an active role in promotion, and individual and community-level capacity building.

Sexual Health data suggest progress or sustained improvement in the areas of condom usage, and the incidence of HIV and AIDS:

- Approximately 7 out of 10 sexually active public high school students reported using a condom the last time they had sex.
- Approximately one-third of sexually active adults with one partner in the past 12 months reported using a condom while over three-fourths of those with five or more partners in the past 12 months reported using a condom at last sexual intercourse.
- Between 1995 and 2006, the HIV incidence rate for all racial/ethnic groups declined. The rate for Blacks declined by 47.5%, for Latinos by 31.7% and Whites by 25.0%.
- Between 1995 and 2006, the AIDS incidence rate for all racial/ethnic groups declined. The rate for Whites declined by 73.3%, for Blacks by 60.9% and for Latinos by 51.6%.

These data also suggest additional need for improvement in the areas of chlamydia, gonorrhea, and syphilis infection:

- The rate of new chlamydia cases among Boston residents in 2007 was 66% higher than in 1999.
- For every year between 1999 and 2007, Black Boston residents had a far higher rate of new cases of chlamydia, gonorrhea and HIV, compared to White and Latino residents.

Infectious Diseases

Infectious diseases remain a significant threat to public health in the United States. Food-borne illnesses including salmonella, the reemergence of vaccine preventable diseases such as pertussis, and the threat of newly emerging infectious diseases as well as drug-resistant strains of widespread infectious diseases are among the many potential threats.

Infectious Diseases data suggest progress in the area of tuberculosis infection:

- The reported TB incidence rate decreased by 20% from 2006 to 2007.

These data also suggest additional need for improvement in the areas of pertussis and salmonella infection:

- The incidence rate of reported pertussis increased 11.9% from 2006 to 2007.
- Latino Boston residents had the highest incidence of reported pertussis, a rate 1.7 times that of Boston overall.
- The highest incidence rates of reported pertussis among Boston neighborhoods in 2007 were in East Boston and West Roxbury.
- Asian Boston residents had the highest incidence of reported Salmonella infection with 92.6 new cases per 100,000 residents.

Mental Health

Mental health encompasses much more than the absence of mental illness or mental disorders (1). Mental health embodies an individual's psychological capacity to make healthy decisions that promote her or his overall quality of life. People living with poor mental health can often

experience mental and/or emotional pain as well as a diminished ability to make healthy decisions.

Mental Health data suggest additional need for improvement in the area of mental health:

- A lower percentage of Boston high school students reported they had been seriously considering attempting suicide in 2007 (11%) than in 2001 (16%).
- Boston's suicide rate increased 40% from 2005 to 2007, after declining 37% during the previous two years from 2003 to 2005.
- A higher percentage of Black (11%) and Latino (11%) adults compared to White (5%) adults reported experiencing physical symptoms (for example a headache, an upset stomach, tensing of muscles, or a pounding heart) as a result of how they were treated based on their race in 2006.

Substance Abuse

Substance abuse involves the excessive use of alcohol or use of drugs in a non-prescribed manner to achieve an altered physiological state. Alcohol and drugs directly affect the central nervous system of the body. Misuse of alcohol or other drugs over time can lead to physical and/or psychological dependence on these substances.

Substance Abuse data suggest progress or sustained improvement in substance abuse mortality overall:

- The substance abuse mortality age-adjusted rate decreased 6.9% from 2006 to 2007.

These data also suggest additional need for improvement in substance abuse mortality among Latinos:

- In 2007, Latino's had the highest substance abuse mortality rate among all reported racial/ethnic groups. From 1999 to 2007, the Latino rate increased more than 500%. The rate for Blacks and Whites decreased 20.3% and 8.3%, respectively, from 2006 to 2007.

Violence

Violence resulting in physical injuries may involve the use of weapons or no weapons, and can occur in a variety of social contexts such as domestic violence, child and elder abuse, and teen dating violence.

Violence data suggest progress or sustained improvement in resident perceptions about guns in their neighborhoods:

- Fewer than 25% of residents in each Boston neighborhoods reported believing that there were more guns in their neighborhood compared to a year ago.
- The percentage of high school students who reported being threatened or injured with a weapon at school was lower in 2007 (6%) than in 2001 (9%).
- The percentage of adults who reported having experienced physical or sexual violence was lower in 2006 (12%) than in 2001 (22%), 2003 (27%), and 2005 (22%).

These data also suggest additional need for improvement in the areas of teen dating violence, nonfatal assault-related gunshot and stabbing injuries, and homicides:

- Approximately one in eleven public high school students reported being physically hurt by a date or someone with whom they were going out in 2007.

- A higher percentage of Mattapan (36%), North Dorchester (37%), Roxbury (29%), and South Dorchester (19%) residents than residents of Boston overall (13%) reported gunshots and shootings as being a big problem. These neighborhoods had the highest rates of nonfatal assault-related gunshot and stabbing injuries and homicides among all Boston neighborhoods.
- The homicide rate for Black Boston residents exceeded that of other racial/ethnic groups for every year from 1999 to 2007. During this nine-year period, more than two-thirds of Boston resident homicides were Black residents.
- The rate for nonfatal assault-related gunshot and stabbing victims was highest for Boston's Black residents in each year from 2000-2007. The 2007 rate for Black residents was the highest of the 8-year period, 11 times the rate for Whites and 2.6 times the rate for Boston overall.

Chronic Diseases

Asthma, high blood pressure, cardiovascular disease, and diabetes are common chronic diseases that affect the lives of many Boston residents. Chronic diseases can lead to significant disability, a reduction in the quality of life, and ultimately, death.

Chronic Diseases data suggest additional need for improvement in the areas of general physical health and the impact of specific chronic diseases:

- About one in thirteen Boston adults reported poor physical health (physical health not good 15 or more days during the past month) in 2005 and 2006.
- A higher percentage of Black adults reported having asthma and diabetes than White adults in 2005 and 2006.
- In 2007, the asthma hospitalization rate for Boston's Black children under age five was almost three times the rate for Asian children and three and a half times the rate for White children. With the exception of 2002, Black children consistently had the highest asthma hospitalization rate from 1998 through 2007.
- Among racial/ethnic groups, Black Bostonians consistently had the highest diabetes hospitalization rate from 1998 through 2007. Black residents have also consistently had the highest heart disease hospitalization rate from 1998 through 2007.
- The percentages of overweight Latino and Black students were higher than the percentages of overweight Asian and White students.
- In both 2005 and 2006, the percentage of obese adults was higher among Black and Latino females than White females.

Cancer

Cancer is the leading cause of death in Boston, claiming more lives than heart disease, stroke, or injuries.

Cancer data suggest progress or sustained improvement in the areas of cancer screening and colorectal cancer incidence:

- In 2005 and 2006, more than two out of every three women over age 40 in Boston reported having a mammogram in the past year and more than two-thirds of Boston women ages 18 and older reported having a Pap test within the past year.
- The age-adjusted colorectal cancer incidence rate in Boston decreased 26.1% from 70.8 cases per 100,000 population in 1995 to 52.3 cases per 100,000 population in 2005.

These data also suggest the need to address racial/ethnic disparities in cancer mortality:

- In 2007, the age-adjusted cancer mortality rate was highest for Blacks and Whites, 276.3 and 183.4 deaths per 100,000 population, respectively.
- From 1995-2005, Boston Black men had a statistically higher rate of prostate cancer incidence than the other racial/ethnic groups.
- Lung cancer was the leading cause of cancer mortality each year from 2005 to 2007. Boston Latinos consistently had the lowest age-adjusted lung cancer rate from 1995 to 2005, while Boston Whites consistently had the highest.

Mortality

Death is a consequence of the human condition – mortality. However, the timing of one's death is most often related to health factors such as disease and injury. Because death often results from disease and injury, mortality data help to describe the impact of disease on society.

Mortality data suggest progress or sustained improvement in the area of overall mortality, mortality from specific causes and among certain racial/ethnic groups:

- In 2007, the overall age-adjusted mortality rate for Boston residents was 15.3% lower than the rate in 2000.
- Cancer remained Boston's leading cause of death in 2007, followed by heart disease, injuries, stroke, and substance abuse. From 2006 to 2007, the rates of death from all of these causes decreased.
- With the exception of cancer mortality, age-adjusted mortality rates for each leading cause of death decreased for the Asian population from 2006 to 2007.
- From 2006 to 2007, the cancer and heart disease mortality rates for Latinos decreased 18.2% and 34.6%, respectively.
- Between 2002 and 2007, age-adjusted mortality rates for White Boston residents declined 27.6% for heart disease, and 20.4% for cancer.

These data also suggest the need to address racial/ethnic disparities in mortality:

- Estimated life expectancy is highest for Boston's Latino residents followed by Boston's White residents. Black Boston residents have a lower life expectancy than Boston residents overall.
- The age-adjusted cancer mortality rate increased 10.4% and the age-adjusted heart disease mortality increased 16% for Black residents from 2006 to 2007.

The entire Health of Boston 2009 report and additional data can be found on the Boston Public Health Commission's website at www.bphc.org/hob.

NOTE TO READERS

What are the Healthy People 2010 Targets?

Healthy People 2010 is the name of the U.S. government's national health goals and objectives initiative. Beginning with the year 2000, every ten years specific disease prevention and health promotion objectives are developed based on baseline data. The two main goals of this program are: 1) to increase life expectancy and improve quality of health, and, 2) to eliminate health disparities among different population groups. Approximately 467 health objectives are described within 28 categories that cover a wide range of health topics (1).

The Healthy People 2010 objectives were developed by scientists from within and outside the government, and ten health topics were selected as the primary benchmarks of the program (2). These ten Leading Health Indicators include objectives related to physical activity, overweight and obesity, tobacco use, substance abuse, responsible sexual behavior, mental health, injury and violence, environmental quality, immunization, and access to health care.

Several Healthy People 2010 objectives are found throughout this report where a comparable data measure was reported for the city of Boston. For more information on Healthy People 2010, and the development of Healthy People 2020 objectives for the next decade, please visit www.healthypeople.gov.

How do we determine if one percentage (point estimate) is higher or lower than another?

To determine whether two percentages or point estimates are different from one another, one cannot look only at the percentages themselves. One must determine whether the differences between two percentages are “statistically significant.” Statistical significance is a mathematical term used to describe the likelihood that a particular number or rate reflects reality. This term comes into play when researchers measure a particular characteristic of a sample or subset of a group or population, and then apply or infer that result to describe the entire group or population.

In this report one of the data sources cited is a survey called the Boston Behavioral Risk Factor Surveillance Survey (BBRFSS). This is a telephone-based survey in which a number of Boston residents were asked to respond to a series of questions. The entire population of Boston was not called to participate in this survey, as this would not have been feasible or cost-effective. The survey data were collected among a random sample of adults within a random sample of Boston households. The resulting data were applied to represent the entire adult population for the city of Boston and are described as percentage or point estimate. These numeric values are further described by a numeric range called a confidence interval. The confidence interval describes the likelihood that the true percentage estimate falls within the range of values given, and thus describes the error around the percentage estimate. To compare two percentage estimates and determine whether one is higher or lower than the other, one must look not only at the individual percentages but the associated confidence intervals.

For example, in the Chronic Disease section of this report there is a measure of self-reported asthma by Boston neighborhood from the BBRFSS (Figure 14.9). The percentage of Boston residents overall reporting asthma was 10%, while for North Dorchester the percentage was

17%. The confidence interval for Boston was 9.3%-11.6%, and for North Dorchester was 11.4%-23.0%. Although the percentage estimates are numerically different (Boston 10%, North Dorchester 17%), the overlapping confidence intervals indicate that these percentages are statistically similar.

Throughout this report, confidence intervals were calculated for all survey data including data from the Boston Behavioral Risk Factor Surveillance System (BBRFSS), Youth Behavioral Risk Surveillance (YRBS), and Boston Neighborhood Survey (BNS). To determine whether a percentage was higher or lower than another percentage, the confidence intervals were calculated and compared. If the confidence intervals did not overlap, the two percentage estimates were reported as different (one was “higher” or “lower” than the another). If the confidence intervals overlapped, the percentage estimates were reported as similar to one another and no further comparison was made.

What do the terms “insufficient sample size” and “ $n < 5$ ” mean?

In this report the phrase *insufficient sample size* is sometimes used in the Notes, Data Analysis, and Data Resources section to describe data points that are not presented. This particularly occurs when survey data are stratified by population groups and as a result, there is not a large enough sample (number of survey respondents or recorded health events) to allow the presentation of reliable rates. Data are also not presented if a sample size is too low to protect the confidentiality of the respondents.

In addition a notation $n < 5$ is used when there are fewer than five occurrences (for example, births, deaths, new cases of a disease) and thus a rate cannot be presented. There are some instances where combining several years of data can overcome the issue of a sample size that is too small, and therefore allow reporting of those data.

Why do we sometimes combine several years of data?

In certain instances, when there were fewer than five cases or an insufficient sample size in a given year, we combined data from two or more years in order to permit the calculation and presentation of a rate or point estimate. In this report, the title of a chart indicates whether two or more years of data have been combined.

How do we define neighborhood boundaries in this report?

Throughout this report, certain data are presented for individual neighborhoods on a map or bar charts. Prior to presenting data for individual neighborhoods, one must first decide how to define neighborhood boundaries. Zip codes or census tracts can be used to define the geographical boundaries of a neighborhood. These are not the only methods to define neighborhood boundaries. However, zip code and census tract information is often collected along with Boston health outcome data. Therefore, when presenting these data in this report, neighborhood boundaries are defined by either zip codes or census tracts. The majority of bar charts and maps in the report use zip code boundaries to define Boston neighborhoods. The only exceptions are charts and maps that present birth and death data. Census tracts are used to define neighborhoods when presenting birth and death data by neighborhood. Information on the boundaries used to identify neighborhoods can be found in the to the Notes, Data Analysis, and Data Sources section.

Why are some of the data older than other data?

For every section in this report, we tried our best to provide the most recent data available. You will note that some data such as the cancer incidence data from 2005 are older while others are more recent. The data come from various sources. The type of data, the frequency of data collection, the post-collection cleaning and verification process, and resources available to manage and analyze the data play a role determining when data are available.

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INTRODUCTION TO BOSTON NEIGHBORHOODS

Allston/Brighton

Allston/Brighton was first a part of Watertown and then a section of Cambridge. In 1807, the neighborhood ceded from Cambridge and took the name Brighton. The Allston section was created in 1868 when a new post office branch was named for Washington Allston, a local painter. Through most of the 19th century, Allston/Brighton was an industrial area which served as the cattle and slaughtering center of New England. Lack of adequate healthy disposal practices and resulting odors limited residential development.

In 1869, the Massachusetts Board of Health, concerned by the town's extremely high mortality rate demanded stricter regulations and urged officials to develop a single, shared slaughter facility with modern sanitation systems. The land, which was freed up when the smaller slaughterhouses closed, was quickly developed for housing. In 1873, Allston/Brighton was annexed to Boston.



Allston/Brighton is one of Boston's largest neighborhoods, with a population of 69,648 in the year 2000. It has a large college student presence drawn by its proximity to several major universities including Boston College, Boston University, and Harvard University. According to the 2000 census, almost one-third (29.8%) of the neighborhood's population was age 18 to 24, and 3,720 persons lived in group quarters, primarily college dorms.

Between 1990 and 2000, the number of Asian residents increased by 2,240 while the number of Black and White residents decreased by 1,540 and 3,560, respectively. In 2000, 68.7% of the population was White, 13.8% was Asian/Pacific Islander, 9.1% was Latino, and 4.5% was Black.

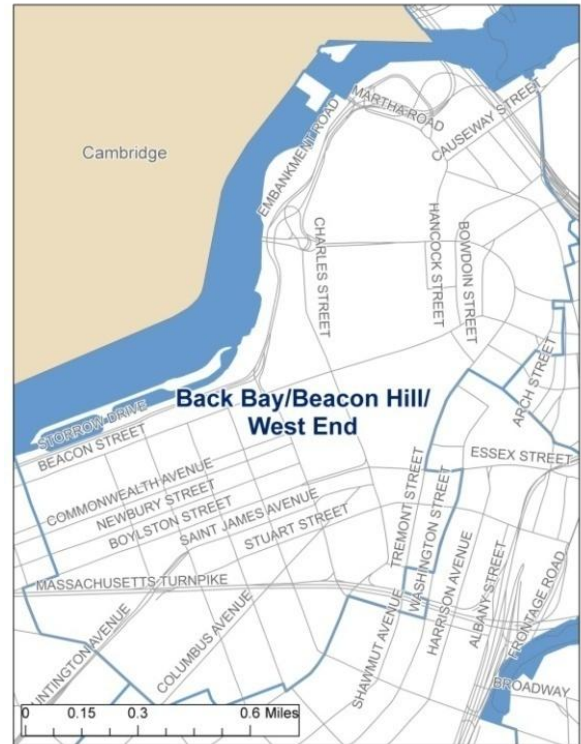
Just over one-third (36.3%) of Allston/Brighton residents speak a language other than English at home. Other than English, the primary languages spoken at home are Spanish (by 8.5% of the population), Chinese (7.6%), Russian (5.3%), and Portuguese/Portuguese Creole (3.1%).

About two-thirds (68.4%) of residents were born in the United States, including 0.9% who were born in Puerto Rico. Other countries in which residents were born include China (5.5%), Brazil (2.7%), Russia (2.3%), Ireland (2.0%), Ukraine (1.7%), and El Salvador (1.0%).

The Back Bay/Beacon Hill/The West End

The Back Bay/Beacon Hill/The West End area, known as Shawmut by Native Americans, was a narrow peninsula distinguished by a three-peaked hill called Trimount. In 1803, to accommodate a growing need for land, Trimount was reduced in height and its land used as fill to expand the North End and other areas of Boston. The Massachusetts Bay Company, a group of Puritan businessmen, arrived in 1830 and renamed the area Boston. In the last half of the 1800s, the tidewater flats of the Charles River were filled in to create the Back Bay. The neighborhood's famous brownstones sit on pilings sunk into former marshland.

In the nineteenth century, the north slope of Beacon Hill was the center of the African American community in Boston. The African Meeting House, built in 1808, is the nation's oldest African-American Church and oldest African Meeting House still standing. Denied access to Boston public schools, Black parents established a school which met in a private home and then at the African Meeting House. In 1834, William Lloyd Garrison established the "Antislavery Society" at the meetinghouse.



In 1959, the West End was a working class neighborhood with approximately 2,700 families and a population of 7,500. In the name of urban renewal, and despite opposition by West End residents, the neighborhood was leveled to make way for the construction of five luxury high-rise apartment buildings. The destruction, chronicled by Herbert Gans in "The Urban Villager," brought about recognition of the need for community input into development projects and the need for community activism.

The total population in the Back Bay/Beacon Hill/West End neighborhoods in 2000 was 36,235, an increase of 1.5% from 1990. Relatively minor changes occurred in the racial/ethnic composition of the neighborhood between 1990 and 2000. The percentages of both White and Black residents decreased slightly from 86.2% to 80.9% for Whites, and from 3.6% to 3.4% for Blacks. At the same time, the percentage of Asian residents increased from 6.1% to 8.8% and the percentage of Latino residents increased from 4.0% to 4.7%.

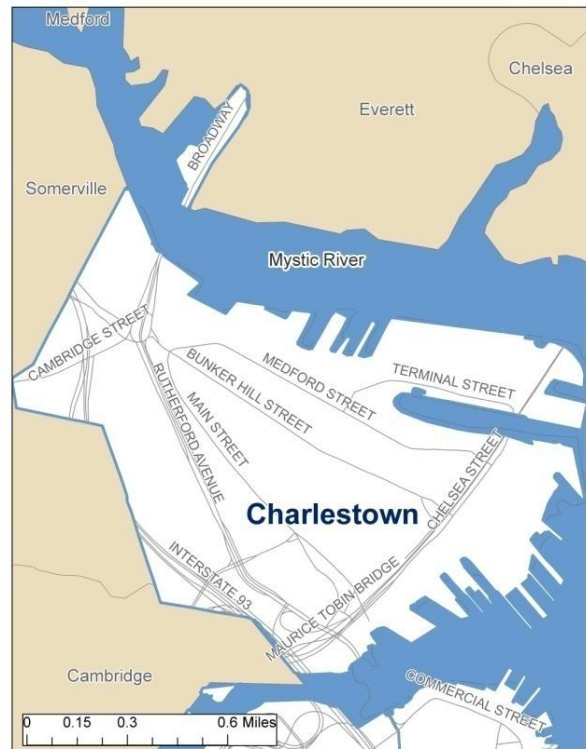
English is spoken at home by 79.4% of the residents. Other than English, the primary languages spoken at home are Spanish, by 4.3% of the population, Chinese by 2.5% of the population, and French by 2.3% of the population.

Most residents (83.4%) were born in the United States (including 0.4% who were born in Puerto Rico); 15.2% were born in another country, the largest numbers of these being from China (1.3%), The United Kingdom (1.0%), Japan (1.0%), and Korea (1.0%).

Charlestown

Charlestown was settled in 1629 (one year before Boston) and became a city in 1847. In 1874, the City of Charlestown was annexed to Boston. Two of the most visited sites on Boston's Freedom Trail are in Charlestown – the Bunker Hill Monument and the U.S.S. Constitution. The Bunker Hill Monument commemorates one of the bloodiest and most destructive battles of the 1775 Revolutionary War. In this battle, Charlestown was burned to the ground. Although the battle was won by the British, the destruction served to rally the Colonists to support the Revolutionary War.

The U.S. Navy's oldest commissioned ship, the U.S.S. Constitution, is docked in the Charlestown Navy Yard. Charlestown's history and economic development were strongly influenced by the presence of the Navy Yard, which operated between 1801 and 1973. During World War II, 47,000 workers were employed at the Navy Yard.



The Ursuline Convent Riots took place in 1834 in a climate of anti-Catholicism. A group of men stirred up by inflammatory newspaper reports and sermons by local ministers, broke into the Ursuline Convent, destroyed icons and books, and finally, burned the convent to the ground.

Charlestown's total population in 2000 was 15,195, an increase of 3.2% from 1990. Though Charlestown remains a predominately White neighborhood, the increases in its Latino, Asian, and Black populations are significant. The percentage of White residents declined from 94.6% to 78.6% between 1990 and 2000, a decrease of 1,981 residents. Corresponding increases occurred in the Latino, Asian, and Black populations. These three groups combined were 4.9% of the population in 1990; in 2000, Latinos comprised 11.6%, Asians 5.0%, and Blacks 3.5% of the Charlestown population.

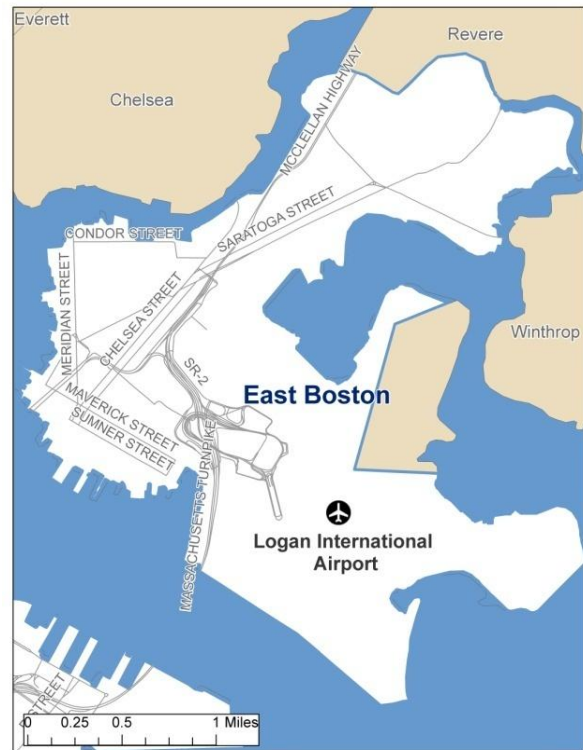
Most residents (81.5%) speak English at home; other primary languages are Spanish and Chinese, spoken by 9.8% and 3.1% of residents, respectively.

Most residents (84.7%) were born in the United States (including 1.4% who were born in Puerto Rico); 13.9% were born in another country, the largest numbers of these being from the Dominican Republic (4.2%) and China (2.4%).

East Boston

East Boston was created when five Boston Harbor Islands were expanded and connected. The project began in 1830 and took 150 years to complete. The two larger islands, Noodles and Hog Islands, now form the residential section of the neighborhood. Logan Airport, which takes up over half of the neighborhood's 2.5 miles, sits on Apple, Bird, and Governor's Islands.

Throughout its history, East Boston has served as home to various groups of immigrants. The Irish were the first group to settle in East Boston, followed by Russian Jews and Italians in the late 1800s. At the turn of the 20th century, East Boston was home to the largest Jewish community in New England. The neighborhood was predominately Italian for most of the 20th century and is now home to many immigrants from South and Central America, Asia, and the Caribbean.



Of all Boston neighborhoods, East Boston has the highest percentage of recent immigrants; the 2000 census reported that fifteen percent of East Boston residents lived outside the United States in 1995. Between 1990 and 2000, the number of Latino residents increased by over 10,000, a 160.0% increase. In 2000, Latinos comprised 39.0% of the neighborhood, compared with 17.6% in 1990. East Boston is now home to the largest Latino community in Boston.

Over half (55.0%) of East Boston residents speak a language other than English at home. Spanish is the primary language spoken by 37.3% of residents, while 5.9% speak Italian, 4.6% speak Portuguese/Portuguese Creole, and 2.3% speak Vietnamese.

Just over half (56.4%) of East Boston residents were born in the United States, including 1.9% who were born in Puerto Rico. East Boston residents have emigrated from many countries, including El Salvador (12.4%), Colombia (7.6%), Brazil (3.8%), Italy (2.6%), Vietnam (2.1%), Mexico (1.9%), Guatemala (1.6%), Peru (1.5%), and the Dominican Republic (1.3%).

Fenway/Kenmore

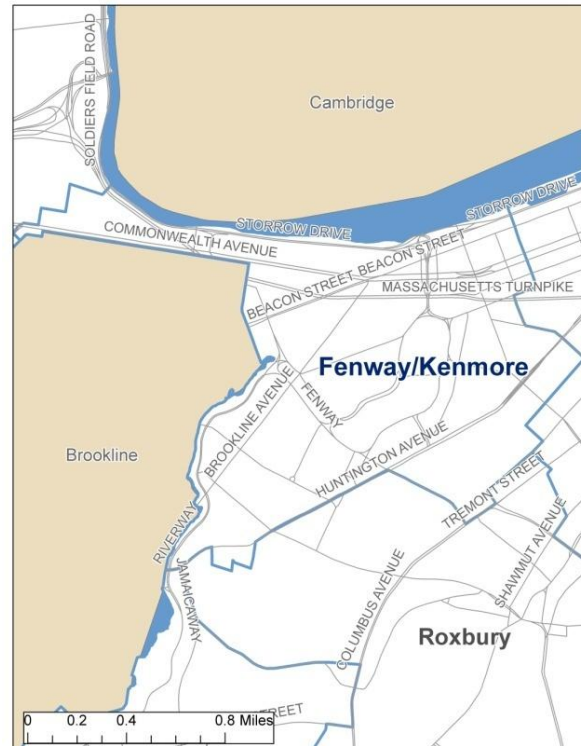
The Fenway/Kenmore neighborhood was annexed to Boston in 1870 and was expanded in the same landfill project that created the Back Bay. The number of cultural institutions located in the Fenway/Kenmore area (including Boston Symphony Hall, the Museum of Fine Arts, and the Isabella Stewart Gardner Museum) prompted the city to dub the neighborhood's Huntington Avenue the "Avenue of the Arts."

The Longwood area includes many of the nation's leading medical institutions including Harvard Medical School, Brigham and Women's Hospital, the Beth Israel/Deaconess Medical Center, Children's Hospital, Dana Farber Cancer Institute, and Joslin Diabetes Center. The home of the Boston Red Sox, Fenway Park, is also located in the neighborhood.

Between 1990 and 2000, the Fenway/Kenmore experienced a population increase of 9.1%. A total of 29,823 individuals lived in the neighborhood in 2000, compared with 27,333 in 1990. The largest increase was seen in the Asian population, which rose by 64.9%. In 1990, Asians made up 7.9% of the population, compared with 12.0% in 2000. Increases were also noted in the Latino and White populations, which increased by 16.1% and 4.6%, respectively. Although the actual number of White residents increased, their percentage share in the neighborhood decreased from 70.3% to 67.4%. The number of Black residents decreased by 24.9% during the 1990s; their percentage share in the neighborhood also decreased from 12.2% to 8.4%.

English is the language spoken at home by 72.2% of residents followed by Spanish (7.8%), Chinese (3.0%), and Russian (2.0%).

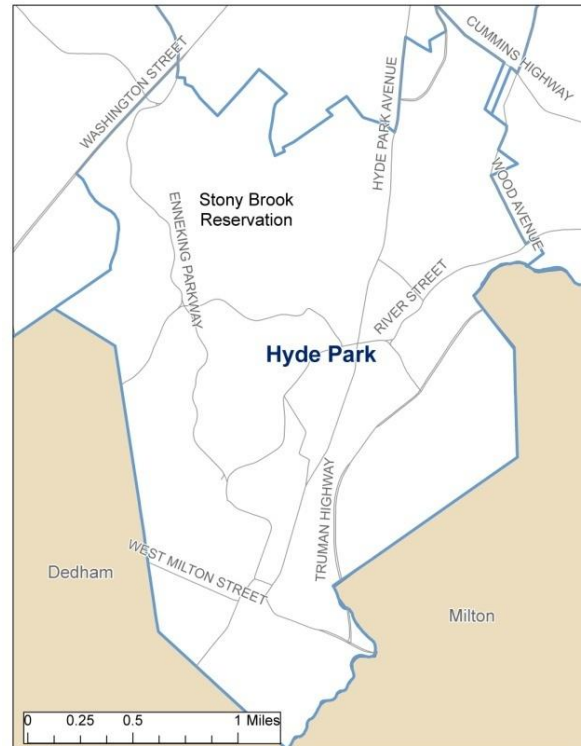
About three-fourths (76.9%) of Fenway/Kenmore residents were born in the United States, including 0.4% who were born in Puerto Rico. Other countries in which residents were born include China (1.3%), Japan (1.7%), Korea (1.3%), Russia (1.0%), and India (1.0%).



Hyde Park

Hyde Park was known as “Tist” by the area’s Wampanoag Indians. It was incorporated as a town in 1868 and in 1912, became the last neighborhood to be annexed to Boston.

The neighborhood has a large amount of open space, including the George Wright Golf Course and the 450-acre Stony Brook Reservation. In the 1800s, several prominent civil right activists, abolitionists and suffragists, including Sarah and Angelina Grimke and William Trotter Monroe, called this neighborhood home. The 54th Regiment, the renowned Black Civil War regiment trained at Camp Meigs in the Readville section of Hyde Park and the city’s mayor, Thomas Menino, is a longtime resident of Readville as well. Camp Meigs became the site of the Readville Trotting Park, which raced horses and then cars from 1895 through 1937.



Although the total number of residents remained almost the same, Hyde Park experienced a significant shift in racial/ethnic composition during the 1990s. The total population in 2000 was 34,420, just 1,776 fewer than in 1990. The number of White residents decreased by 8,699, while the number of both Black and Latino residents increased by 6,195 and 2,949, respectively. Between 1990 and 2000, the percentage of White residents in Hyde Park decreased from 70.9% to 42.0%, while the percentage of Black residents rose from 22.3% to 39.2% and the percentage of Latino residents increased from 5.2% to 13.5%.

About two-thirds (65.4%) of residents speak English at home; 12.8% speak Spanish, 12.7% speak French Creole (including Haitian Creole), and 2.2% speak French.

About three-fourths (73.6%) were born in the United States, including 2.5% who were born in Puerto Rico. Other countries in which Hyde Park residents were born include Haiti (10.4%), Jamaica (1.7%), the Dominican Republic (1.6%), Nigeria (1.1%), and Trinidad/Tobago (1.0%).

Jamaica Plain

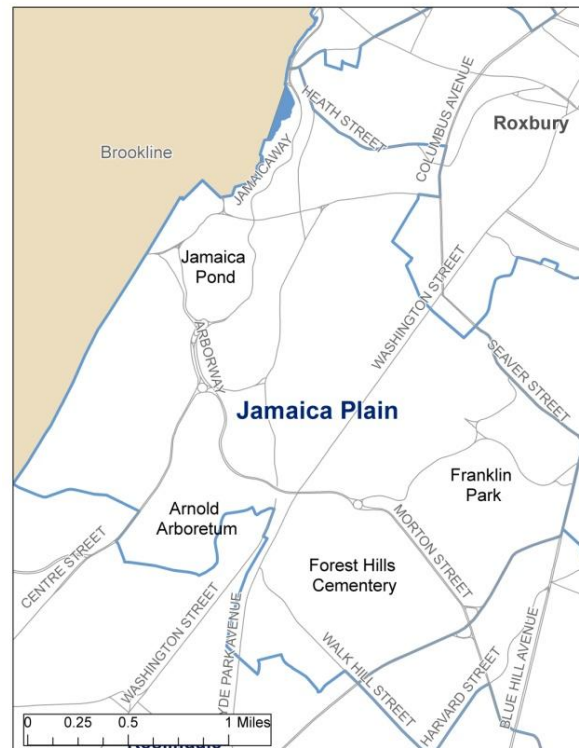
Jamaica Plain, originally part of the Town of Roxbury, was annexed to Boston in 1874. In the mid-19th century, 24 breweries were built along the Stony Brook that ran along the Jamaica Plain/Roxbury line. Drawn to the work at these breweries, German immigrants settled around Hyde Square. The availability of work in area factories also brought Irish immigrants to the neighborhood.

Jamaica Plain has much planned green space. In 1848, the beautiful Forest Hills Cemetery opened, with graves and monuments integrated into the natural landscape. Jamaica Pond and the Arnold Arboretum were incorporated into Boston's Emerald Necklace, Frederick Law Olmstead's renowned linked series of parklands. Today, the neighborhood is a diverse one, with large Latino and gay and lesbian communities.

The population in Jamaica Plain decreased in size between 1990 and 2000. The total population in 2000 was 29,482, a decrease of 2,550, or 8.0%, from 1990. All populations decreased during this time. The White population decreased by 10.3%; the Black and Latino population decreased by 9.5% and 9.0% respectively. The decrease among the Asian population was 5.3%. The racial/ethnic composition of the neighborhood showed little change between 1990 and 2000. In 2000, the White population made up 51.1% of the population compared with 52.4% in 1990. Similarly, the Latino and Black population made up 29.1% and 14.7% of the population, respectively, compared with 29.4% and 14.9% in 1990. The Asian population made up 2.7% of the population in 1990 and 2000.

The primary languages spoken at home by Jamaica Plain residents are English (spoken by 63.1% of residents) and Spanish (spoken by 27.8% of residents).

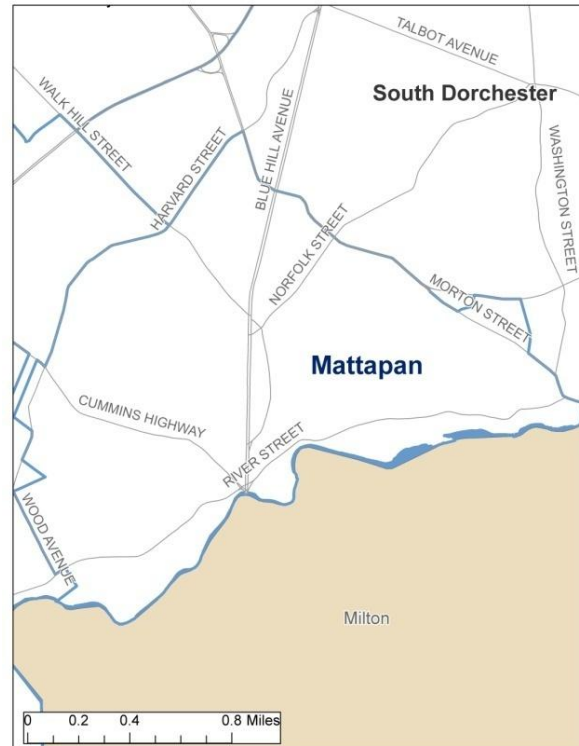
About three-fourths (74.4%) of Jamaica Plain residents were born in the United States, including 4.8% who were born in Puerto Rico. Other countries in which residents were born include the Dominican Republic (7.2%) and China (1.1%).



Mattapan

Mattapan, originally a section of Dorchester, was annexed to Boston in 1870. Mattapan is the original Mattahunt tribe's name for the area.

At the turn of the 20th century, the neighborhood became home to Irish and Jewish immigrant groups. From the 1920s through the 1950s, Blue Hill Avenue was the center of Boston's Jewish community. In the 1960s, a controversial program of redlining by the banking consortium, Boston Banks Urban Renewal Group, caused Mattapan to change from a predominately Jewish to a predominately Black neighborhood. To encourage home ownership, "low interest, no-money-down mortgages" were offered to Black home buyers, in the "redlined" area along Blue Hill Avenue while scare tactics were used to create panic selling among Jewish homeowners.



Over the last two decades, Mattapan has become home to many Haitian immigrants seeking to escape the turmoil in their home country. The neighborhood now has the largest Haitian community in Massachusetts.

Mattapan's population in 2000 was 19,724 residents, an increase of just 0.7% from 1990. During this time, the Latino population increased while the Black and the White populations decreased. The number of Latino residents increased by 640, or 80.6%, the number of White residents decreased by 566, or 54.9%, and the number of Black residents decreased by 1,114, or 6.4%. As a result, the percentage of Black residents dropped from 89.2% to 82.9% as the Latino resident population rose from 4.1% to 7.3%.

English is the language spoken at home by 69.2% of Mattapan residents; 17.8% speak French Creole (including Haitian Creole), 6.6% speak Spanish, and 3.6% speak French.

About two-thirds (65.2%) of Mattapan residents were born in the United States, including 0.9% who were born in Puerto Rico. Other countries in which Mattapan residents were born include Haiti (15.1%), Jamaica (6.8%), Barbados (1.8%), the Dominican Republic (1.8%), Trinidad (1.6%), and Sierra Leone (1.1%).

North Dorchester

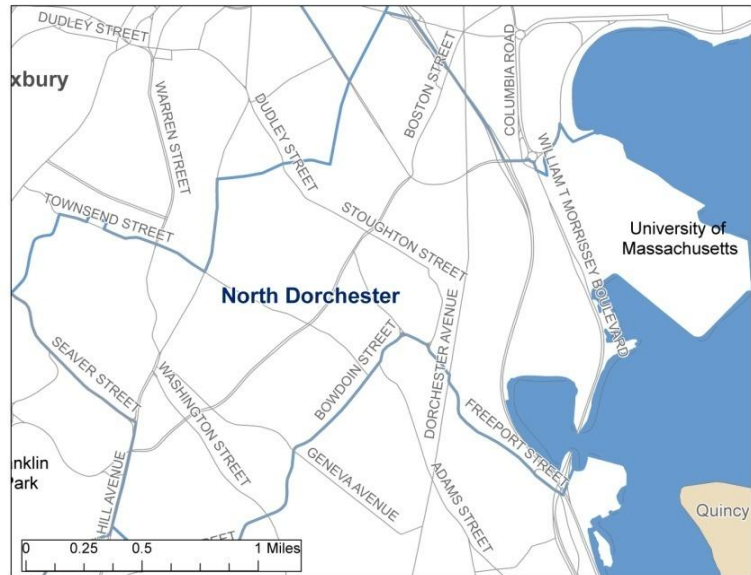
Dorchester was known as Mattapan by the Wampanoag Indians; the Puritans named the area Dorchester after the English town from which they immigrated. Dorchester was annexed by Boston in 1870.

North Dorchester includes Edward Everett Square and Uphams Corner, where the Puritans' first settlement was established. Boston's oldest home, the James Blake House (built in 1648) and one of the country's oldest cemeteries, the Old Burial Ground (established in 1634) are located in this area.

The John F. Kennedy Library, the University of Massachusetts/Boston, and the Massachusetts Archives and Historical Museum are located in North Dorchester's Harbor Point (formerly known as Columbia Point). Malibu Beach is also located in North Dorchester.

The total population in North Dorchester in 2000 was 83,212, a 7.6% increase when compared with 1990. A total of 36,026 Black residents lived in North Dorchester in 2000, nearly the same as in 1990. However, because the total neighborhood population increased, the Black population's percentage share decreased from 46.6% in 1990 to 43.3% in 2000. The White population declined by 7,997, or 34.4%, between 1990 and 2000. In 1990, White residents made up 30.0% of the population compared with 18.3% in 2000. In 1990, the 3,011 Asian residents made up 3.9% of the total population; in 2000, the 4,549 Asian residents made up 9.1% of the population. The Latino population grew by 3,032 (a 27.9% increase); in 2000, Latinos represented 16.7% of North Dorchester.

English is the language spoken at home by 57.4% of North Dorchester residents, followed by Spanish (16.0%), Portuguese/Portuguese Creole (7.4%), Vietnamese (7.0%), and French Creole, which includes Haitian Creole (6.3%). About three-fourths (72.8%) of North Dorchester residents were born in the United States, including 1.3% who were born in Puerto Rico. Other countries in which residents were born include Vietnam (5.9%), Haiti (3.0%), the Dominican Republic (2.9%), Jamaica (2.1%), and Trinidad/Tobago (1.8%).



The North End

The North End is known as Boston's first neighborhood. By the 1750s, it had a thriving commercial base, a busy seaport, and large estates for its wealthy merchants. Puritan Pastors, Increase and Cotton Mather ministered at North Church, which was then located in the North End. Paul Revere, known for his 1775 ride to warn of the approach of British soldiers, was born in the North End and also named Boston's first health officer in 1799.

After the Revolutionary War, the shipping industry propelled growth in wharves, business establishments, and warehouses. Among the new structures was Quincy Marketplace and in 1830, Mill Pond was filled in to accommodate the North End's growth.

The number of Irish immigrants settling in the North End increased dramatically in the 1840s as the Famine Irish arrived. Most were desperately poor and served as servants and laborers on Boston's landfill projects. Around 1870, the Irish began moving to South Boston, and Eastern European Jews began to settle in the North End. At the turn of the century, there were five synagogues and two Jewish Schools in the neighborhood. By the 1920s, many Jews had moved to other Boston neighborhoods, and Italian immigrants became the largest immigrant group in the North End. The 1930 census reported that 44,000 residents of Italian descent lived in the North End. Though the population has decreased, the Italian influence continues in the neighborhood's wealth of Italian restaurants, stores, and social clubs.

There was little change in either the total population or the racial/ethnic composition of the North End during the 1990s. In 2000, the total population was 12,114, almost identical to 1990, when it was 12,152. The North End continues to be predominately White; in 1990, 94.6% of the residents were White compared with 91.3% in 2000. The percentage of Latino residents declined slightly, from 3.1% in 1990 to 2.9% in 2000. During this time, the percentage of Black residents rose from 0.8% to 1.8%, and the percentage of Asian residents increased from 1.2% to 2.4%.

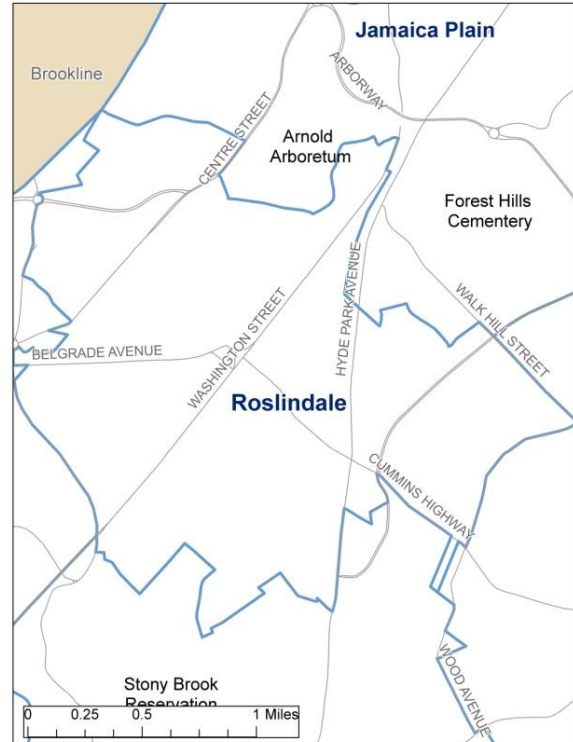
Most North End residents (81.5%) speak English as their primary language, followed by Italian (8.0%), and Spanish (3.1 %). Most residents (86.8%) were born in the United States, including 0.4% who were born in Puerto Rico; 3.2% of North End residents were born in Italy.



Roslindale

Roslindale was originally part of the City of Roxbury and was called South Street Crossing. The establishment of a post office branch in 1870 precipitated the name change when the Postal Service rejected the name South Street Crossing. Officials decided to name the area after Roslyn, a town in Scotland; “dale” was added as the area was surrounded by hills. The neighborhood was annexed to the City of Boston with West Roxbury in 1873.

For most of the 20th century, Roslindale Square was a thriving business district. The 1970s brought competition from suburban malls, which forced businesses to close, stores to remain vacant, and the Square to be devoid of shoppers. An active local revitalization effort that began in the 1980s earned Roslindale Square a “Main Street” award from the National Trust for Historic Preservation. It is known nationally as a model of neighborhood economic revitalization.



The total population in Roslindale in 2000 was 35,047, an increase of 5.6% from 1990. A significant shift in the racial composition occurred during the decade. The White population decreased by 20.8%, while the Black and Latino populations increased by 109.7% and 73.5%, respectively. In 2000, Black residents comprised 12.8% of the neighborhood compared with 6.5% in 1990, and Latinos comprised 18.4% compared with 11.2% in 1990. The Asian population also increased from 2.7% of the population to 3.8%.

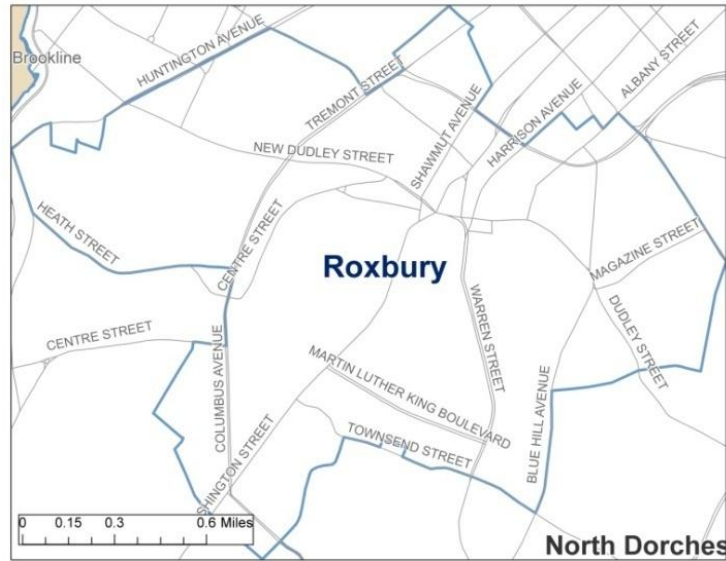
English is the language spoken at home by 63.5% of Roslindale residents; 17.0% speak Spanish, 4.5% speak French Creole (which includes Haitian Creole), and 3.0% speak Greek.

About three-fourths (73.3%) of Roslindale residents were born in the United States, including 2.5% who were born in Puerto Rico. Other countries in which residents were born include Haiti (3.5%), the Dominican Republic (2.5%), Greece (1.7%), and China (1.5%).

Roxbury

When founded in 1630, Roxbury was a large independent community that included what are now Mission Hill, West Roxbury, Roslindale, and Jamaica Plain. The many outcroppings of Roxbury puddingstone, led the colonists to call it “Rocksberry” which was later shortened “Roxbury.” It was incorporated as a city in 1846 and was annexed to Boston in 1868.

The neighborhood contains numerous historic buildings and landmarks, including the Dillaway-Thomas House, which was built in 1750 as a parsonage and the Shirley Eustis House, which was built in 1747 as the Royal Governor’s house.



In 1862, Dr. Marie Zakrewska established the New England Hospital for Women and Children as a teaching hospital where female doctors and nurses could study and practice medicine. The nation’s first professionally trained nurse, Linda Richards, graduated from the nursing school in 1873; two years later, the nation’s first African-American professionally trained nurse, Mary Eliza Mahoney, graduated from the school. In 1969, the hospital became the Dimock Community Health Center.

In the 1880s, the 527-acre Franklin Park was designed by Frederick Law Olmsted as the “largest and final jewel” in Boston’s Emerald Necklace. English, Irish, and German immigrants were the first Europeans to settle in Roxbury. In the early 1900s, a large Jewish community lived in the Grove Hall area along Blue Hill Avenue. The movement of Blacks from Beacon Hill to the South End and then to Roxbury and the large migration of Blacks from the South to Northern cities after World War II established Roxbury as the center of the Black community in Boston.

The total population in Roxbury in 2000 was 50,349, a 6.5% decrease from 1990. During this time, the Black population decreased while the Latino and Asian populations grew in size. The Black population decreased by 7,608 or 22.5%. The Latino population grew by 1,012 (a 10.1% increase); the Asian population increased by 743 or 44.7%. Roxbury is now home to the second largest Latino population in the city. The Latino population, which made up 18.7% of the neighborhood in 1990, increased to 22.0% in 2000. During this time, the Black population decreased from 62.8% of the population to 52.0%.

English is the language spoken at home by 64.8% of residents; 20.3% speak Spanish, 3.0% speak French Creole (which includes Haitian Creole), and 2.6% speak Chinese. About three-fourths (71.4%) of Roxbury residents were born in the United States, including 5.8% who were born in Puerto Rico. Other countries in which residents were born include the Dominican Republic (4.3%), China (1.9%), and Jamaica (1.0%).

South Boston

South Boston was known as “Mattapanock” by Native Americans and then as “Dorchester Neck” by the colonists. Annexed in 1804, it was one of Boston’s first neighborhoods. On March 17, 1776 at Dorchester Heights in South Boston, George Washington and his troops drove the British out of Boston. Evacuation Day, a legal holiday in the City of Boston, commemorates this event.

During the mid-1800s, the neighborhood was a major industrial center with foundries, machine shops, shipyards, and refineries. The neighborhood’s industrial growth led to an influx of Irish and other immigrants in the middle and late 1800s. The neighborhood continues to serve as the center of Boston’s Irish community, hosting annual events such as the St. Patrick Day’s Parade.

Through the 20th century, the neighborhood’s connection to Boston’s maritime economy, shipyard, and railroad jobs provided work for South Boston residents. In addition to shipyards and other waterfront industries, the neighborhood has miles of beaches and waterfront parks. In 1905, a Frederick Law Olmstead-designed motorway that runs the length of the beaches was completed – originally called the Strandway, it is now William J. Day Boulevard.

In the 1970s, the neighborhood received national attention for its violent opposition to school desegregation. It received national attention again in the 1990s when gay and lesbian groups were banned from marching in the Saint Patrick Day parade. In 1997, the United States Supreme Court supported this ban when it ruled that the Allied War Veterans, the parade organizers, had a right to determine who could participate.

The total population in South Boston in 2000 was 29,938, an increase of only 1.7% from 1990. Although still a predominantly White neighborhood, the percentage of White residents in the neighborhood decreased from 95.5% in 1990 to 84.5% in 2000. A notable increase occurred within the Latino population, from 1.5% of the population in 1990 to 7.5% in 2000. During this time, smaller increases occurred in the size of South Boston’s Asian and Black populations. The Asian population increased from 1.8% to 2.9%, and Black population increased from 0.9% to 2.5%.

English is the language spoken at home by 83.2% of residents; 7.3% speak Spanish and 2.6% speak Chinese. About two-thirds (69.1%) of South Boston residents were born in the United States, including 4.2% who were born in Puerto Rico. Other countries in which South Boston residents were born include the Dominican Republic (3.0%), China (1.8%), and Ireland (1.5%).



South Dorchester

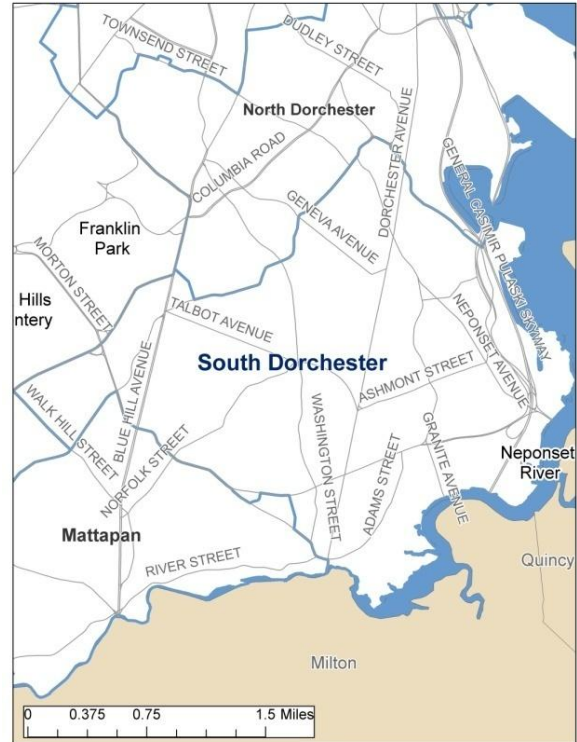
Dorchester was named after the town of Dorchester in England, from which Puritans emigrated. The Wampanoag Indians had called the area Mattapan. Dorchester was annexed to Boston in 1870.

Many historic sites are located in South Dorchester. The Walter Baker Chocolate Mill was established in Lower Mills in 1765. Over the last 20 years, the mill has been converted to apartments and condominiums. The Pierce House, built in 1683, is Boston's second oldest home. William J. Devine Golf Course at Franklin Park, laid out in 1892, is the country's oldest public golf course.

The total population in South Dorchester in 2000 was 45,291, a 3.7% increase when compared with 1990. The White population decreased by 6,794, or 31.7%, between 1990 and 2000. In 1990, White residents made up 49.1% of the population compared with 32.4% in 2000. During this time, the Black population increased by 3,777, or 17.2%. In 2000, Black residents made up 47.7% of South Dorchester, compared with 42.2% in 1990. The Asian population more than tripled, increasing from 828 in 1990 to 2,616 in 2000. In 2000, Asians constituted 5.8% of the neighborhood, compared with 1.8% in 1990. South Dorchester's Latino population also grew during this time. In 2000, the 3,770 Latino residents made up 8.3% of the neighborhood, an increase from 6.4% in 1990.

English is the primary language spoken by 73.8% of the population; 8.5% speak Spanish, 7.2% speak French Creole, and 4.3% speak Vietnamese.

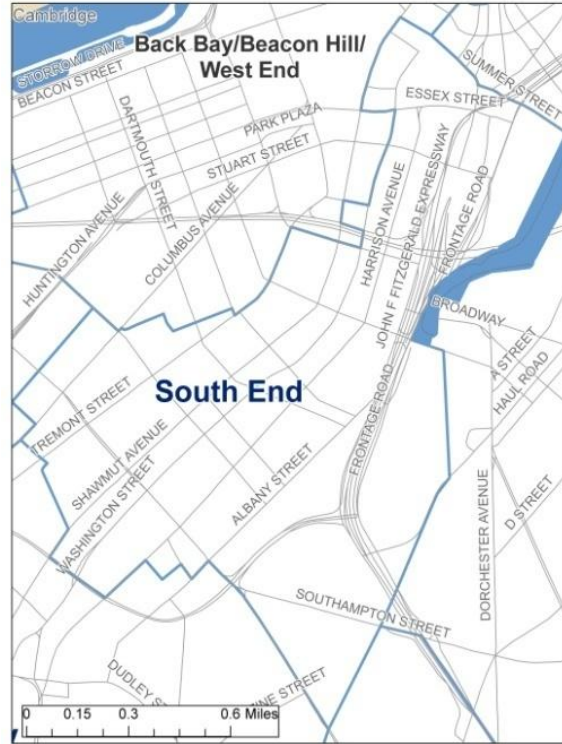
About three-fourths (72.8%) of South Dorchester residents were born in the United States, including 1.3% who were born in Puerto Rico. Other countries in which residents were born include Vietnam (3.9%), Jamaica (3.3%), Haiti (2.8%), Ireland (1.8%), Trinidad/Tobago (1.4%), the Dominican Republic (1.3%), and Barbados (1.1%).



The South End/Chinatown

South End and Chinatown are combined in this report; however, they are distinct neighborhoods with unique histories. The South End was originally called “Boston Neck” as it was a narrow strip of land connecting Boston to the mainland. In the 1830s, the land was in-filled and Victorian townhouses were built for Boston’s wealthy merchant class.

In the 1870s, the South End became a lodging and boarding house district as wealthy residents left the neighborhood for the newly built Back Bay. Boston City Hospital, the country’s first municipal hospital, was established in 1864 in the South End. Churches and synagogues were built to accommodate growing congregations. Inexpensive housing and proximity to social, health, and religious services combined to bring a variety of cultures, religions, and beliefs to the South End.



By 1900, large Jewish, Syrian, Greek, Italian, Portuguese, Chinese, West Indian, African-American, Native American, and Puerto Rican communities were established. In the 1960’s, housing again shaped neighborhood demographics as the Boston Redevelopment Authority designated the South End as an “Urban Renewal” area. Through organization and protest, the residents of the South End were responsible for the development of two mixed income housing developments – “Tent City” and “Villa Victoria.” In 1968, a group of protesters set up tents and occupied a site that was to become a parking garage. After a 20-year struggle, “Tent City,” a 269-unit mixed income-housing complex was built. At the same time, the Puerto Rican community activists convinced the city to appoint a Latino non-profit agency as the site developer for the tract of land that became Villa Victoria, a 435 unit tenant-run multicultural community.

The neighborhood is home to a large gay and lesbian community and a mix of families and young professionals. As the largest Victorian neighborhood in the United States, the South End is a Landmark District and listed in the National Registry of Historical Places.

Chinatown, located between Boston’s downtown crossing and the South End, serves as the cultural and social center for the Asian community in New England. In the late nineteenth century, with the completion of the trans-continental railroad, Chinese men began moving to Boston to work in the New England’s growing manufacturing industry. Chinatown beginnings can be traced to these early workers who set up tents and lived on Ping On Alley. The population was comprised primarily of single males until after World War II

when easing of restrictive immigration laws enabled women and children to move to the United States.

The population in South End/Chinatown in 2000 was 33,502, an 8.3% increase compared with 1990. The South End is one of the few Boston neighborhoods in which the number of White residents increased. In 2000, the White population grew by 2,570 (a 19.3% increase) while the Black population decreased by 1,429, or 22.2%. Little change occurred in the numbers of Latinos and Asians. The White population, which made up 43.1% of the neighborhood in 1990, increased to 47.5% in 2000; the Black population decreased from 20.8% of the population to 14.9%. The percentage of Latinos stayed about the same (11.9% in 2000 compared with 11.8% in 1990). The number of Asian residents increased by 139, although their percentage share in the neighborhood decreased from 23.8% to 22.4%.

English is spoken at home by 63.0% of residents; 17.8% speak Chinese at home and 11.2% speak Spanish. About two-thirds (69.1%) of South End residents were born in the United States, including 4.2% who were born in Puerto Rico. Other countries in which residents were born include China (13.9%), Vietnam (1.3%), and the Dominican Republic (1.0%).

West Roxbury

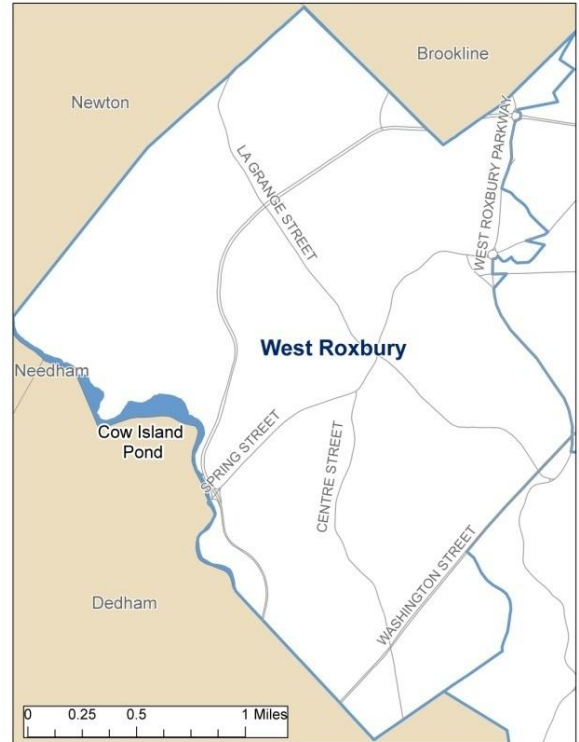
Before 1630, West Roxbury was home to the Wampanoag Indian Tribe. When first inhabited by the Puritans, West Roxbury was part of the town of Roxbury and included the neighborhoods of Roslindale and Jamaica Plain. In 1851, West Roxbury broke away from Roxbury and formed its own government. The neighborhood was annexed by Boston in 1874.

In 1841, Brook Farm was established by Transcendentalists in West Roxbury as an experimental cooperative farm. Its members and regular visitors included many 19th century progressive writers and philosophers including Nathaniel Hawthorne, Ralph Waldo Emerson, Margaret Fuller, and Horace Greeley.

The total population in West Roxbury in 2000 was 26,108, a 4.2% decrease when compared with 1990. Although the White population in West Roxbury decreased by 4,251 (16.4%), the neighborhood remained a predominately White one. In 2000, 83.1% of the population was White compared with 95.2% in 1990. Moderate increases were seen in the number and proportion of Asian, Black, and Latino populations. In 2000, the Asian population made up 3.4% of West Roxbury residents, compared with 1.7% in 1990. During this time, the Latino population grew from 1.6% to 4.7% of the total, and the Black population increased from 1.3% to 6.6% of the total.

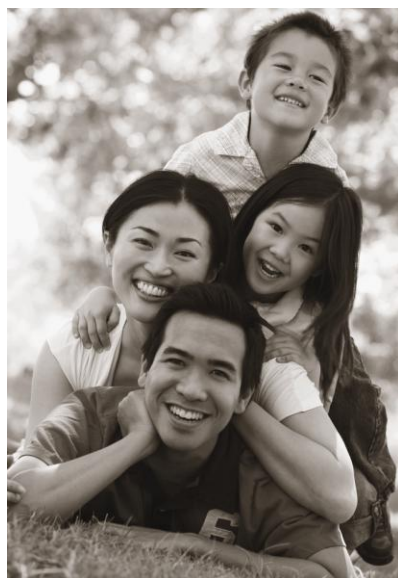
West Roxbury has a large population of elders; in 2000, 20.1% of the population was 65 and over. The 2000 median household income of \$53,607 is the highest of all Boston neighborhoods.

English is the language spoken at home by 78.3% of residents; 4.8% speak Spanish, 2.8% speak Greek, and 2.0% speak Italian. Most West Roxbury residents (81.7%) were born in the United States (including 0.4% who were born in Puerto Rico). Other countries in which residents were born include Ireland (2.1%), Haiti (1.3%), Italy (1.2%), Lebanon (1.2%), and China (1.0%).



Section 1: Demographics

In order to understand the health experience of our city, we must first answer a fundamental question: “Who are the residents of Boston?” Although a population can be described in many different ways, the purpose of this question is to help us appreciate the basics such as “How many people live in Boston?”, “How old are they?” and “How many men and women live here?” By asking these questions, we seek to describe some baseline demographic factors such as gender, age and race/ethnicity that may impact health experience. These characteristics are often risk factors for disease or are associated with poorer health outcomes. For instance, there is an increased risk for coronary artery disease as an individual gets older. Also, mortality rates for breast cancer are higher among Black women, although incidence rates are higher among White women. This section describes the population size, and the age, gender and racial/ethnic population distribution. The foundation for understanding the context of health in Boston is built on this description of its residents.



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

According to the most recent US Census, Boston's population in 2000 was 589,141 residents, representing a ten-year increase of 2.6% from 1990.

The 2007 estimate of 608,352 residents represents an increase of 3.3% from the 2000 official census count and a 2.1% increase from the 2006 estimate.

Boston residents ages 25-64 accounted for about 55.9% of the population in 2007.

Children under age 5 accounted for 5.5% of the population, and adults ages 65 and over for 10.2%.

There were slightly more females than males in 2007.

Figure 1.1 Population by Census, 1900-2007

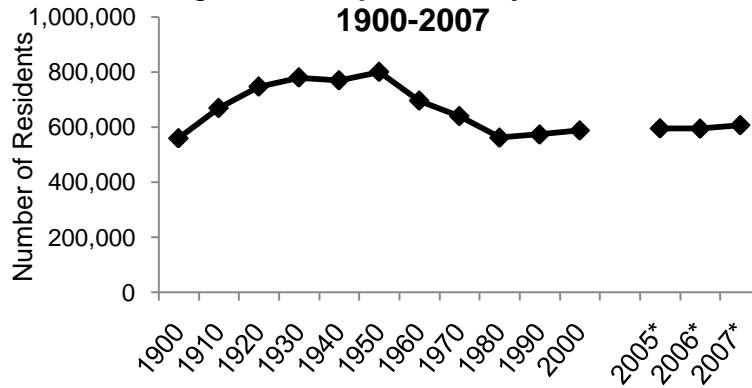


Figure 1.2 Estimated Population By Age Distribution, 2007

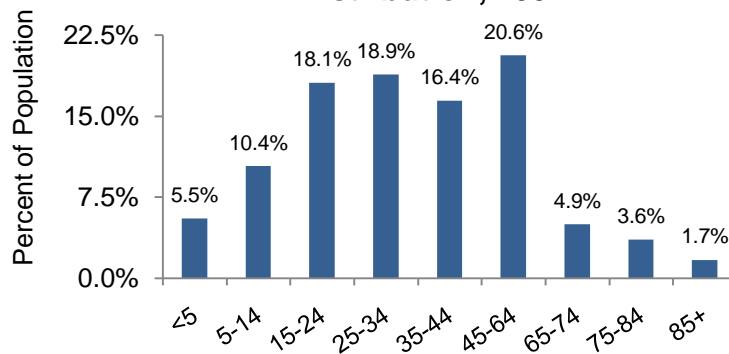


Figure 1.3 Estimated Population by Gender, 2007

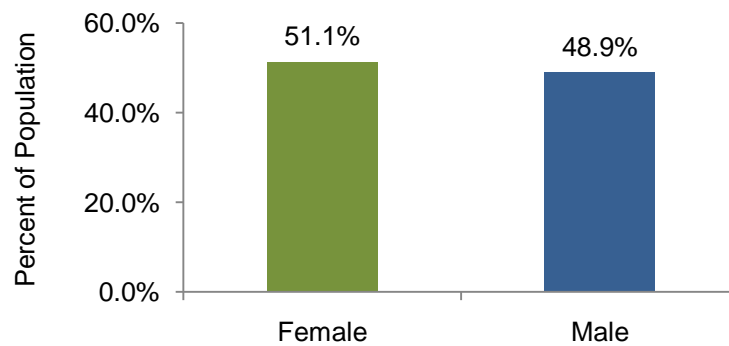


Figure 1.4 **Population by Race/Ethnicity and Year: Percentage Distributions, 1950-2007**

	American Indian, Eskimo, and Aleut	Asian and Pacific Islander	Black	Hispanic Origin (of any Race)	Other Race	Two or More Races	White
1950	0.0%	0.3%	5.0%	--	0.0%	--	94.7%
1960	0.1%	0.6%	9.1%	--	0.1%	--	90.2%
1970	0.2%	1.3%	16.3%	--	0.4%	--	81.8%
1980	0.2%	2.7%	21.7%	6.4%	1.1%	--	67.9%
1990	0.3%	5.3%	23.8%	10.8%	1.0%	--	59.0%
2000	0.3%	7.5%	23.8%	14.4%	1.4%	3.1%	49.5%
2004*	0.1%	8.9%	26.4%	14.3%	1.7%	1.3%	47.3%
2005*	0.3%	8.7%	23.5%	14.7%	3.0%	1.2%	48.6%
2006*	0.3%	8.0%	23.4%	14.9%	1.8%	1.4%	50.2%
2007*	0.2%	8.6%	21.2%	16.9%	1.8%	1.5%	49.8%

The population of Boston has become increasingly diverse. In 1950, 94.7% of Boston's 801,444 residents reported that they were White, 5.0% said they were Black, and 0.3% reported being Asian or Pacific Islander. Hispanic or Latino ethnicity was not recorded separately by the US Census Bureau.

Fifty years later, in 2000, just under half of the population (49.5%) was non-Latino White, one in four (23.8%) were non-Latino Black, 14.4% were Latino, and 7.5% were Asian or Pacific Islander. Beginning with 2000, the US Census began reporting the number and percentage of the population who identified as belonging to two or more races.

Since the last official census in 2000, estimates for non-Latino Black, non-Latino White, Latino, and Asian populations have shown slight fluctuations.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

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Figure 1.5 Population by Neighborhood, 1990 and 2000

Neighborhood	Total Population 1990	Total Population 2000	Percentage Change 1990-2000
Allston/Brighton	70,284	69,648	-0.9%
Back Bay/Beacon Hill/West End	35,690	36,235	1.5%
Charlestown	14,718	15,195	3.2%
East Boston	32,941	38,413	16.6%
Fenway	27,333	29,823	9.1%
Hyde Park	32,644	34,420	5.4%
Jamaica Plain	32,032	29,482	-8.0%
Mattapan	19,585	19,724	0.7%
North Dorchester	77,348	83,212	7.6%
North End	12,152	12,114	-0.3%
Roslindale	33,185	35,047	5.6%
Roxbury	53,828	50,349	-6.5%
South Boston	29,433	29,938	1.7%
South Dorchester	43,663	45,291	3.7%
South End/Chinatown	30,926	33,502	8.3%
West Roxbury	27,239	26,108	-4.2%
TOTAL	574,283	589,141	2.6%

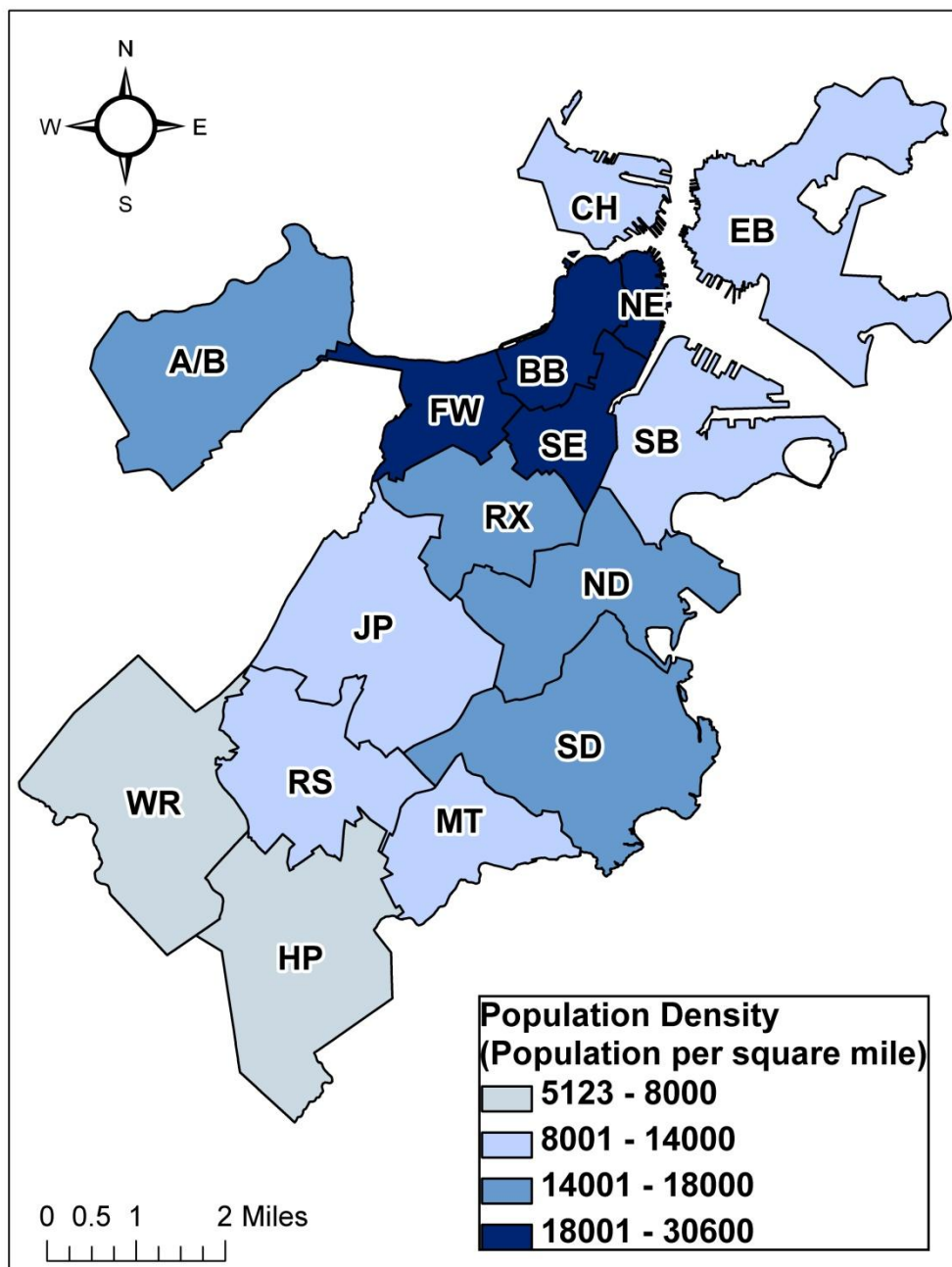
Between 1990 and 2000, Boston's overall population increased 2.6%. However, across Boston neighborhoods, population changes between 1990 and 2000 ranged from a 16.6% increase in East Boston to an 8.0% decrease in Jamaica Plain.

Eleven of Boston's 16 neighborhoods experienced an increase in population between 1990 and 2000.

Population figures beyond the year 2000 are not presented because the U.S. Census does not make population estimates available at the neighborhood level.

The following population density map provides an overview of the distribution of residents of Boston across the various neighborhoods. The population density is calculated by dividing the neighborhood population by the neighborhood area (in square miles). Using this calculation, Fenway and Back Bay are the most densely populated neighborhoods in Boston with a population density of 30,580 and 24,970 people per square mile, respectively.

Figure 1.6 Population Density among Boston Neighborhoods, 2000



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

Foreign born residents make up 28.6% of the total population in Boston.

Boston has residents from all around the world. Countries from which 2% or more of Boston's foreign born residents originated are represented here.

The largest percentage of foreign born residents originated from the Dominican Republic, Haiti and China.

In 2007, English was the language most commonly spoken at home among Boston residents followed by Spanish and Indo-European languages.

Figure 1.7 Place of Birth for Boston Residents, 2007

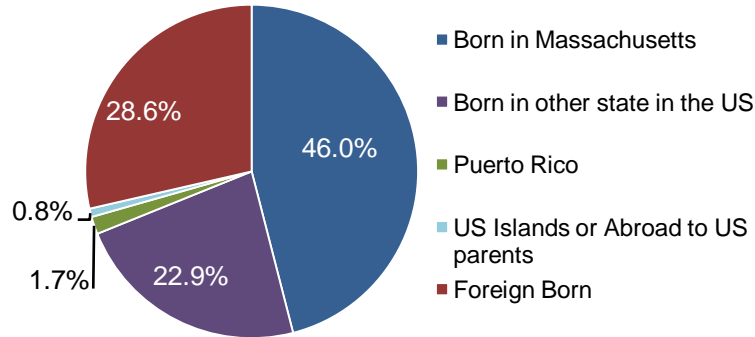


Figure 1.8 Select Countries of Origin for Foreign Born Residents, 2007

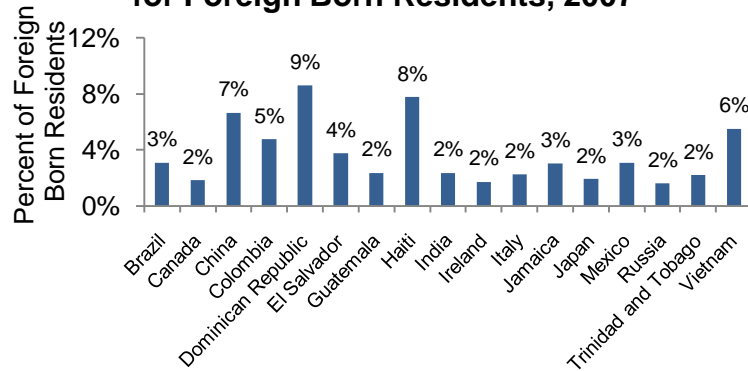
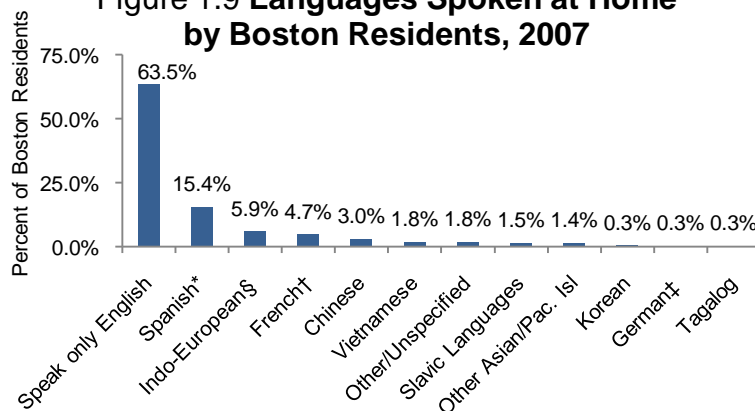


Figure 1.9 Languages Spoken at Home by Boston Residents, 2007



Summary: Demographics

Boston is one of the oldest cities in the US and the largest in Massachusetts. According to the 2000 US Census, there were 589,141 people living in Boston (1) and the population was estimated to be 608,352 in 2007 (2), a 3.2% increase from the official census count. The city's population has fluctuated over time since 1900 with a steep increase between 1900 and 1950 followed by a sharp decline over the next thirty years. The population has then been steadily increasing since the 1980s.

The city has become more racially and ethnically diverse over the last several decades. Approximately 28% of Boston residents were foreign born in 2007, originating from a wide array of countries such as Haiti, China and Colombia. This diverse population brings with it fluency in a variety of languages including Spanish, French, Chinese, and Vietnamese. Understanding the diversity within our city is essential to combating racial/ethnic disparities that persist in medical care for a number of health conditions and services (3,4).



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3. **Smedley BD, Stith AY, Nelson AR, editors.** *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care, Executive Summary*. Washington: National Academies Press; 2002. pp. 5-6.
4. **Agency for Healthcare Research and Quality.** 2007 National Healthcare Disparities Report. Rockville, MD: U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality; February 2008. AHRQ Pub. No. 08-0041.

Notes, Data Sources, and Data Analysis

Figure 1.1

*Estimated

DATA SOURCES: Decennial Censuses, U.S. Department of Commerce, Bureau of the Census, 1900-2000; Annual Population Estimates Program, Population Division, US Bureau of the Census 2005 and 2006, American FactFinder; U.S. Department of Commerce, Bureau of the Census, Population Estimates, Accepted Challenges to 2007 Population Estimates, American FactFinder.

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 1.2

NOTES: Between official censal years, the American Community Survey provides selected demographic data. A population distribution by age is provided for 2007 based on an estimate of 613,117 Boston residents. However, this estimate should not be confused with the Census Bureau's official intercensal 2007 population estimate for Boston of 608,352 residents. Although provided every year between official censal years, the official intercensal population estimate does not provide age distribution or other demographic stratification at the city level.

DATA SOURCE: US Department of Commerce, Bureau of the Census, American FactFinder, 2007 American Community Survey

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 1.3

DATA SOURCE: U.S. Department of Commerce, Bureau of the Census, American FactFinder, 2007 American Community Survey

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 1.4

--Data not collected in this census

*Estimate

NOTES: The race categories shown for 2000, 2004, 2005, 2006, and 2007 do not include Latinos. Latinos are counted only in the category "Hispanic Origin (of any Race)". In 2000, an additional 18,174 Boston residents reported belonging to two or more race groups. Population figures for 2004, 2005, 2006 and 2007 are estimates. In 2004, 2005, 2006, and 2007 an additional 6,741, 6,337, 8,337 and 8,982 Boston residents were estimated to belong to two or more race groups, respectively.

DATA SOURCE: Population Division, Working Paper No 76, US Census Bureau; U.S. Department of Commerce, Bureau of the Census 1990 and 2000; American FactFinder, American Community Surveys, 2004, 2005, 2006, and 2007.

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 1.5

DATA SOURCE: Census 2000, US Department of Commerce, Bureau of the Census, American FactFinder

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 1.6

ABBREVIATIONS KEY: A/B=Allston/Brighton (includes Beacon Hill, Downtown, and West End), BB=Back Bay, CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, NE=North End, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

DATA SOURCE: US Bureau of the Census 2000

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Figure 1.7

DATA SOURCE: U.S Census Bureau, 2007 American Community Survey

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 1.8

DATA SOURCE: U.S Census Bureau, 2007 American Community Survey

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 1.9

*Including Spanish Creole languages

§ Indo European Languages include those from some parts of Europe, South West Asia, Central Asian and South Asia (including Indian subcontinent)

† Including Patois, Creole and Cajun

‡ Including other West Germanic languages

DATA SOURCE: U.S Census Bureau, 2007 American Community Survey

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Section 2: Socioeconomic Status

Socioeconomic status (SES) is a measure of an individual's or family's economic and social position relative to others based on income, education, and occupation. Income, education, and race are such strong predictors of health that an assessment of the health of Boston would be incomplete without consideration of the socioeconomic status of its residents. An individual's place on the socioeconomic ladder can play a role in the person's level of health and even how long that person may live (1). Socioeconomic status and race entwine to contribute to inequities in chronic disease, disability, mental health, birth outcomes, injuries, violence, and mortality.

Socioeconomic status impacts health by creating barriers to regular health care, adequate housing, quality education, nutritious food, recreational opportunities, and other resources associated with a healthy lifestyle. Racism limits economic and social opportunities and affects the living and working conditions of people of color (2). The daily stressors associated with lower socioeconomic status and racism can trigger physiological changes that over time can damage immune defenses and vital organs resulting in more rapid onset and progression of chronic illnesses (3).

Socioeconomic status affects health at every age; however, the effect of family income and education on children is especially powerful. Socioeconomic adversity in childhood is associated with worse health during childhood and later in adulthood (4,5). Poor housing, schools and communities contribute to lower educational attainment among poor children. Lower education level is associated with reduced employment prospects and lower income levels in adulthood and their potential health

impacts (6). In addition, poor nutrition and inferior housing associated with low income levels contribute to infectious and chronic disease, injuries, and poor development which create further barriers to children's success (7).

This section will present data on measures related to socioeconomic status. These include measures of income (median family and median household income, and poverty levels), impact of low income levels (foreclosures, homelessness, and food stamp caseloads), and measures associated with income status (educational level and employment levels).



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

In 2007, the median family income in Boston was \$55,998 while the median household income was \$50,476.

Between 2002 and 2007, median family income increased by 21% while median household income increased by 27%.

In 2007, 20.4% of Boston residents had income below the poverty line. The percentage of individuals living in households with income below poverty level has remained fairly constant over the last three decades.

In 2007, almost one-third (31.0%) of Boston's children lived in households with income below poverty level.

Figure 2.1 Median Annual Household and Family Income, 2002-2007

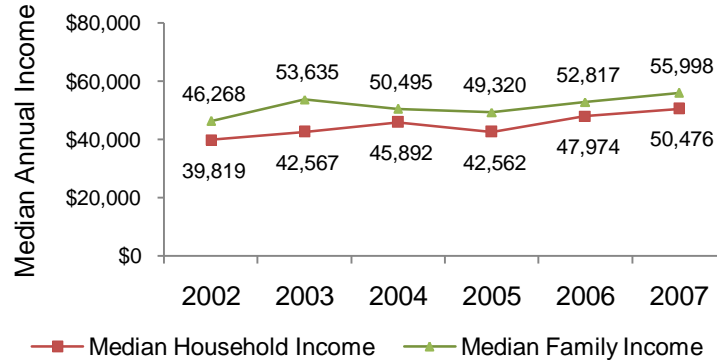


Figure 2.2 Population Living in Poverty, Selected Years, 2002-2007

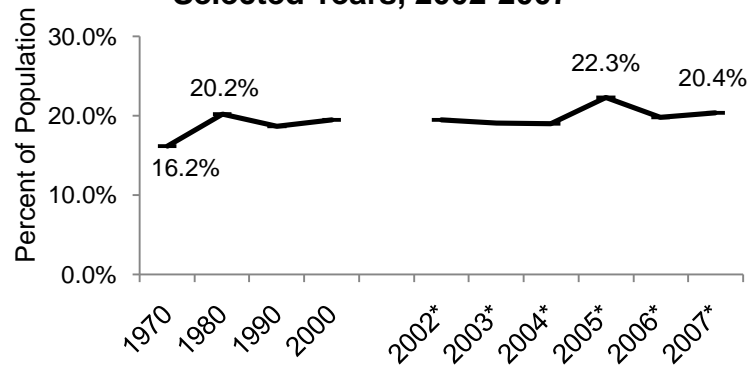
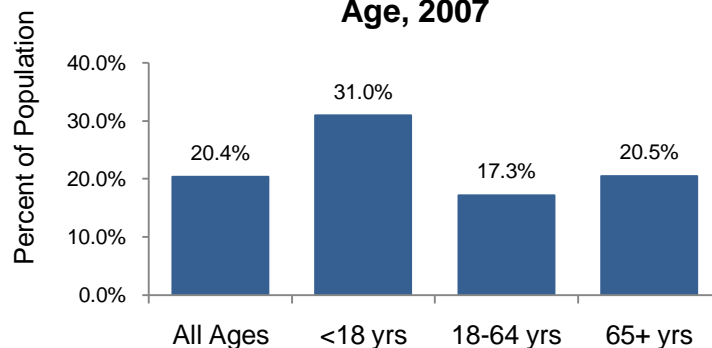
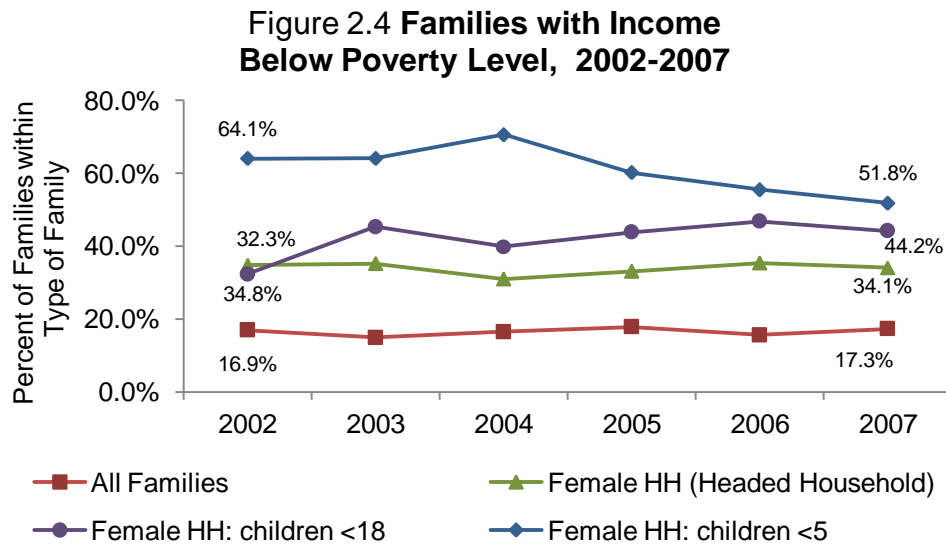


Figure 2.3 Population in Households with Income below Poverty Level by Age, 2007





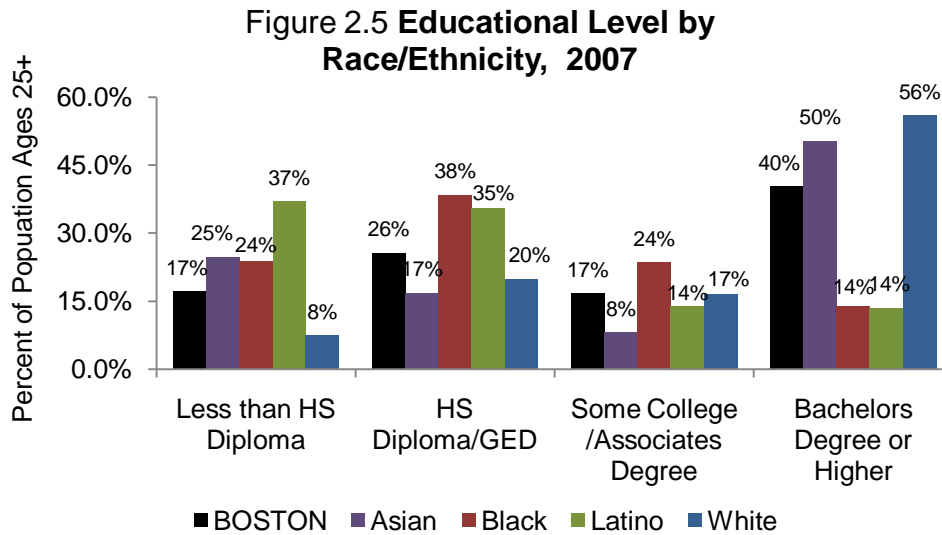
In 2007, the percentage of female-headed households with income below the poverty level (34.1%) was about twice as high as the percentage for all families (17.3%).

Between 2004 and 2007, the percentage of female-headed households below poverty level with children under age five decreased from 70.6% to 51.8%.

Despite a sharp decrease between 2004 and 2007, the percentage of families in poverty remained highest among female-headed families with children under 5.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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In 2007, over one-third (37%) of Latino adults had less than a high school diploma or GED. The percentage of White adults who had an educational level of Bachelors Degree or higher was four times the percentage of Black and Latino adults with this level of education. While half of all Asian adults had an educational level of Bachelors Degree or higher, one-quarter had less than a high school diploma.

At each educational level, males and females had approximately the same level of achievement.

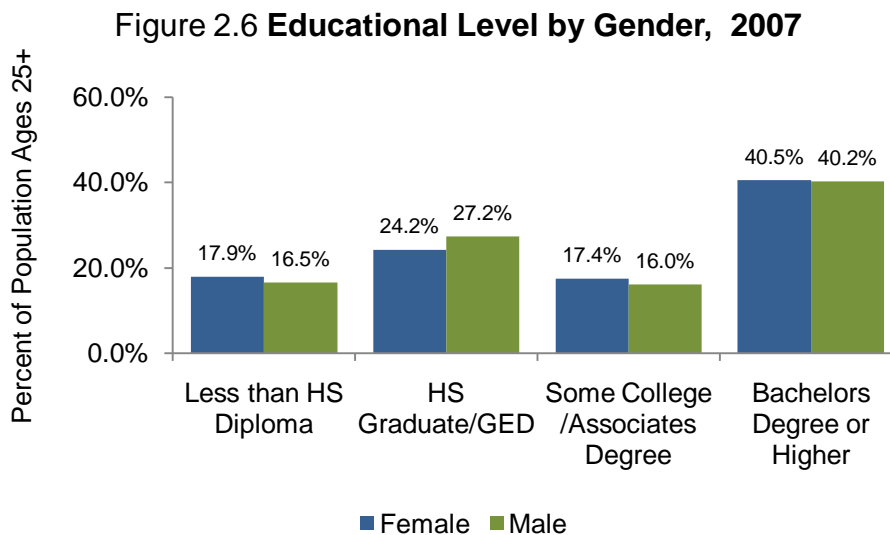
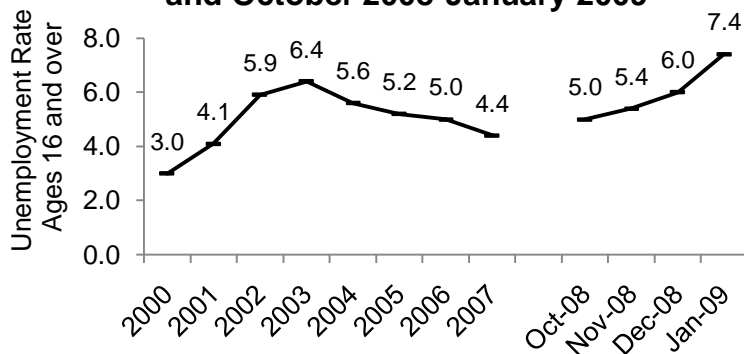
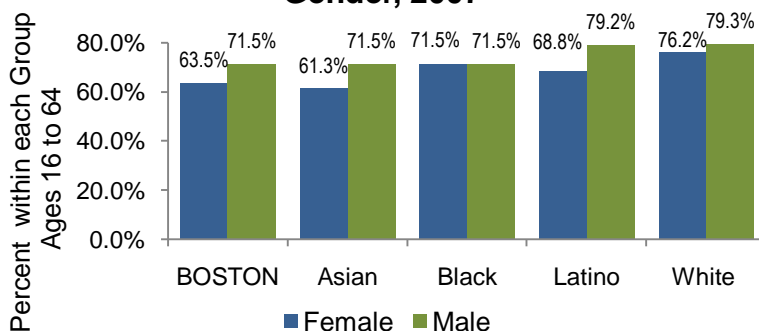


Figure 2.7 Unemployment Rate 2000-2007 and October 2008-January 2009



The annual unemployment rate experienced a period of steady decline between 2003 and 2007. Between October 2008 and January 2009, the monthly unemployment rate increased from 5.0% in October to 7.4% in January.

Figure 2.8 Labor Force Participation Rate by Race/Ethnicity and Gender, 2007

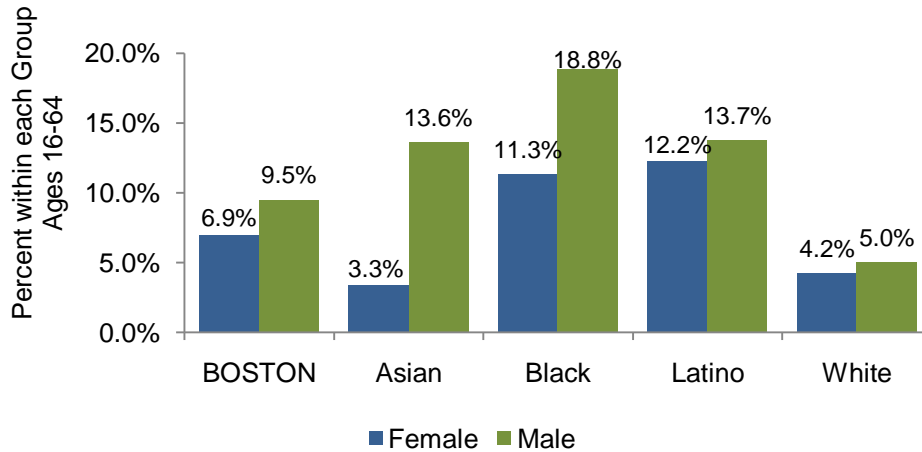


The Labor Force Participation Rate (LFPR) for both Black females and males was 71.5%. Among Asian, Latino, and White residents, males had higher LFPRs than females.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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Figure 2.9 Unemployment by Race/Ethnicity and Gender, 2007

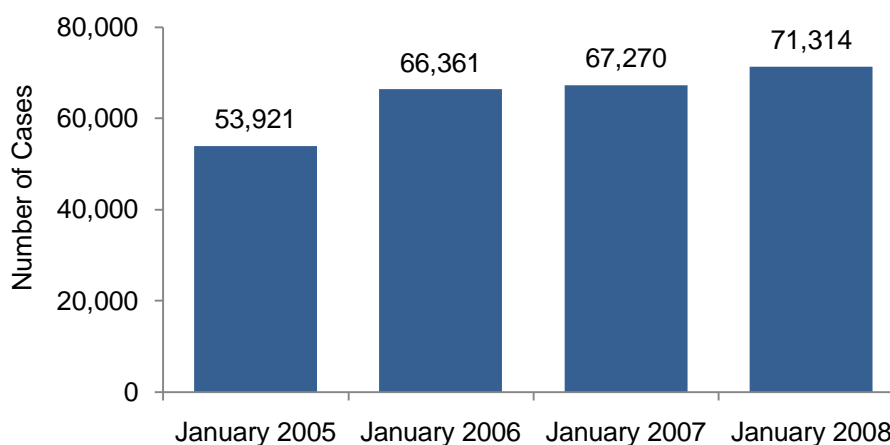


The unemployment rate among Black males was almost four times the rate among White males. The rate among Asian and Latino males was almost three times the rate among White males.

The unemployment rate was lowest among Asian females. The unemployment rate among Black females and Latino females was almost three times the rate among White females.

For each race/ethnicity, the unemployment rate among males was higher than among females. The rate among Asian males was almost four times the rate among Asian females.

Figure 2.10 **January Food Stamp Cases, 2005, 2006, 2007, and 2008**



In January 2008, there were 71,314 food stamp cases in Boston, 32% more than in January 2005.

All neighborhoods experienced an increase in food stamp cases between January 2005 and January 2008. Roxbury, North Dorchester, and South Dorchester had the largest number of food stamp cases; in January 2005 and January 2008, these neighborhoods accounted for about half of the food stamp cases in the City. West Roxbury and the Back Bay neighborhoods experienced the largest percent increase in cases, but had the fewest number of cases.

Figure 2.11 **Food Stamp Cases in Boston Neighborhoods, January 2005 and January 2008**

	Jan-05	Jan-08	% Change
Boston	53,921	71,314	32%
Allston/Brighton	2,674	3,563	33%
Back Bay*	901	1,695	88%
Charlestown	1,408	1,782	27%
East Boston	2,898	4,240	46%
Fenway/Kenmore	1,613	2,446	52%
Hyde Park	2,044	2,847	39%
Jamaica Plain	2,577	3,365	31%
Mattapan	3,096	4,014	30%
North Dorchester	11,225	13,652	22%
Roslindale	2,120	2,942	39%
Roxbury	6,450	9,246	43%
South Boston	2,522	3,471	37%
South Dorchester	10,714	12,668	18%
South End†	3,329	4,764	43%
West Roxbury	350	619	77%

For explanation of symbols within charts (* † ‡ § ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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The following map shows the locations of the properties on which a foreclosure petition was filed. Shading is used to show the total number of residential properties in each neighborhood. In 2007, foreclosure petitions were filed on just over 3.5% of all residential properties in Boston. Most affected were Roxbury, Mattapan, and Dorchester—60% of all foreclosure petitions occurred in these three neighborhoods.

Figure 2.12 Foreclosure Petitions and Number of Residential Properties by Neighborhood, 2007

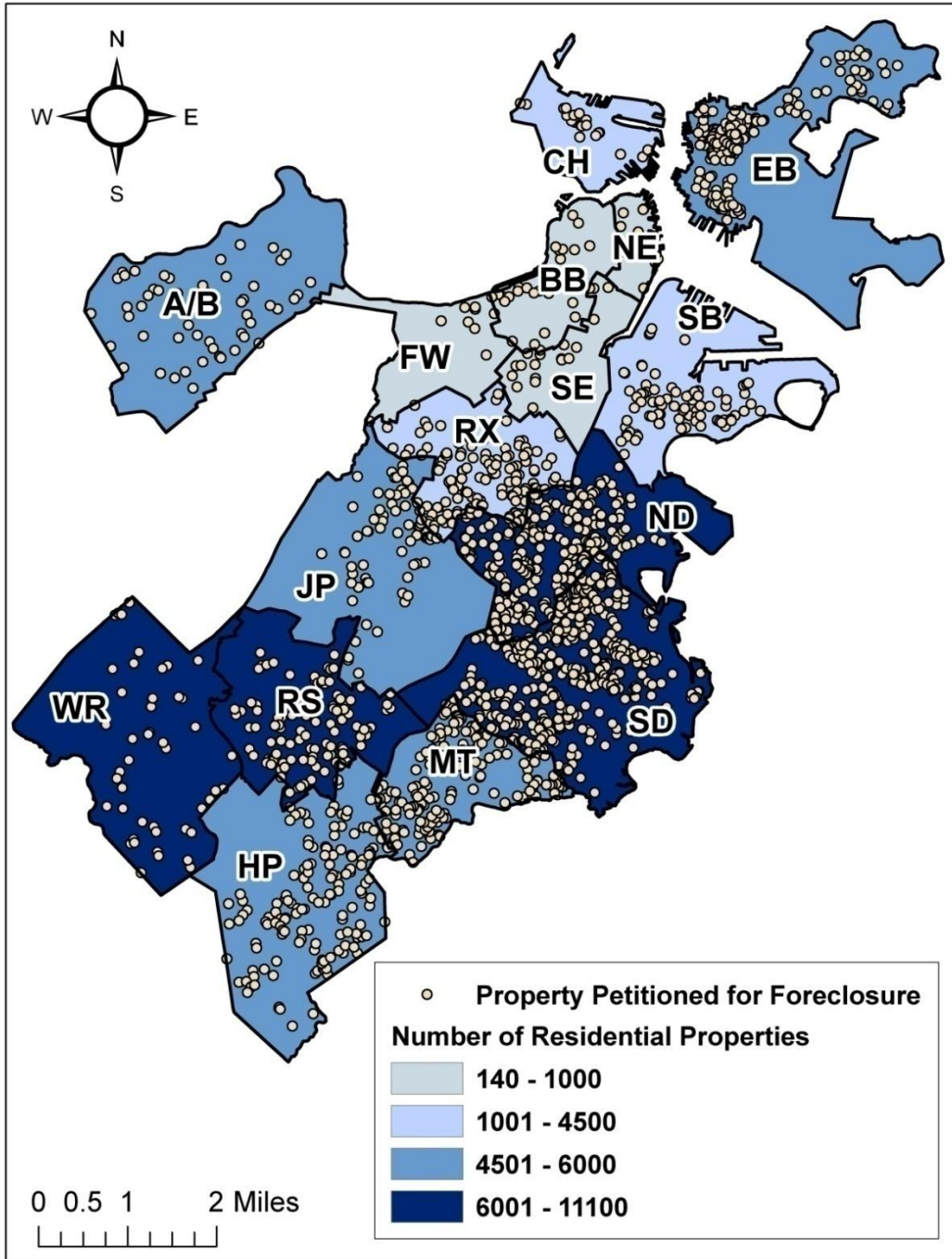


Figure 2.13 Foreclosure Petitions in Boston Neighborhoods, 2007 and 2008

	2007	2008	% Change
BOSTON	2,430	1,897	-21.9%
Allston/Brighton	67	60	-10.4%
Back Bay†	34	32	-5.9%
Charlestown	32	26	-18.8%
East Boston	169	185	9.5%
Fenway	11	9	-18.2%
Hyde Park	182	156	-14.3%
Jamaica Plain	95	70	-26.3%
Mattapan	241	183	-24.1%
North Dorchester	410	276	-32.7%
North End/Downtown	2	2	0.0%
Roslindale	132	109	-17.4%
Roxbury	192	155	-19.3%
South Boston	94	97	3.2%
South Dorchester	664	462	-30.4%
South End‡	32	22	-31.3%
West Roxbury	75	53	-29.3%

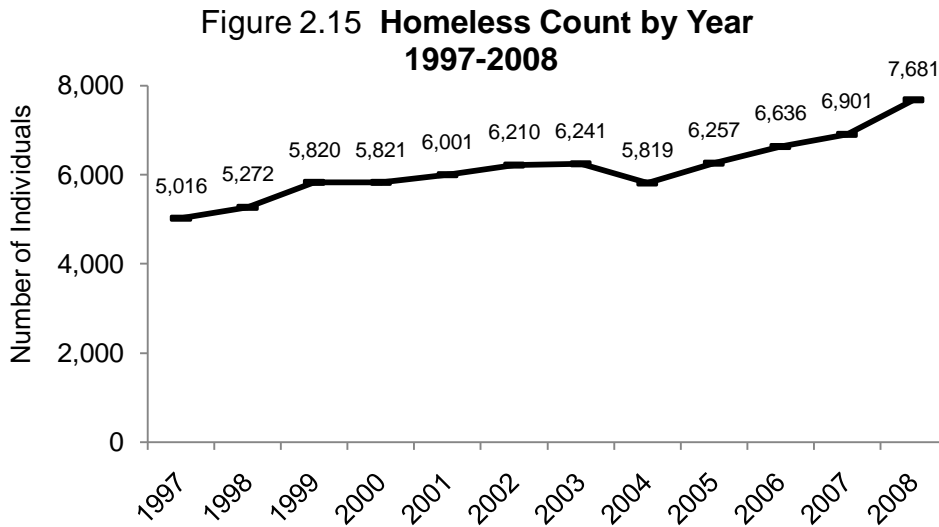
The total number of foreclosure petitions in 2007 was 2,430 while the total number in 2008 was 1,897. In both 2007 and 2008, about half of all foreclosure petitions were filed in Mattapan and the two Dorchester neighborhoods.

Between 2007 and 2008, the percentage of residential properties on which a foreclosure petition was filed, decreased from 3.5% to 2.8%. In 2007, foreclosure petitions were filed on over 6% of residential properties in North Dorchester, Roxbury, South Dorchester, and the South End. Although the percentage of foreclosure petitions in these neighborhoods decreased in 2008, they remained high, exceeding 4%.

Figure 2.14 Foreclosure Petitions as Percentage of all Residential Properties, 2007 and 2008

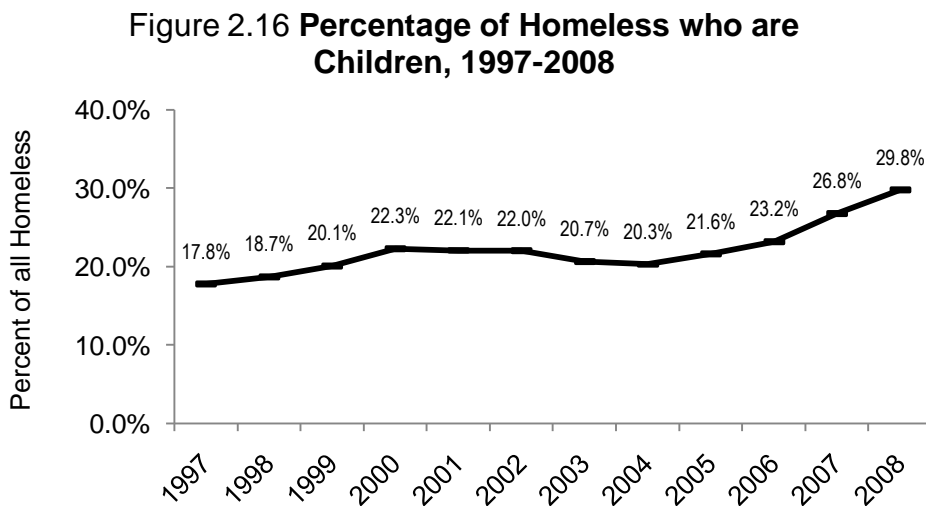


For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.



Between 2007 and 2008, the number of homeless individuals increased by 11.3%.

In 2008, 30% of Boston’s homeless were children, a dramatic increase compared to 2004 when children accounted for 20% of all homeless individuals.



Summary: Socioeconomic Status

While many Boston residents enjoy relatively high levels of education and income, these benefits are not shared by all. The burden of poverty is disproportionately felt by children, especially children living in female-headed households. In 2007, almost one-third (31%) of children lived in households whose income fell below the poverty level; 51.8% of female-headed households with preschool children have income below the poverty line. The number of homeless children increased dramatically between 2004 and 2008. In 2008, 30% of Boston's homeless were children.

Educational achievement and employment, two primary routes out of poverty, are unequally distributed among racial/ethnic groups. In 2007, 56% of White adults had an educational level of Bachelors degree or higher compared with 14% of Black and Latino adults. Over one-third (37%) of Latino adults had less than a high school diploma or GED. Though half of Asian adults had an educational level of Bachelors Degree or higher, 25% had less than a high school diploma. Black, Latino, and Asian males are unemployed at a substantially higher rate than White males. In 2007, the unemployment rate among Black males was almost four times the rate among White males; among Asian and Latino males, the rate was almost three times as high.

Two Boston neighborhoods— Roxbury and Dorchester— disproportionately share the burden of housing and food insecurity. The number of families in Boston receiving food stamps increased by 32% between January 2005 and January 2008. Roxbury, North Dorchester, and South Dorchester had the largest number of food stamp cases and experienced the largest increase in the number of cases. Foreclosures have become a national issue and were felt in every neighborhood – in 2008, foreclosure

petitions were filed on just over 2.8% of all residential properties in Boston. Most affected were Dorchester, Mattapan, and Roxbury – 56.7% of all foreclosure petitions in Boston occurred in these neighborhoods.

This section focuses on socioeconomic status of Boston residents. Racial/ethnic disparities are associated with lower socioeconomic status and both combine to create health disparities. Socioeconomic status creates a gradient in which higher economic status is correlated with better health. However, it is important to note that because of several factors, including the impact of racism, people of color have worse health outcomes than their White counterparts at every level of socioeconomic status. Therefore, both race and socioeconomic status need to be considered in understanding and addressing the health issues presented in this report.



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

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2. **Robert Wood Johnson Foundation.** Overcoming Obstacles to Health.: Robert Wood Johnson Foundation Commission to Build a Healthier America, February 2008.
3. **Hayward, Karen.** Tides of Change:Addressing Inequity and Chronic Disease in Atlantic Canada. Halifax, Nova Scotia, CA : Population and Public Health Branch, Atlantic Regional Office, Health Canada, 2003.
4. **Chen E, Martin AD, Matthews KA.** Trajectories of Socioeconomic Status Across Children's Lifetime Predict Health. *Pediatrics* . 2007 Aug: 120(2): 297-303.
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6. **William DR, Collins C.** US Socioeconomic and Racial Differences in Health: Patterns and Explanations. *Annual Review of Sociology*. 1995 Aug: 21: 349-386.
7. **Krieger J and Higgins DL.** Housing and Health: Time Again for Public Health Action. *American Journal of Public Health*,: 2007 May: 758–768.

Notes, Data Source ,and Data Analysis

Figure 2.1

NOTES: Data are estimates based on the American Community Survey. Household income is the total pre-tax money income from all household members over the age 15. It includes wages and salary, as well as income received from sources such as unemployment insurance, child support, and dividends from investments. Household members can be related or unrelated. *Median Household Income* is the amount which divides the group in half - half of the households will fall above the median and half fall below. *Family income* is defined the same as household income, except the family consists of at least two related individuals.

DATA SOURCE: U.S. Department of Commerce, Bureau of the Census, American FactFinder, 2002-2007 American Community Survey

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.2

* Data are estimates based on the American Community Survey.

NOTES: Poverty threshold, which is updated annually by the U.S. Census Bureau, is defined as the minimum level of income needed to achieve the adequate standard of living. In 2007, the federal poverty threshold for a family of four was \$21,203. The figures shown in the chart have been adjusted to account for different family sizes and compositions.

DATA SOURCE: U.S. Department of Commerce, Bureau of the Census, American FactFinder, 2002-2007 American Community Surveys; U.S. Department of Commerce, Bureau of the Census, Census 2000, Census 1990 Summary File-Sample Data, Census 1980, Census 1970

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.3

NOTES: Data are estimates based on the American Community Survey. Poverty threshold, which is updated annually by the U.S. Census Bureau, is defined as the minimum level of income needed to achieve the adequate standard of living. In 2007, the federal poverty threshold for a family of four was \$21,203. The figures shown in the chart have been adjusted to account for different family sizes and compositions.

DATA SOURCE: U.S. Department of Commerce, Bureau of the Census, American FactFinder, 2007 American Community Survey

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.4

NOTES: Data are estimates based on the American Community Survey. Poverty threshold, which is updated annually by the U.S. Census Bureau, is defined as the minimum level of income needed to achieve the adequate standard of living. In 2007, the federal poverty threshold for a family of four was \$21,203. The figures shown in the chart have been adjusted to account for different family sizes and compositions. Female head of household: In 1980, the U.S. Census replaced the term “head of household” with “householder.” The census uses the term “householder” to refer to the individual in whose name the housing unit is owned or rented (if a unit is co-owned or rented, either individual may be called the “householder.” If no such person resides in the unit, any adult may be considered the “householder.” Families in which a female is responsible for the care of children census is inferred through the census category, “female householder, no husband present, with children.”

DATA SOURCE: U.S. Department of Commerce, Bureau of the Census, American FactFinder, 2002-2007 American Community Surveys

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.5

NOTE: Data are estimates based on the American Community Survey.

DATA SOURCE: US Department of Commerce, Bureau of the Census, American FactFinder, 2007 American Community Survey

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.6

NOTE: Data are estimates based on the American Community Survey

DATA SOURCE: US Department of Commerce, Bureau of the Census, American FactFinder, 2007 American Community Survey

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.7

NOTE: The labor force and unemployment data are based on the same concepts and definitions as those used for the official national estimates obtained from the Current Population Survey (CPS), a sample survey of households that is conducted for the Bureau of Labor Statistics (BLS) by the U.S. Census Bureau. The LAUS program measures employment and unemployment on a place-of-residence basis. The universe for each is the civilian noninstitutional population 16 years of age and over.

Employed persons are those who did any work at all for pay or profit in the reference week (the week including the 12th of the month) or worked 15 hours or more without pay in a family business or farm, plus those not working who had a job from which they were temporarily absent, whether or not paid, for such reasons as labor-management dispute, illness, or vacation. Unemployed persons are those who were not employed during the reference week (based on the definition above), had actively looked for a job sometime in the 4-week period ending with the reference week, and were currently available for work; persons on layoff expecting recall need not be looking for work to be counted as unemployed. The labor force is the sum of employed and unemployed persons. The unemployment rate is calculated as the number of unemployed/civilian labor force*100.

DATA SOURCE: US Department of Labor, Bureau of Labor Statistics, Local Area Unemployment Statistics, <http://www.bls.gov/LAU/>

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.8

NOTE: Data are estimates based on the American Community Survey. The federal Bureau of Labor Statistics conducts monthly household surveys to gather national, state and local employment data. The survey uses the following definitions in calculating employment-related rates. Individuals who are not in the military and not in an institution (such as a jail or hospital) are part of this survey. Individuals with jobs are considered *employed*. Jobs can be part-time and temporary and includes unpaid work done on behalf of a family enterprise. Individuals are considered *unemployed* if they did not have a job, but are available for work and are looking for a job. The *civilian labor force* consists of individuals who are either employed or unemployed. Individuals who are not employed and not looking for work are *not in the civilian labor force*. The survey defines labor force participation rate (*LFPR*) as a proportion of the civilian population who are either employed or unemployed (but looking for working). The LFPR is calculated as the number of employed and unemployed/civilian population*100.

DATA SOURCE: US Department of Commerce, Bureau of the Census, American FactFinder, 2007 American Community Survey

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.9

NOTE: Data are estimates based on the American Community Survey. The federal Bureau of Labor Statistics conducts monthly household surveys to gather national, state and local employment data. The survey uses the following definitions in calculating employment-related rates. Individuals who are not in the military and not in an institution (such as a jail or hospital) are part of this survey. Individuals with jobs are considered *employed*. Jobs can be part-time and temporary and includes unpaid work done on behalf of a family enterprise. Individuals are considered *unemployed* if they did not have a job, but are available for work and are looking for a job. The *civilian labor force* consists of individuals who are either employed or unemployed. Individuals who are not employed and not looking for work are *not in the civilian labor force*. An *unemployment rate* is calculated by dividing the number of individuals not employed (but available and looking) into the number in the civilian labor force.

DATA SOURCE: US Department of Commerce, Bureau of the Census, American FactFinder, 2007

American Community Survey

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.10

DATA SOURCE: Commonwealth of Massachusetts, Department of Transitional Assistance, Supplemental Nutrition Assistance Program (SNAP)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.11

*Includes Beacon Hill, North End, and West End

† Includes Chinatown

DATA SOURCE: Commonwealth of Massachusetts, Department of Transitional Assistance, Supplemental Nutrition Assistance Program (SNAP)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.12

ABBREVIATIONS KEY: A/B=Allston/Brighton, BB=Back Bay (includes Beacon Hill, Downtown, and the West End), CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, NE=North End, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

NOTE: Residential properties include single family dwellings, residential condominium units, two family dwellings, and three family dwellings. Professionally managed properties, such as rental buildings, are not considered residential properties.

DATA SOURCE: City of Boston, Department of Neighborhood Development

DATA ANALYSIS: Department of Neighborhood Development and the Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office and Information Technology Systems, Geographical Information Systems Program

Figure 2.13

*Too few foreclosures to permit presentation of data

† Includes Beacon Hill and West End

‡ Includes Chinatown

NOTE: Residential properties include single family dwellings, residential condominium units, two family dwellings, and three family dwellings. Professionally managed properties, such as rental buildings, are not considered residential properties.

DATA SOURCE: City of Boston, Department of Neighborhood Development

DATA ANALYSIS: Department of Neighborhood Development and the Boston Public Health Commission Research and Evaluation Office

Figure 2.14

*Too few foreclosures to permit presentation of data

†Includes Beacon Hill, and West End;

‡ Includes Chinatown

NOTE: Residential properties include single family dwellings, residential condominium units, two family dwellings, and three family dwellings. Professionally managed properties, such as rental buildings, are not considered residential properties.

DATA SOURCE: City of Boston, Department of Neighborhood Development

DATA ANALYSIS: Department of Neighborhood Development and the Boston Public Health Commission Research and Evaluation Office

Figure 2.15

DATA SOURCE: City of Boston, Emergency Shelter Commission, Homeless Counts, 1997-2008

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 2.16

DATA SOURCE: City of Boston, Emergency Shelter Commission, Homeless Counts, 1997-2008

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Section 3: Community Assets

Health officials are increasingly recognizing that many of the nation's most pressing public health problems cannot be solved only through traditional population-based approaches. While individual characteristics may determine health, these characteristics are often a product of one's socioeconomic status, race/ethnicity, and access to community resources (1). Because communities vary widely in the availability of resources, where one lives often influences one's health (1, 2). For this reason, taking an inventory of available resources is a necessary step in understanding a community's health.

Community assets are the resources that improve the quality of community life and provide a healthier environment for residents (3). Assets include physical structures and organizations, as well as people and social norms (3,4). Physical structures and organizations may include parks, open space, churches, schools, libraries, health centers, police departments, community centers, businesses, and clubs.

Social community assets involve the extent to which community residents interact with each other for the good of the community. This collective interaction may take the form of participating in community meetings, voting in local and national elections, and helping out with community problems like teen violence or wide-spread drug abuse. It also may involve community mobilization to advocate for projects that may further strengthen the community, such as increased funding for new community centers or after school programs (4,5).

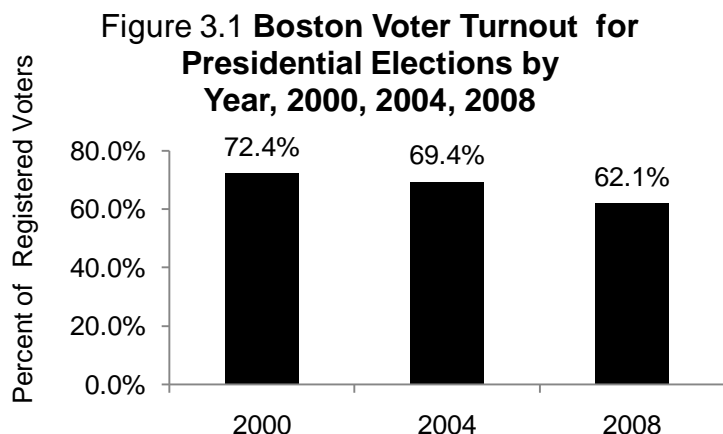
Physical and social assets are often mutually supportive. For example, a community with a facility to hold

community meetings or green space for residents to work together on community gardens provides an opportunity for positive community interaction for the betterment of the community. This interaction is an example of social cohesion. Social cohesion is reflected by neighborhood residents' willingness to develop and maintain social relationships, trust, and mutual obligations, and is believed to be associated with better health outcomes. Residents' perceptions about their neighbors such as the existence of common acceptable behavior and attitudes, the existence of adult role models, and the confidence that would mobilize for the community's good are elements of a cohesive community. Assessing these perceptions is invaluable in understanding the degree of social cohesion that exists on a community level.

This section provides an overview of measures related to community assets. These measures include a summary of Boston residents' perceptions about their communities and neighbors, data on voting behavior as an indicator of civic responsibility, and maps that identify the location of community assets within Boston communities. Examples of negative influences on a neighborhood, such as crime, and the presence of establishments that sell liquor and tobacco, are also provided.



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.



Voter turnout percent is based on the number of people voting divided by the number of people registered to vote. The number of Boston residents voting in the 2008 presidential election was about 26% more than in the 2000 election (data not shown).

Although the number of voters increased by 48,312 between 2000 and 2008, the increase in the number of registered voters resulted in a lower percentage of voter turnout in 2008.

The percentage of adults in Boston neighborhoods who reported having attended a neighborhood meeting during the past year ranged from 24% to 60%, with percentages 30% or higher for most neighborhoods. The highest reported percentage was for residents of Charlestown.

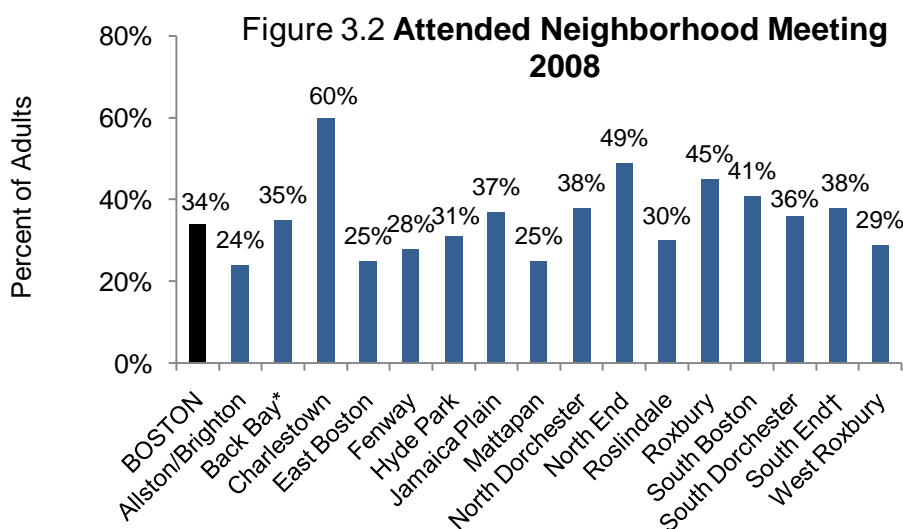
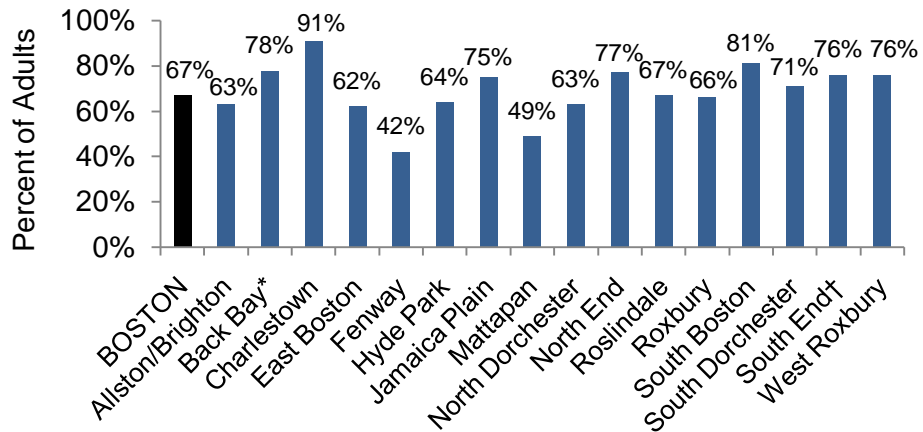


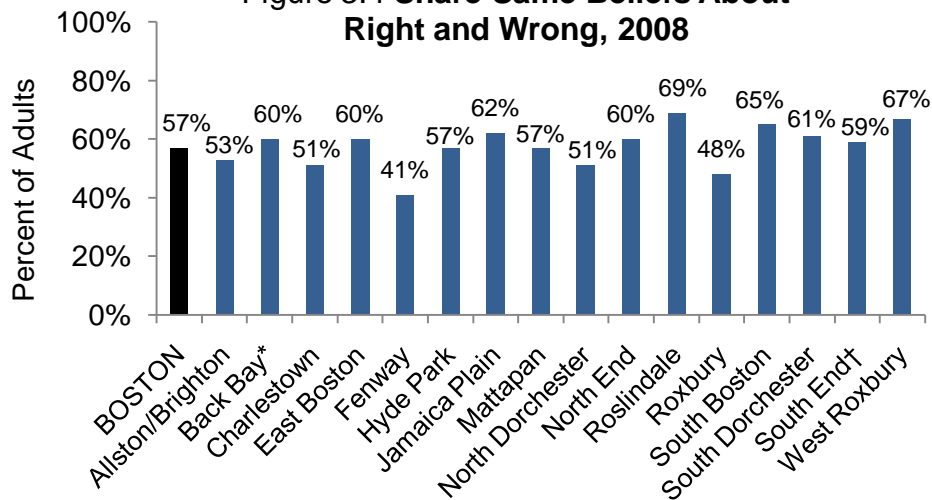
Figure 3.3 Have Three or More Friends in Neighborhood, 2008



Two-thirds of Boston residents reported having three or more friends that live in their neighborhood. Charlestown and South Boston had the highest percentage of neighborhood residents reporting having three or more friends in their neighborhood. The percentage of residents who reported having three or more friends in their neighborhood was lowest among residents of Fenway.

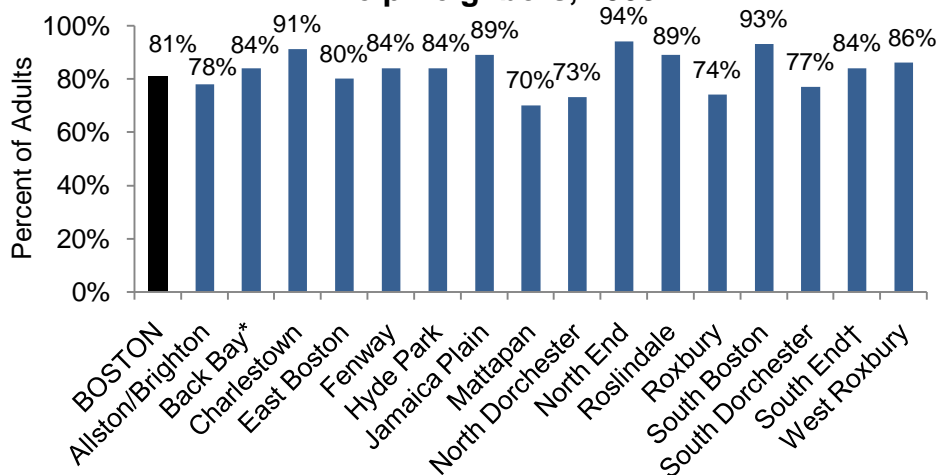
More than 50% of residents in Boston reported agreeing or strongly agreeing that people in their neighborhood share the same beliefs about what is right and wrong. The percentage of residents who agreed or strongly agreed that people in their neighborhood share the same beliefs about what is right and wrong was highest for residents of Roslindale, West Roxbury, and South Boston and lowest for residents of Fenway and Roxbury.

Figure 3.4 Share Same Beliefs About Right and Wrong, 2008



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

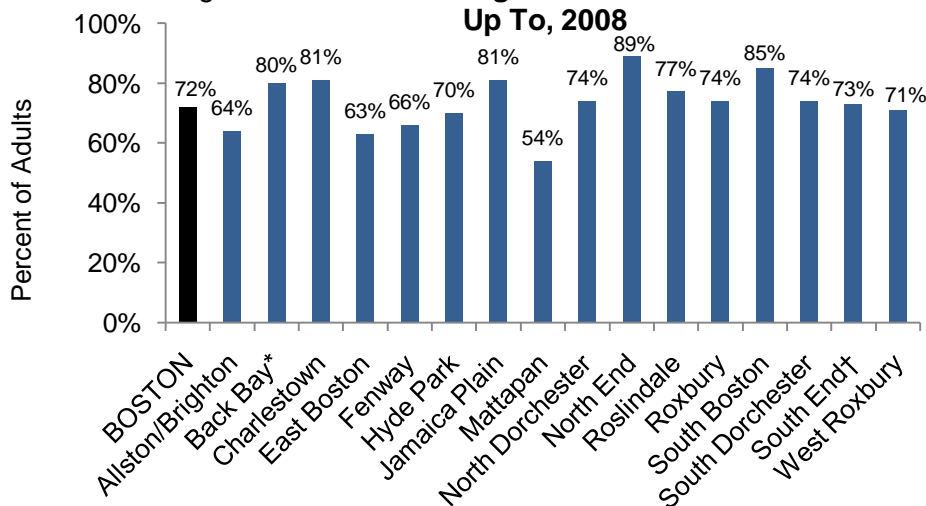
Figure 3.5 People in Neighborhood Willing To Help Neighbors, 2008

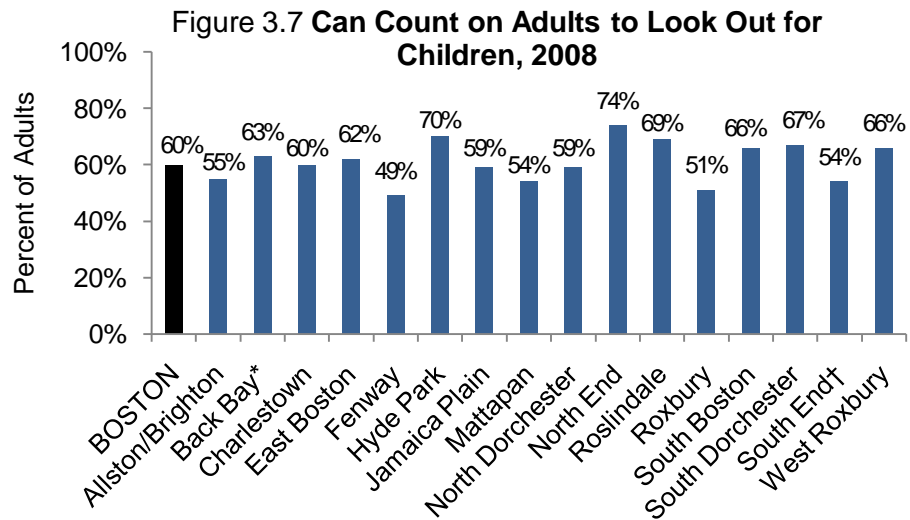


Seventy percent or more of residents in each Boston neighborhood reported agreeing or strongly agreeing that people in their neighborhood are willing to help each other. A higher percentage of residents of the North End and South Boston agreed or strongly agreed that people in their neighborhood were willing to help each other than residents of Boston overall.

Eighty percent or more of residents in the Back Bay, Charlestown, Jamaica Plain, the North End and South Boston reported agreeing or strongly agreeing that there are adults in their neighborhoods that children can look up to.

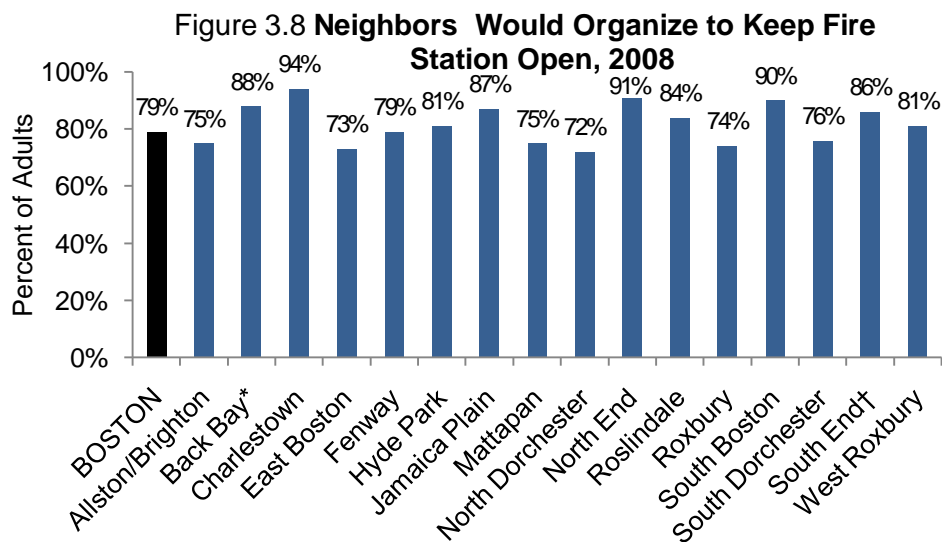
Figure 3.6 Adults in Neighborhood Children Can Look Up To, 2008





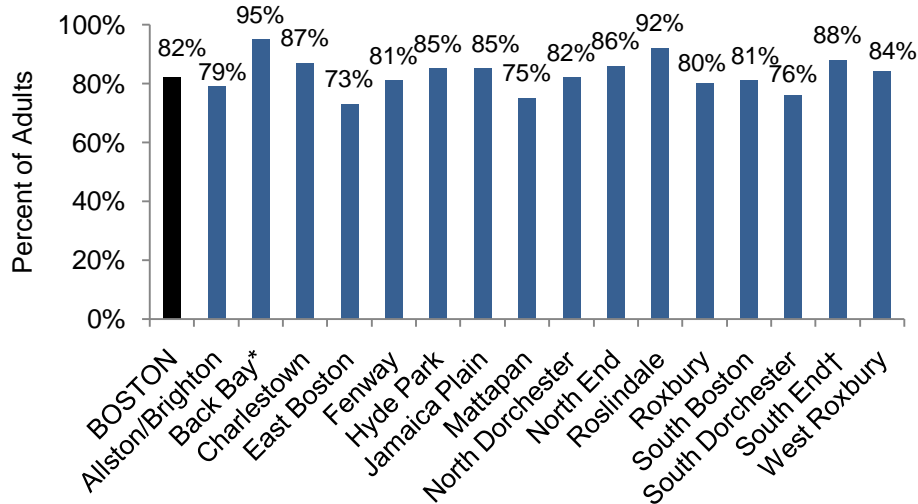
Overall, 60% of Boston residents reported agreeing or strongly agreeing that there are adults in their neighborhood that can be counted on to look out for children and teens.

About eighty percent of Boston residents reported that it was likely or very likely that their neighbors would organize to keep a local fire station from closing due to budget cuts. Within neighborhoods, the percentage of adults who thought it was very likely or likely that their neighbors would organize to keep a local fire station from closing ranged from 72% in North Dorchester to 94% in Charlestown.



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Figure 3.9 Would Intervene if Saw Fight, 2008



Overall, 82% of Boston residents reported that it is likely or very likely that if there were a fight in their neighborhood in which someone was being beaten or threatened, neighbors would intervene.

The percentage of Boston neighborhood residents who reported that people using or being addicted to drugs was a big problem in their neighborhood was especially high in Charlestown, East Boston, Mattapan, North Dorchester, Roxbury, and South Boston.

Very few residents of Back Bay and West Roxbury reported that people using or being addicted to drugs was a big problem in their neighborhood.

Figure 3.10 People Using or Being Addicted to Drugs is Big Problem, 2008

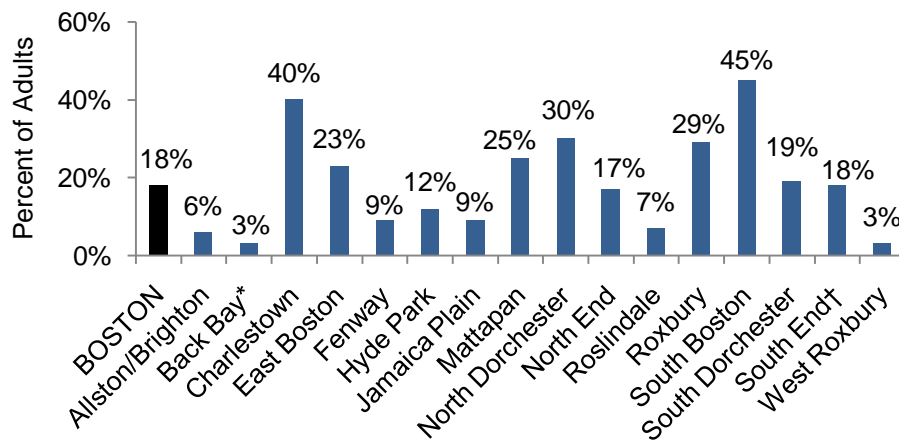
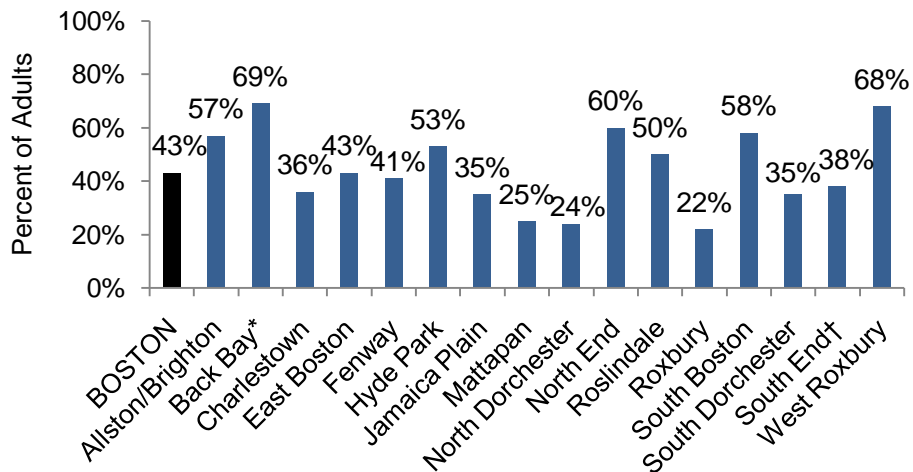


Figure 3.11 Neighborhood is Very Safe, 2008

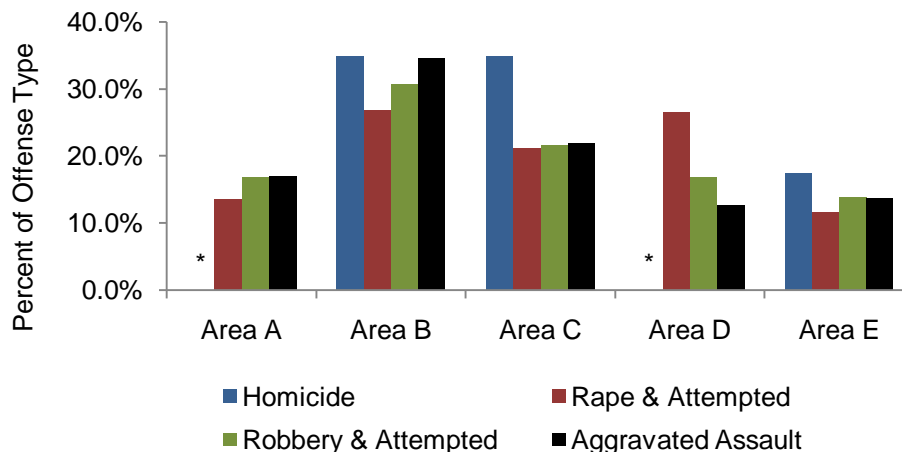


Less than half of Boston residents reported their neighborhood as being very safe. While about 70% of residents in Back Bay and West Roxbury reported their neighborhoods as being very safe, only a quarter or less of residents in Mattapan, North Dorchester, and Roxbury did so.

Preliminary 2008 data from the Boston Police Department indicates that Area B (Roxbury, Mission Hill, Mattapan, and parts of Dorchester) had the highest percentage of reported rapes, robbery and attempted robbery, and aggravated assault.

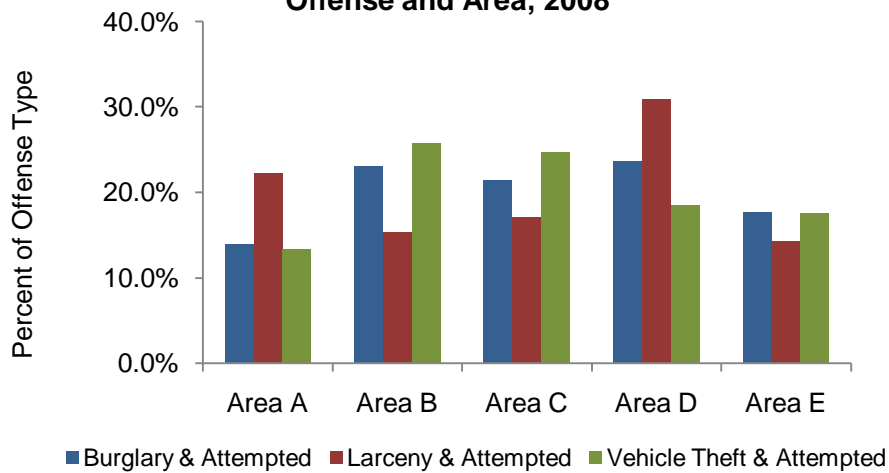
Area B, along with Area C (South Boston and Dorchester) had the highest percentage of homicides. Together, Areas B and C accounted for 70% of reported homicides during 2008.

Figure 3.12 Reported Crimes Against Persons by Offense and Area, 2008



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Figure 3.13 Reported Crimes Against Property by Offense and Area, 2008



Larceny and attempted larceny accounted for the greatest number of crimes against property. This crime represented 73% of reported crimes against property in 2008 (data not shown).

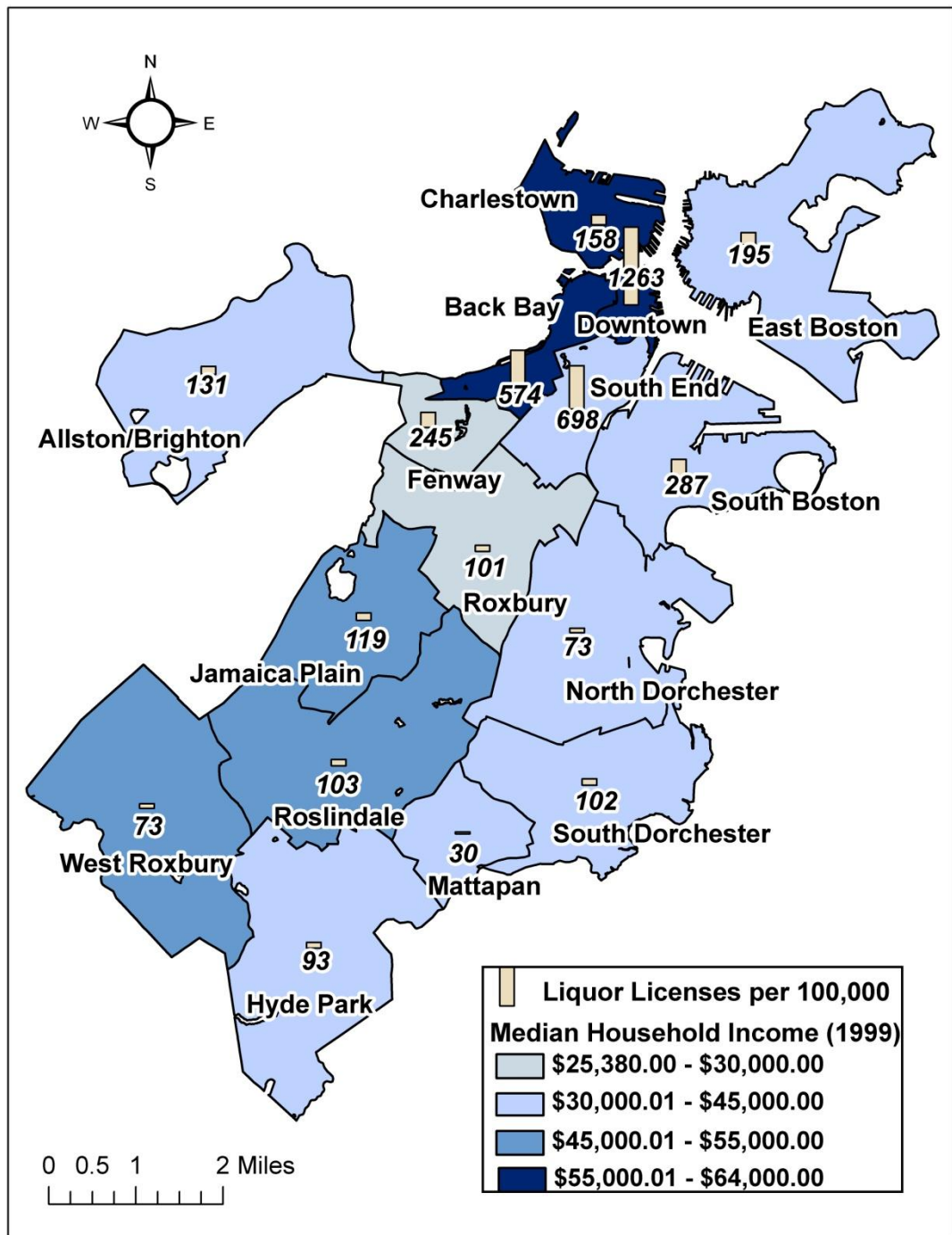
Area D (Allston, Brighton, Back Bay, Fenway, and the South End) accounted for about one-third of reported larceny and attempted larceny.

Area B (Roxbury, Mission Hill, Mattapan, and parts of Dorchester), Area C (South Boston and Dorchester), and Area D had the greatest percentage of burglary and attempted burglary.

Areas B and C had the largest percentage of vehicle theft and attempted theft.

This map shows the distribution of liquor licenses per 100,000 population across neighborhoods. The map also displays median household income (1999). Studies have demonstrated an association between low income communities and higher density of liquor of alcohol outlets. The neighborhoods with the highest concentrations of permits are the Back Bay, Downtown, Fenway, and the South End, two of which also have high median household incomes.

Figure 3.14 Median Household Income and Liquor Licenses per Neighborhood, 2008

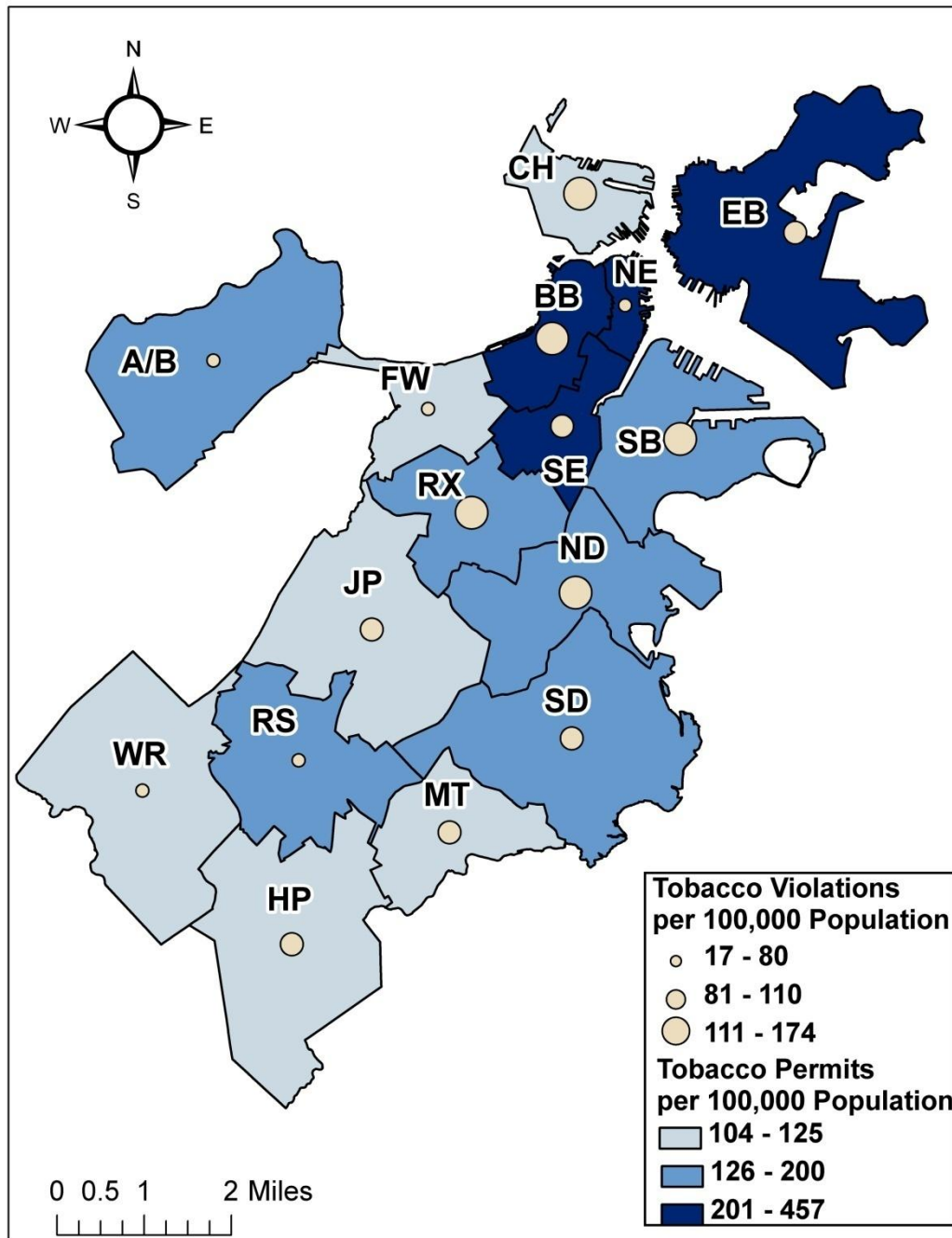


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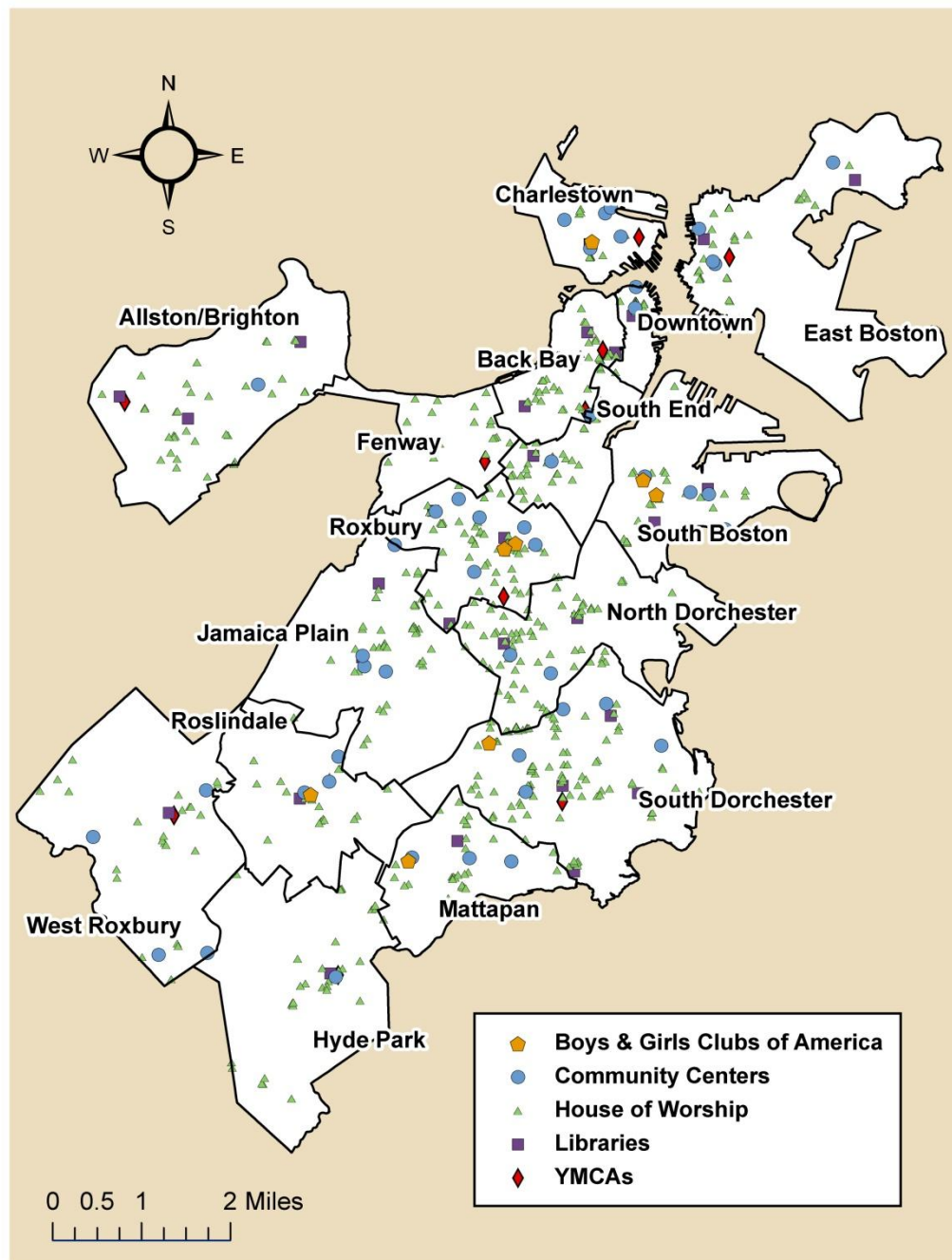
This map presents tobacco permits and violations, such as selling tobacco to minors, per 100,000 population. The highest concentration of permits is in the neighborhoods of Back Bay, the South End, the North End and East Boston. While Back Bay has a high concentration of permits, it also has a high number of violations, along with Charlestown, Roxbury, North Dorchester and South Boston.

Figure 3.15 Tobacco Permits and Violations by Neighborhood Population, 2008



This map shows places for residents to interact in their communities. Houses of worship, including churches, mosques and synagogues, are shown here, along with Boys and Girls Clubs, community centers, public libraries, and locations of the Greater Boston YMCAs. These places also provide social support in times of need, contributing to the quality of life of residents in the area.

Figure 3.16 Community Resources: Boys and Girls Clubs, Community Centers, Houses of Worship, Public Libraries, and YMCAs by Neighborhood, 2008

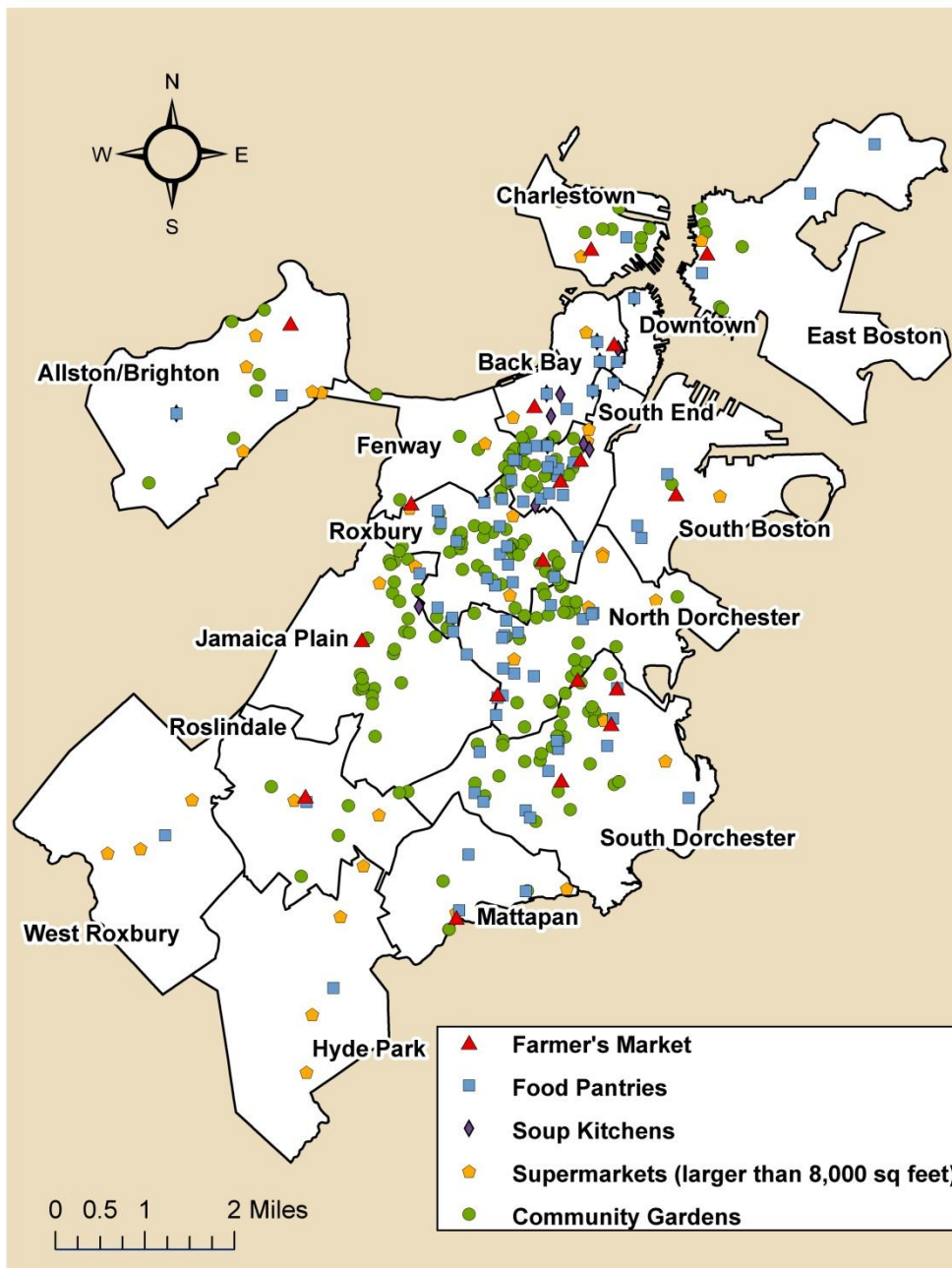


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Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

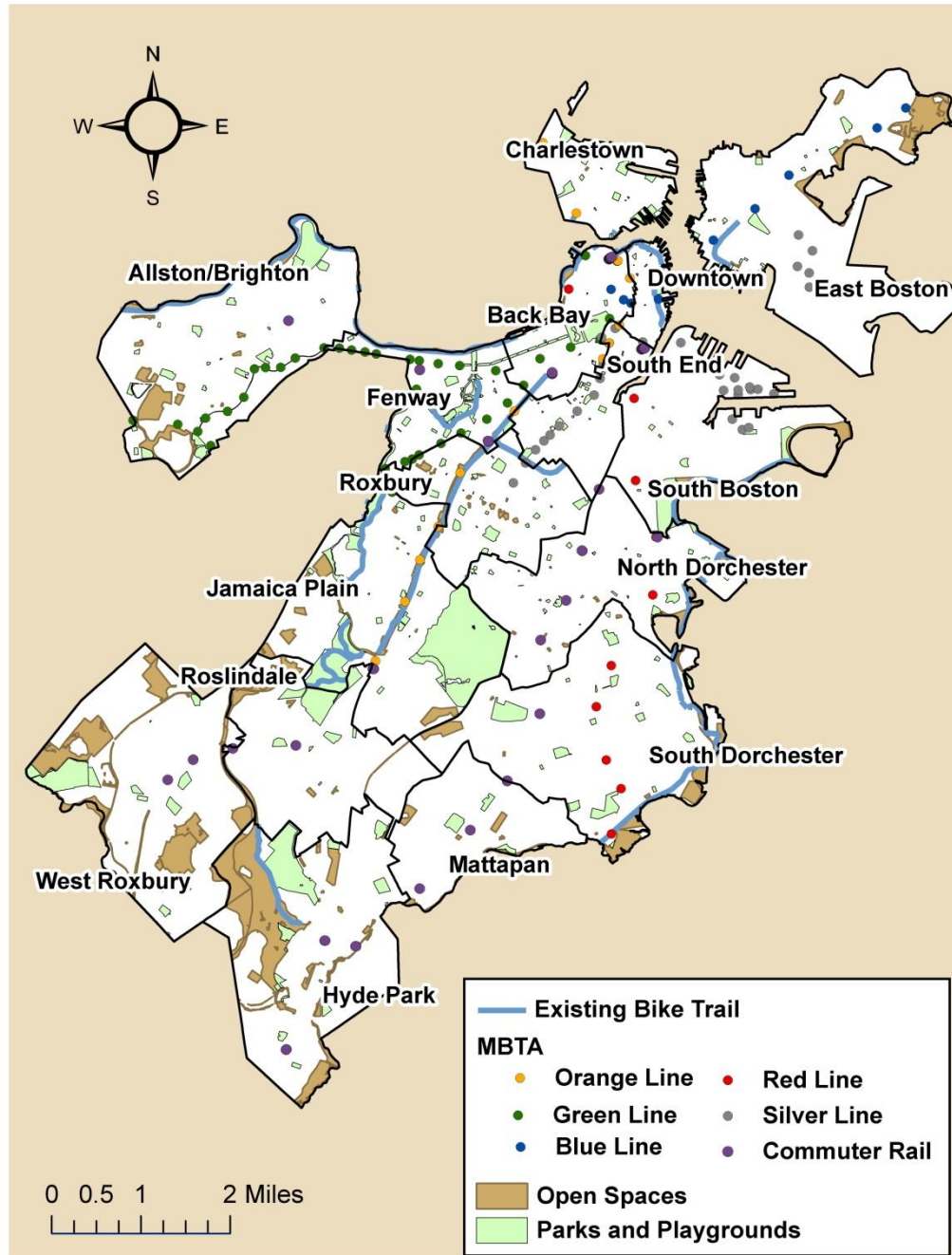
The City of Boston community gardens and farmer’s markets offer an alternative way for residents to enjoy local fruits and vegetables beneficial for their health. These are shown in the map below, along with supermarkets. The map also displays food pantries and soup kitchens, where food is offered at no or low cost for people in need. As the map shows, all neighborhoods have access to at least one supermarket. Food pantries, soup kitchens, community gardens and farmer’s markets are more heavily concentrated in Roxbury, North and South Dorchester, and the South End.

Figure 3.17 Food Assets: Community Gardens, Farmer’s Markets, Food Pantries, Selected Supermarkets, and Soup Kitchens, 2008



The City of Boston offers its residents many opportunities for recreation through the widely available parks and open spaces, such as urban wild areas, farms, and beaches, included in this map. The map also displays bike trails available for recreation and transportation purposes. Along with these, this map also presents the Massachusetts Bay Transportation Authority (MBTA) train and commuter rail stops.

Figure 3.18 Physical Assets: Bike Trails, MBTA Train Stations, Open Spaces, Parks, and Playgrounds



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Summary: Community Assets

Boston residents have access to an array of community assets. Boston has a considerable amount of green space dispersed throughout the city. For example, the “Emerald Necklace” is an 1100-acre, 7-mile long chain of parks. Franklin Park is the largest “gem” in the necklace – its 500 acres includes a zoo and a golf course. The city also has a 165-acre arboretum, a 68-acre pond used for fishing and boating, and 43 miles of ocean shoreline.

Boston neighborhoods are fairly well resourced in terms of community and religious organizations, and public institutions. Each neighborhood has numerous houses of worship and a public library, a community center, and a large supermarket. Most also have a health center, and a YMCA or Boys and Girls Club. Less evenly distributed are Farmer’s markets, community gardens, and food pantries. The maps presented here are useful starting points to analyze assets that contribute to Boston’s vitality, and to identify discrepancies among neighborhoods.

Civic participation, such as voting in major elections, is a type of a social community asset. Historically, voter turnout has been uneven throughout the city. However the number of voters increased in 2008 Presidential Election – 236,525 residents voted in this election, about 26% more than in 2000.

A recently conducted survey, the Boston Neighborhood Survey, found that indicators of social cohesion varied widely across neighborhoods. Responses in several neighborhoods, most notably, Charlestown, North End, and South Boston, indicated high levels of social cohesion. For example in these neighborhoods, more than 90% of survey respondents said that “people in the

neighborhood help each other;” more than 90% also said that “neighbors would organize to keep a fire station open.” Neighborhoods with responses that seemed to indicate lower levels of social cohesion seem to be those with large student populations.

While drug use was reported as a big neighborhood problem by only 18% of Boston residents, higher percentages were reported by residents of Charlestown and South Boston. In addition, less than half of Boston residents overall reported feeling their neighborhood is very safe. In neighborhoods like Mattapan, North Dorchester, and Roxbury, less than 25% reported their neighborhoods as being very safe.

Community assets can play a role in health experiences and outcomes of a population. When evaluating the resources available to a community, physical and social community assets must be considered.



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5. **Iannotta, J G and Ross, J L.** Equality of Opportunity and the Importance of Place: Summary of a Workshop. National Academies Press. [Online] 2002. [Cited: December 12, 2008.] http://books.nap.edu/openbook.php?record_id=10413&page=22.

Notes, Data Sources, and Data Analysis

Figure 3.1

DATA SOURCE and ANALYSIS: City of Boston Elections Department
GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 3.2

*includes Beacon Hill, Downtown, and the West End

†includes Chinatown

NOTE: Survey question reads, “In the past year, have you attended any meeting in your neighborhood, such as a community meeting, crime watch meeting, or block meeting?”

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 3.3

*includes Beacon Hill, Downtown, and the West End

†includes Chinatown

NOTE: Survey question reads, “Not Counting the people who live with you, how many friends live in your neighborhood?”

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 3.4

*includes Beacon Hill, Downtown, and the West End

†includes Chinatown

NOTE: Survey question reads, “Do you strongly agree people in my neighborhood share the same beliefs about what is right and wrong?”

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 3.5

*includes Beacon Hill, Downtown, and the West End

†includes Chinatown

NOTE: Survey question reads, “Agree people in my neighborhood are willing to help neighbors.”

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 3.6

*includes Beacon Hill, Downtown, and the West End

†includes Chinatown

NOTE: Survey question reads, “There are adults in my neighborhood that children can look up to.”

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 3.7

*includes Beacon Hill, Downtown, and the West End

†includes Chinatown

NOTE: Survey question reads, “You can count on adults in my neighborhood to watch out that children and teenagers are safe and stay out of trouble.”

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 3.8

*includes Beacon Hill, Downtown, and the West End

†includes Chinatown

NOTE: Survey question, “Suppose because of budget cuts, the city was going to close the local fire station, how likely is it that your neighbors would organize to keep it open?”

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 3.9

*includes Beacon Hill, Downtown, and the West End

†includes Chinatown

NOTE: Survey question reads, “If there was a fight in your neighborhood and someone was being beaten or threatened, how likely is it that your neighbors would do something about it?”

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 3.10

*includes Beacon Hill, Downtown, and the West End

†includes Chinatown

NOTE: Survey question reads, “In your neighborhood how much of a problem is people using or being addicted to drugs?”

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 3.11

*includes Beacon Hill, Downtown, and the West End

†includes Chinatown

NOTE: Survey question reads, “Do you consider your neighborhood very safe?”

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 3.12

*Too few cases to permit presentation of data

NOTE: The data reported by the Boston Police Department are based on criminal offenses that occur in Boston, and therefore, are not restricted only to Boston residents. However, data provided by the Boston Public Health Commission pertain only to Boston residents.

Key to Boston Police Department Areas: Area A (Downtown, Beacon Hill, North End, Chinatown, Charlestown, East Boston); Area B (Roxbury, Mission Hill, portions of Dorchester, Mattapan); Area C (South Boston, Dorchester); Area D (Back Bay, Fenway, the South End, Allston/Brighton); Area E (West Roxbury, Roslindale, Jamaica Plain, Hyde Park, and portions of Mattapan and Roslindale)

DATA SOURCE: Boston Police Department

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 3.13

NOTE: The data reported by the Boston Police Department are based on criminal offenses that occur in Boston, and therefore, are not restricted only to Boston residents. However, data provided by the Boston Public Health Commission pertain only to Boston residents.

Key to Boston Police Department Areas: Area A (Downtown, Beacon Hill, North End, Chinatown, Charlestown, East Boston); Area B (Roxbury, Mission Hill, portions of Dorchester, Mattapan); Area C (South Boston, Dorchester); Area D (Back Bay, Fenway, the South End, Allston/Brighton); Area E (West Roxbury, Roslindale, Jamaica Plain, Hyde Park, and portions of Mattapan and Roslindale)

DATA SOURCE: Boston Police Department

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 3.14

DISCLAIMER: BPHC makes no claims, no representations and no warranties, express or implied, concerning the validity (express or implied), the reliability or the accuracy of the GIS data furnished by BPHC, including the implied validity of any uses of such data.

DATA SOURCE: American Factfinder, Census 2000, Summary File-Sample data and the City of Boston Licensing board

DATA ANALYSIS: Boston Public Health Commission, Information Technology Systems, Geographical Information Systems Program

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office and Information Technology Systems, Geographical Information Systems Program

Figure 3.15

DISCLAIMER: BPHC makes no claims, no representations and no warranties, express or implied, concerning the validity (express or implied), the reliability or the accuracy of the GIS data furnished by BPHC, including the implied validity of any uses of such data.

ABBREVIATIONS KEY: A/B=Allston/Brighton (includes Beacon Hill, Downtown, and the West End), BB=Back Bay, CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, NE= North End, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

DATA SOURCE: Boston Public Health Commission Community Initiatives Bureau

DATA ANALYSIS: Boston Public Health Commission, Information Technology Systems, Geographical Information Systems Program

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office and Information Technology Systems, Geographical Information Systems Program

Figure 3.16

DISCLAIMER: BPHC makes no claims, no representations and no warranties, express or implied, concerning the validity (express or implied), the reliability or the accuracy of the GIS data furnished by BPHC, including the implied validity of any uses of such data.

DATA SOURCES: City of Boston and YMCA New England.

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office and Information Technology Systems, Geographical Information Systems Program

Figure 3.17

DISCLAIMER: BPHC makes no claims, no representations and no warranties, express or implied, concerning the validity (express or implied), the reliability or the accuracy of the GIS data furnished by BPHC, including the implied validity of any uses of such data.

NOTE: Supermarkets are defined according to size, in this case greater than 8,000 sq feet. This map does not include small markets and corner stores.

DATA SOURCES: City of Boston, the Greater Boston Food Bank, Boston Natural Areas Network and Massachusetts Department of Agricultural Resources.

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office and Information Technology Systems, Geographical Information Systems Program

Figure 3.18

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DATA SOURCE: MassGIS, Massachusetts Department of Conservation and Recreation, 2004; MassGIS, Central Transportation Planning Staff, updated in 2008; , and Boston Water and Sewer Commission

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office and Information Technology Systems, Geographical Information Systems Program

Section 4: Access to Health Care

The Institute of Medicine defines access to health care as “the timely use of personal health services to achieve the best possible health outcomes” (1). Having access to health care depends on many factors such as adequate insurance coverage, available medical services (which includes services within reasonable geographic proximity and appointments available within an appropriate time frame), transportation to reach services and an established regular source of care, like a primary care physician.

People at greater risk of not accessing health care include low income residents, people with physical and mental disabilities, those whose primary language is not English, the uninsured and underinsured, recent immigrants, and certain racial/ethnic groups. Not having access to care, in particular, preventive check-ups and timely treatment for health conditions, can lead to illness (which could have been prevented), the worsening of chronic conditions and, in some cases, death. In addition to the consequences for the individual, lack of access to medical and preventative care can affect the society as a whole by contributing to the rising costs of medical care and further burdening stressed emergency medical care systems (2).

This section looks at selected factors affecting access to care including health insurance coverage prior to the institution of Massachusetts’ laws to cover the uninsured population, specific barriers to accessing care and access to a regular primary care provider.

This section also considers access to dental care - an important part of overall health. Oral health problems cause pain; difficulty

in speaking, chewing, and swallowing; and, in some cases, loss of self-esteem, or even death, as in the case of oral cancer. Regular visits to the dentist offer an opportunity for the early diagnosis, prevention, and treatment of oral diseases and conditions. Although a key component of general health, oral health care is often neglected by people who may not feel it is as important as general health care (3) or find that oral health care is less likely to be covered by insurance, and when covered, deductibles are prohibitively high (4).

Healthy People 2010 Targets (5):

Increase the proportion of persons with health insurance to 100%

Increase the proportion of persons with a usual primary care provider to 85%.

Increase the proportion of adults who use the oral health system to 65%.



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

The percentage of adult residents who reported having health insurance was similar in 2001, 2003, 2005, and 2006.

In 2005, a lower percentage of Latino adults reported having insurance coverage than White adults.

In 2006, the percentage of Asian, Black, Latino and White adults with some health insurance coverage was similar.

A higher percentage of female adults reported having health insurance than male adults.

Figure 4.1 Health Care Coverage, 2001, 2003, 2005 and 2006

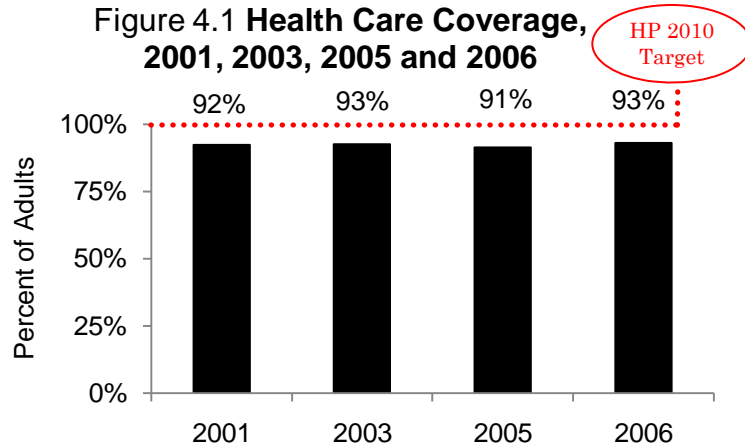


Figure 4.2 Health Care Coverage by Race/Ethnicity, 2005 and 2006

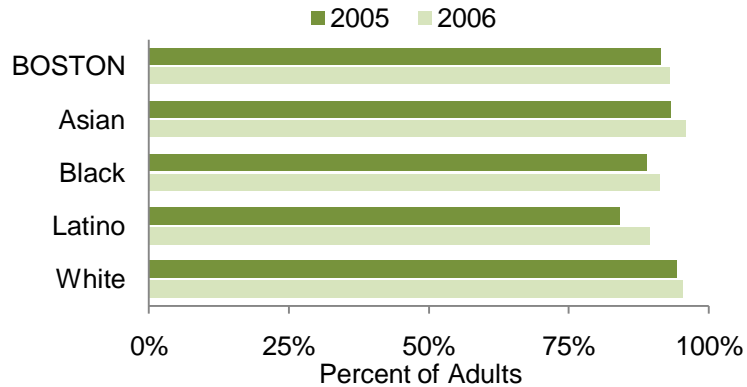


Figure 4.3 Health Care Coverage by Gender, 2005 and 2006 Combined

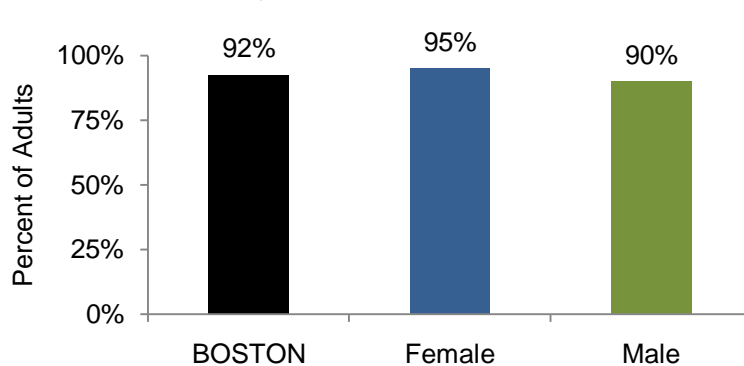
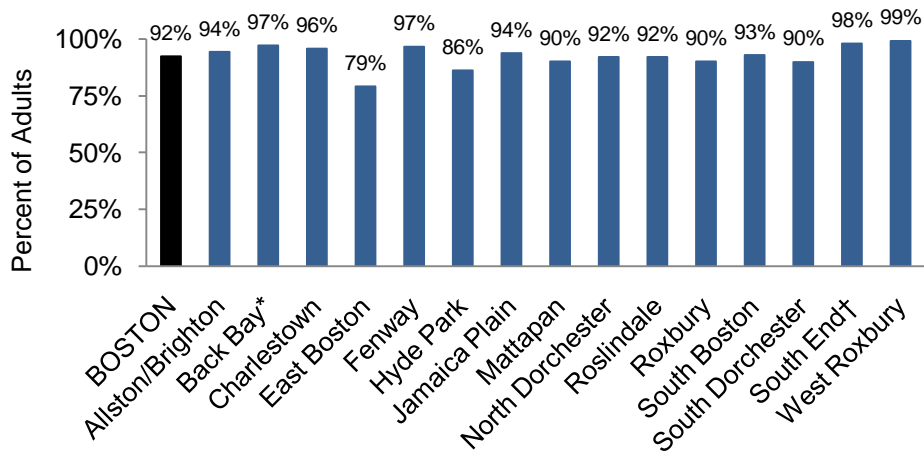


Figure 4.4 Health Care Coverage by Neighborhood, 2005 and 2006 Combined

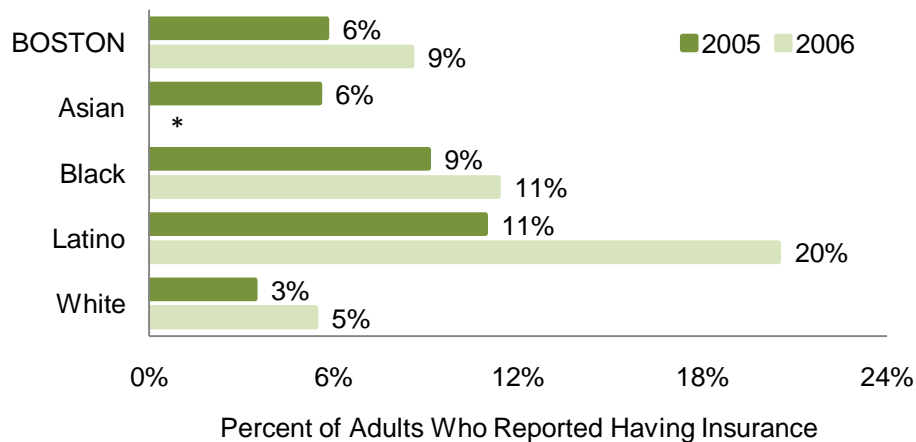


A higher percentage of adults living in Back Bay, Fenway, South End and West Roxbury, reported having health insurance coverage than Boston adult residents overall.

A lower percentage of adults living in East Boston reported having health insurance coverage compared to Boston overall.

Among insured residents in both 2005 and 2006, higher percentages of Black and Latino adults reported cost as a barrier to seeing a doctor in the preceding 12 months than White adults.

Figure 4.5 Cost as Barrier to see Doctor in the Past 12 Months, by Race/Ethnicity, 2005 and 2006



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

A lower percentage of Asian adults reported having a personal doctor or health care provider than White adults.

A lower percentage of male adults reported having a personal doctor or health care provider than female adults.

In 2003, the percentage of adults who reported visiting the dentist was similar across racial/ethnic groups.

In 2005, a lower percentage of Latino adults visited the dentist within the past year compared to White adults.

Figure 4.6 Residents with Primary Care Provider by Race/Ethnicity, 2006

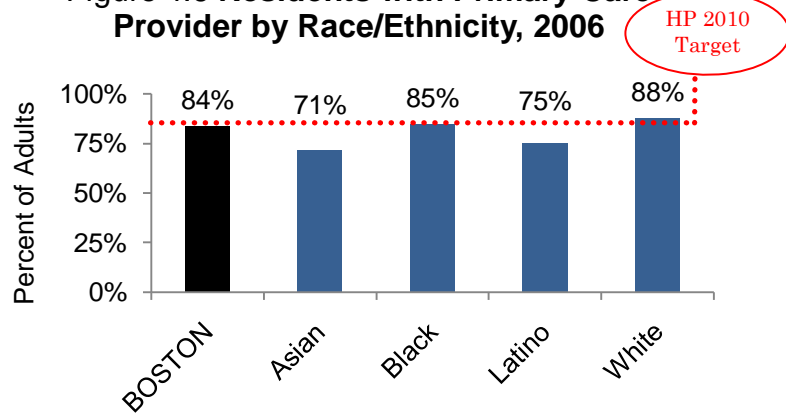


Figure 4.7 Residents with Primary Care Provider by Gender, 2006

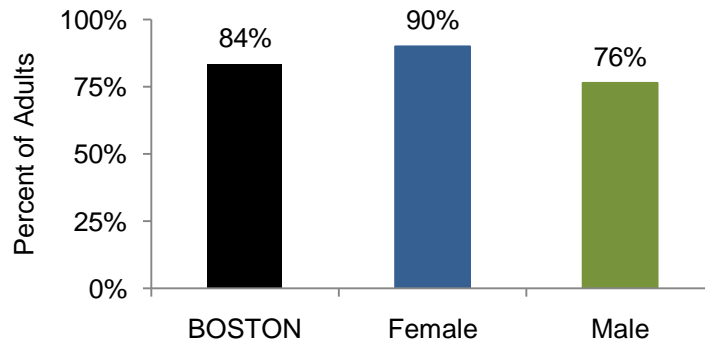


Figure 4.8 Residents Reported Visiting Dentist Within the Past Year by Race/Ethnicity, 2003 and 2005

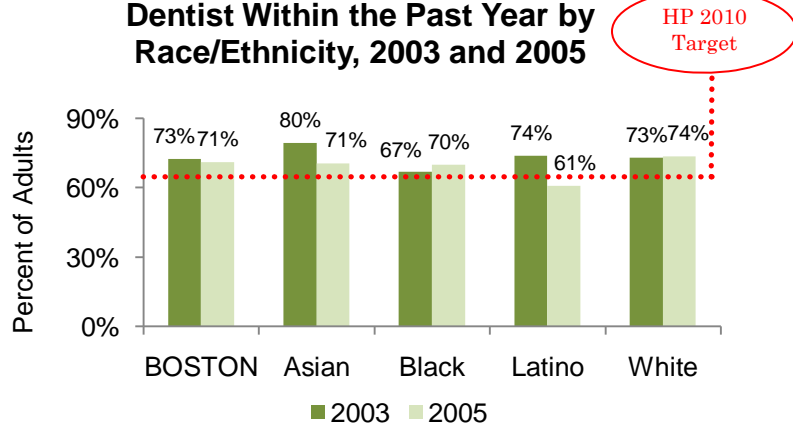
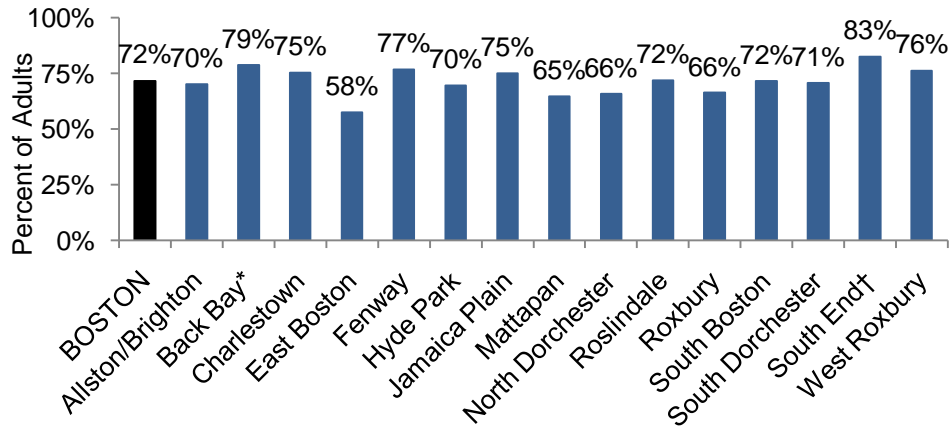


Figure 4.9 Residents who Reported Visiting Dentist Within the Past Year by Neighborhood, 2003 and 2005 Combined



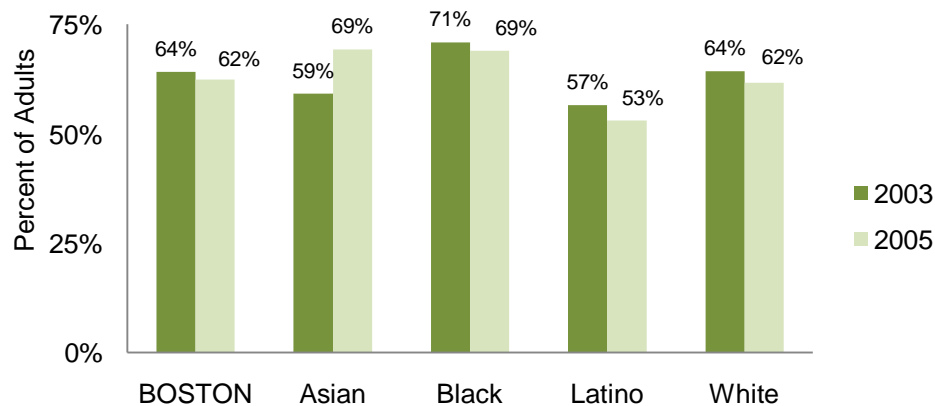
Back Bay and the South End had a higher percentage of adults who reported visiting the dentist in the past year when compared to Boston residents overall.

A lower percentage of East Boston residents reported visiting the dentist within the past year compared to Boston overall.

In Boston overall and within each racial/ethnic group, the percentage of adult residents with dental insurance was similar when comparing 2003 to 2005.

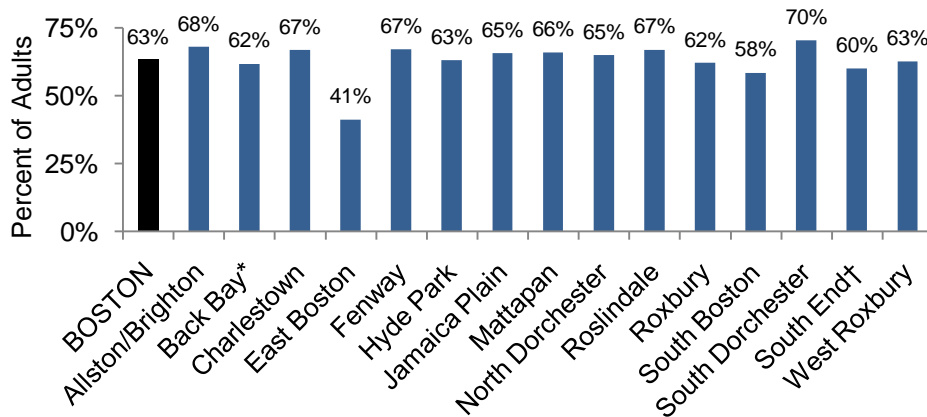
A lower percentage of Latino residents reported having insurance to cover routine dental care compared to Black residents in 2005.

Figure 4.10 Residents with Insurance to Cover Routine Dental Care by Race/Ethnicity, 2003 and 2005



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section. 51

Figure 4.11 Insurance to Cover Dental Care by Neighborhood, 2003 and 2005 Combined

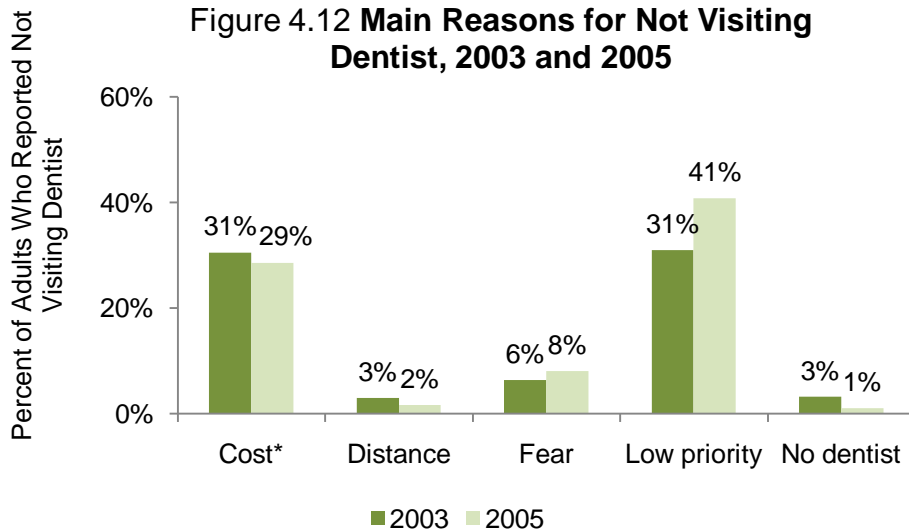


East Boston had a lower percentage of adult residents with insurance to cover routine dental care compared to Boston adult residents overall.

In the remaining neighborhoods, the percentage of adults who reported having dental insurance was similar to the percentage for Boston adults overall.

Among adults who reported not visiting the dentist within the past year in 2003 and 2005, the most common reason reported for not visiting the dentist was “low priority”. The second most common reason was the cost, which includes lack of insurance to cover dental care.

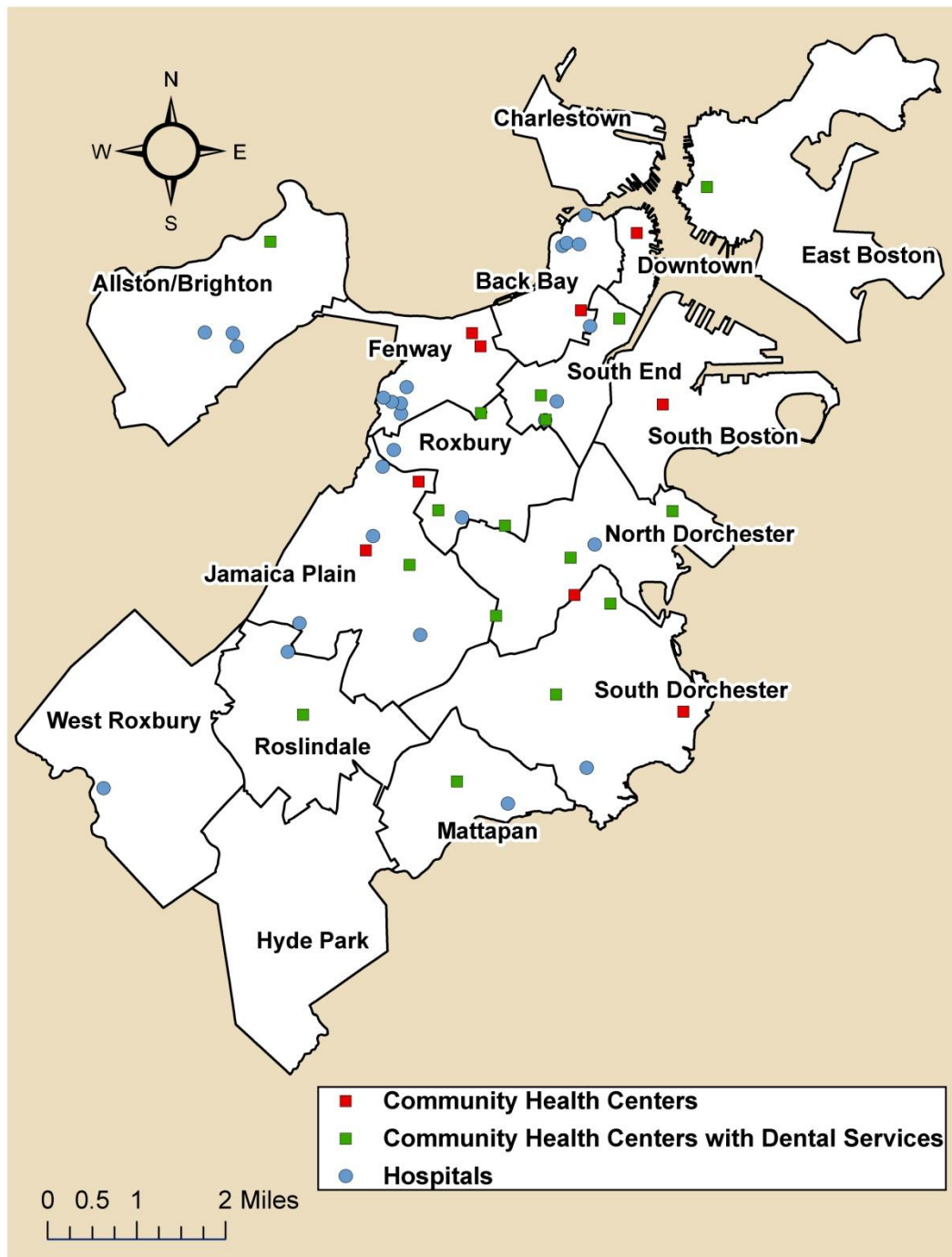
Figure 4.12 Main Reasons for Not Visiting Dentist, 2003 and 2005



52 For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

An important component of health care is having facilities accessible to the public. The following map shows some of the available larger health care facilities in the city including hospitals, and community health centers. It also highlights community health centers that provide dental services for its patients or clients. This map does not include individual doctors or dentists in the city.

Figure 4.13 Selected Health Care Facilities by Neighborhood, 2008



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Summary: Access to Health Care

Access to adequate health care is essential to disease prevention and management. The data presented here represent a period prior to the enactment and complete implementation of Massachusetts Health Care Reform. Although the percentage of adult Boston residents with access to some form of health insurance coverage remained stable from 2001 to 2006, consistently a higher percentage of women reported having health insurance coverage compared to men.

Although the percentage of Asian, Black Latino, and White adult residents who reported having some health insurance coverage was similar, the type and extent of insurance coverage varies from individual to individual and may not be uniform across racial/ethnic groups. In aggregate, such potential differences could contribute to disparities in health outcomes. Among insured residents, Blacks and Latinos reported cost as a barrier to accessing health care more often than Whites. Of all adults, a lower percentage of Asians reported having a primary care physician compared to Whites. Although an individual may report having health insurance coverage, the inadequacy of the coverage often remains a barrier to accessing adequate and appropriate health care.

Compared to Boston overall, a lower percentage of East Boston residents reported having health and dental insurance coverage, and having visited the dentist in the past year. Based on these limited data, East Boston residents appear to face particular challenges to accessing health care.



54 For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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Notes, Data Sources, and Data Analysis

Figure 4.1

NOTE: Survey question reads, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2001, 2003, 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.2

NOTE: Survey question reads, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.3

NOTE: Survey question reads, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.4

* Includes Beacon Hill, Downtown, North End, and West End

† Includes Chinatown

NOTE: Survey question reads, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.5

* Insufficient sample size for Asians in 2006

NOTE: Survey question reads, “Was there a time in the past 12 months when you needed to see a doctor but could not because of the cost?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.6

NOTE: Survey question reads, “Do you have one person you think of as your personal doctor or health care provider?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.7

NOTE: Survey question reads, “Do you have one person you think of as your personal doctor or health care provider?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.8

NOTE: Survey question reads, “How long has it been since you last visited a dentist or a dental clinic for any reason?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2003 and 2005, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.9

*Includes Beacon Hill, Downtown, North End, and West End

† Includes Chinatown

NOTE: Survey question reads, “How long has it been since you last visited a dentist or a dental clinic for any reason?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2003 and 2005, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.10

NOTE: Survey question reads, “Do you have any kind of insurance coverage that pays for some or all of your routine dental care, including dental insurance, prepaid plans such as HMO’s, or government plans such as Medicaid?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2003 and 2005, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.11

* Includes Beacon Hill, Downtown, North End, and West End

† Includes Chinatown

NOTE: Survey question reads, “Do you have any kind of insurance coverage that pays for some or all of your routine dental care, including dental insurance, prepaid plans such as HMO’s, or government plans such as Medicaid?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2003 and 2005, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.12

* Includes people reporting lack of insurance to cover dental care

NOTE: Survey question reads, “What is the main reason you have not visited the dentist in the last year?” This question was asked to respondents who reported visiting the dentist more than a year ago or never.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2003 and 2005, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 4.13

DISCLAIMER: BPHC makes no claims, no representations and no warranties, express or implied, concerning the validity (express or implied), the reliability or the accuracy of the GIS data furnished by BPHC, including the implied validity of any uses of such data.

DATA SOURCES: MassGIS and Boston Public Health Commission Community Initiative Bureau

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Section 5: Environmental Health

The environment can influence the health of a population. Several diseases are linked to environmental conditions including, but not limited to diarrheal diseases, unintentional injuries, respiratory infections, and lead poisoning (1). When looking at the relationship between the environment and health, the environment should be defined broadly to include the natural, built, and social environment. The natural environment includes biological and chemical components. The built environment includes the physical structures where people live and work such as homes, offices, factories, schools, and infrastructure such as roads and transportation systems. The social environment encompasses lifestyle factors such as diets and exercise, socioeconomic status, and other societal influences (2).

Specific environmental health hazards may vary depending on economic status and infrastructure of a given country or community. Contaminated water, poor sanitation and waste disposal, and deficient food hygiene are “traditional” health hazards common in resource poor settings (1). In industrialized nations, such as the United States, patterns of production and consumption have led to the development of “modern” environmental health hazards including air, water and soil pollution, unsafe use of chemicals, inadequate solid and hazardous waste management, climate change, ozone layer depletion and acid rain due to the use of fossil fuels (1). Often, these modern hazards are present in addition to the traditional health threats, particularly in rapidly industrializing nations (1).

This section examines elevated lead blood levels among children in Boston and data on air quality standards from national and regional sources. High blood lead levels in

children have been linked to nervous system damage, behavior and learning difficulties, stunted growth and hearing disorders. In adults, high lead levels have been linked to reproductive problems, high blood pressure, and memory and concentration problems (3). Poor air quality has been linked to aggravation of respiratory diseases and cardiovascular diseases, increased susceptibility to respiratory infections, effects on the nervous system including impacts on learning, memory and behavior, and cancer (4) (5) (6).

Healthy People 2010 Targets (7)

Eliminate elevated blood levels in children to zero percent of children.



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

In 2008, 23,678 Boston children were screened for elevated lead levels in their blood. Of the children screened, 1.2% had elevated blood lead levels, defined as 10 micrograms per deciliter ($\mu\text{g}/\text{dl}$) or higher. This represents an 18.8% decrease from 2007.

In 2008, children ages 5-6 had the highest positive screening percentage (2.2%), meaning elevated blood lead levels of 10 micrograms per deciliter ($\mu\text{g}/\text{dl}$) or higher. This was 83.3% greater than the Boston overall positive screening percentage.

Of those children who were screened in 2008 and found to have elevated blood lead levels (10 micrograms per deciliter ($\mu\text{g}/\text{dl}$) or higher), 56.0% were males.

Figure 5.1 Children with Elevated Blood Lead Levels, 1995-2008

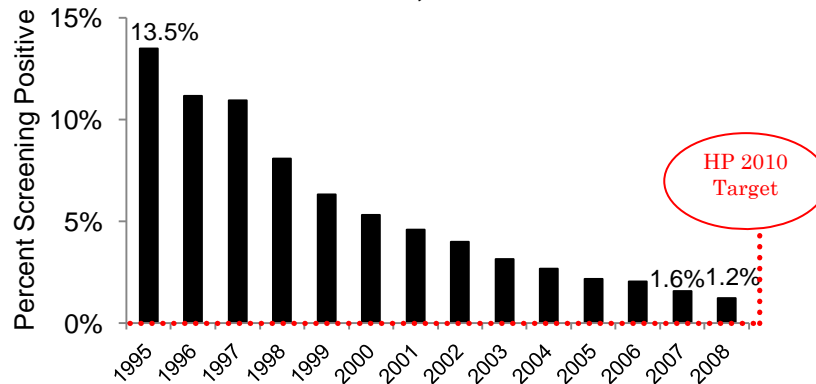


Figure 5.2 Children With Elevated Blood Lead Levels by Age Group, 2008

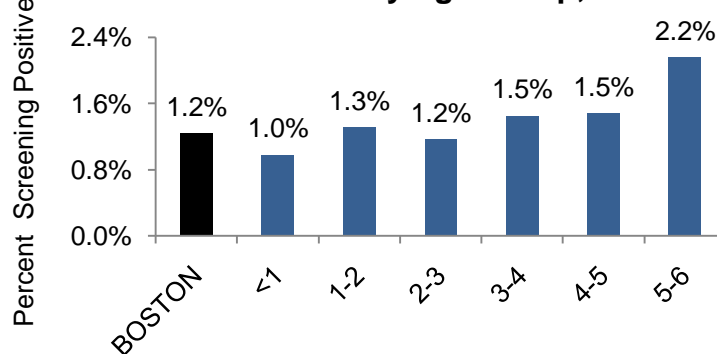


Figure 5.3 Gender Distribution Among Children with Elevated Blood Lead Levels, 2008

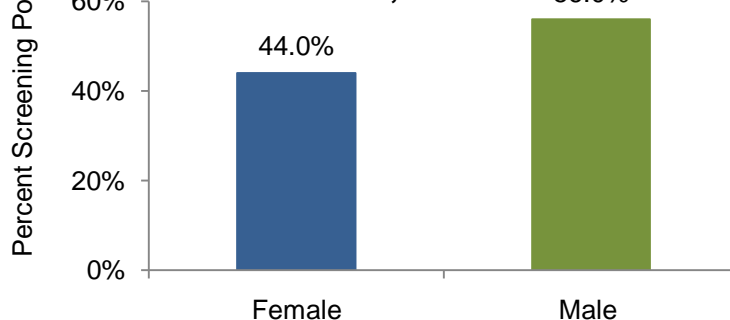
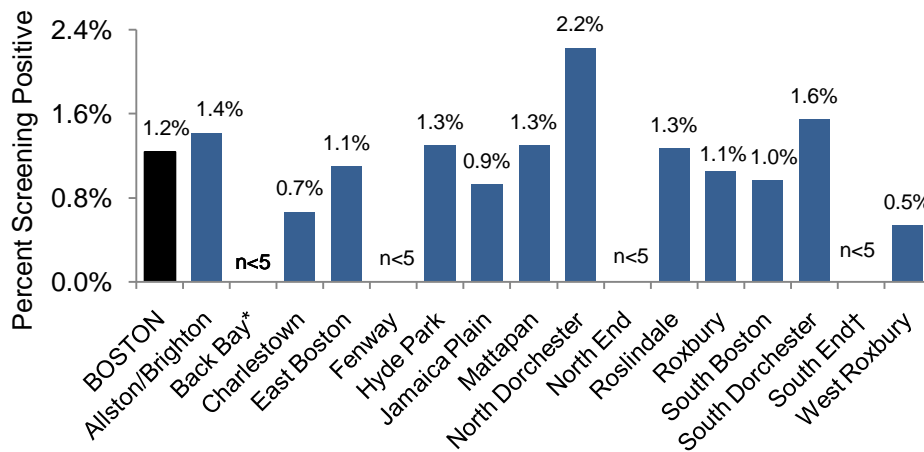


Figure 5.4 Children with Elevated Blood Lead Levels by Neighborhood, 2008



Among Boston Neighborhoods in 2008, the percentage of children with elevated blood lead levels (10 micrograms per deciliter ($\mu\text{g}/\text{dl}$) or higher) was greatest in North and South Dorchester.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

What are the National Ambient Air Quality Standards?

The U.S. Environmental Protection Agency Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for six principal pollutants, also called "criteria" pollutants (4) (5). They are listed below:

- Carbon Monoxide (CO) measured in parts per million (ppm)
- Ozone (O₃) measured in parts per million (ppm)
- Lead (Pb) measured in micrograms per cubic meter of air (µg/m₃)
- Nitrogen Dioxide (NO₂) measured in parts per million (ppm)
- Particulate Matter (PM) measured in micrograms per cubic meter of air (µg/m₃)
- Sulfur Dioxide (SO₂) measured in parts per million (ppm)

Motor vehicles, including cars, trucks and off-road vehicles, contribute more than one half of New England's ozone forming pollutants. Cars and trucks also emit particulate matter, air toxins, carbon monoxide, and carbon dioxide.

The data presented here are for the Boston Primary Metropolitan Statistical Area (5) (8) (9). This area is defined by the United States Environmental Protection Agency and in addition to Boston, includes a number of cities and towns that are located within the Route I95 and I495 beltways that fan out from the city of Boston and parts of two towns in the southeastern tip of Rockingham County, New Hampshire.



Figure 5.5 Boston Primary Metropolitan Statistical Area ⁽¹⁾ Air Quality Statistics, 2006 and 2007			
	National Ambient Air Quality Standards	Metropolitan Statistical Area Boston, MA--NH PMSA	
		2006	2007
Carbon Monoxide ⁽²⁾ 8-hr (ppm)	9	2	1
Lead ⁽³⁾ (µg/m ³)	1.50	0.01	0.01
Nitrogen Dioxide ⁽⁴⁾ (ppm)	0.053	0.023	0.021
Ground-Level Ozone ⁽⁵⁾ (ppm)	0.075	0.083	0.088
Particulate Matter ₁₀ ⁽⁶⁾ (µg/m ³)	150	46	38
Particulate Matter _{2.5} ⁽⁷⁾ (µg/m ³)	35.00	29	32
Sulfur Dioxide ⁽⁸⁾ (ppm)	0.030	0.004	0.006

For the Boston Primary Metropolitan Statistical Area (PMSA) area, ground-level ozone is higher than the national air quality ambient standards. For other air pollutants, the Boston Primary Metropolitan Statistical Area (PMSA) area is within national standards.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Summary: Environmental Health

The data presented here reveal a positive picture for specific environmental health hazards in Boston. Air quality data suggest that, except for ozone, Boston Primary Metropolitan Statistical Area (which includes several areas outside the city limits) has met or exceeded national air quality standards. With respect to elevated blood lead levels among Boston children ages 6 and under, the percentage who screen positive for an elevated blood lead level continues to decline. Over the past 14 years, the percentage of children who have tested positive for elevated blood lead levels has dropped by 91.1%. With respect to these measures of environmental conditions in Boston, the city continues to demonstrate measureable improvement.



References

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9. **U.S. Environmental Protection Agency.** Air and Radiation. *Air Quality Statistics by City, 2006 and 2007.* [Online] [Cited: February 24, 2009.] <http://www.epa.gov/air/airtrends/factbook.html>.

Notes, Data Sources, and Data Analysis

Figure 5.1

NOTE: These data may include some children over the age of 6 who may be in follow-up care.

DATA SOURCE AND ANALYSIS: Boston Public Health Commission Office of Environmental Health

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 5.2

NOTE: These data do not include persons whose age was not reported, except in the Boston overall count and rate.

DATA SOURCE AND ANALYSIS: Boston Public Health Commission Office of Environmental Health

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 5.3

NOTES: These data do not include persons whose sex was not reported.

DATA SOURCE AND ANALYSIS: Boston Public Health Commission Office of Environmental Health

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 5.4

* Includes Beacon Hill, Downtown and West End

† Includes Chinatown

NOTE: There were too few cases of children who screened positive to permit presentation of percentages for Back Bay, Fenway, North End, and South End. The data shown in the chart do not include those children whose neighborhood of residence is unknown or those children who are not Boston residents.

DATA SOURCE AND ANALYSIS: Boston Public Health Commission Office of Environmental Health

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 5.5

¹ The Boston Primary Metropolitan Statistical Area (PMSA) is defined as follows by the EPA: it includes parts of New Hampshire and is made up of two towns in the southeastern tip of Rockingham County, Seabrook and South Hampton. Massachusetts portion is made up of a host of towns located within the Route I95 and I495 beltways that fan out from Boston.

² Not to be exceeded more than once per year.

³ Highest quarterly maximum concentration

⁴ Highest arithmetic mean concentration

⁵ To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)

⁶ Highest second maximum 24-hour concentration; Not to be exceeded more than once per year on average over 3 years.

⁷ Highest 98th percentile 24-hour concentration; To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³ (effective December 17, 2006).

⁸ Highest annual mean concentration

DATA SOURCE: US Environmental Protection Agency, National Ambient Air Quality Standards and Air Quality Statistics by City, 2006 and 2007

DATA GRAPHICS: Boston Public Health Commission Research and Evaluation Office

Section 6: Health Behaviors

Personal health behaviors have a substantial influence on overall health outcomes. Tobacco use, poor diet, physical inactivity, and alcohol consumption are major contributing causes of death in the U.S. in almost 40% of deaths for cancer, heart disease, diabetes, and other chronic diseases (1).

Influencing individuals to adopt more positive personal health behaviors can be one of the most cost-effective tools for helping them to achieve and maintain good health (1,2). However, personal health behaviors exist in the context of complex interpersonal, cultural, organizational, political, and societal environments that strongly influence individual choices and behavior (3). These environments may include both positive and negative factors that influence behavior and must be considered in the design of interventions intended to bring about behavior change.

This section provides a detailed description of the health behaviors of Boston residents. The information includes self-reported data on physical activity, consumption of fruits and vegetables, excessive alcohol use, and cigarette smoking. Data on sexual behaviors can be found in the Sexual Health section of this report.



Healthy People 2010 Targets (4, 5,6)

- Increase the proportion of adults who engage in moderate physical activity for at least 30 minutes per day 5 or more days per week or vigorous physical activity for at least 20 minutes per day 3 or more days per week to 50 percent
- Reduction in adolescents aged 12 to 17 years engaging in binge drinking during past month to 3.1 percent
- Reduction in adults 18 years and older engaging in binge drinking during past month to 13.4 percent
- Reduce cigarette smoking in the past month by students in grades 9 through 12 to 16 percent
- Reduce cigarette smoking by adults aged 18 years and older to 12 percent



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Regular physical activity for adolescents is defined as engaging in physical activity for at least one hour per day on five or more days per week.

Among Boston public high school students, a higher percentage of White students reported participating in regular physical activity compared to other

Approximately one-third of male students compared to only a quarter of female students reported engaging in regular physical activity.

A higher percentage of students under age 16 reported participating in regular physical activity than students ages 16-17.

Figure 6.1 High School Students who Engage in Regular Physical Activity by Race/ Ethnicity, 2007

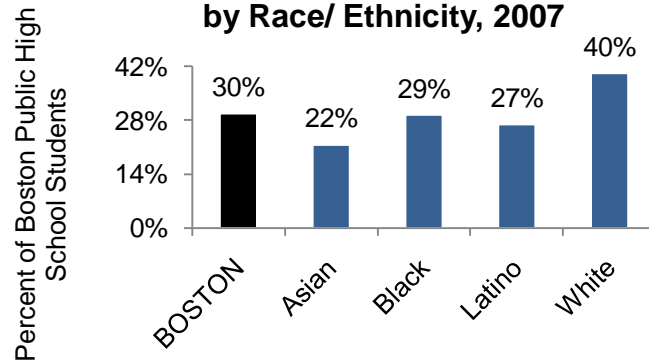


Figure 6.2 High School Students who Engage in Regular Physical Activity by Gender, 2007

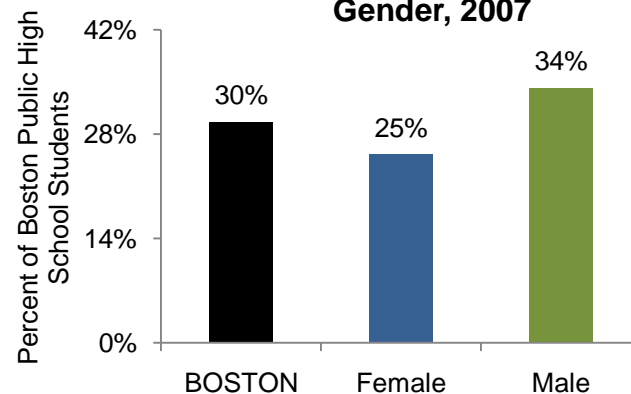


Figure 6.3 High School Students who Engage in Regular Physical Activity by Age, 2007

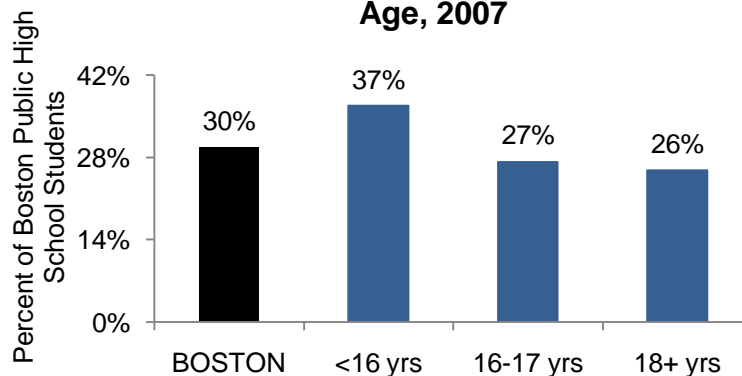
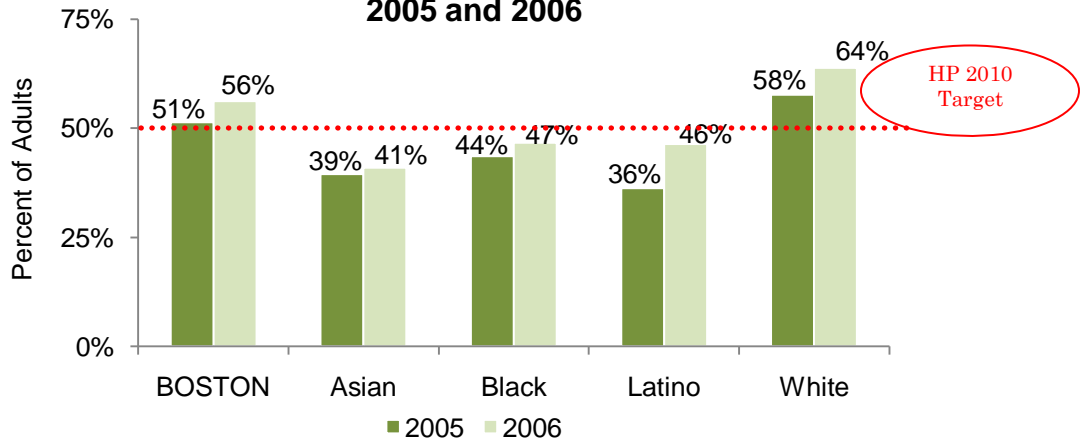


Figure 6.4 Adults Who Engage in Regular Physical Activity by Race/ Ethnicity, 2005 and 2006



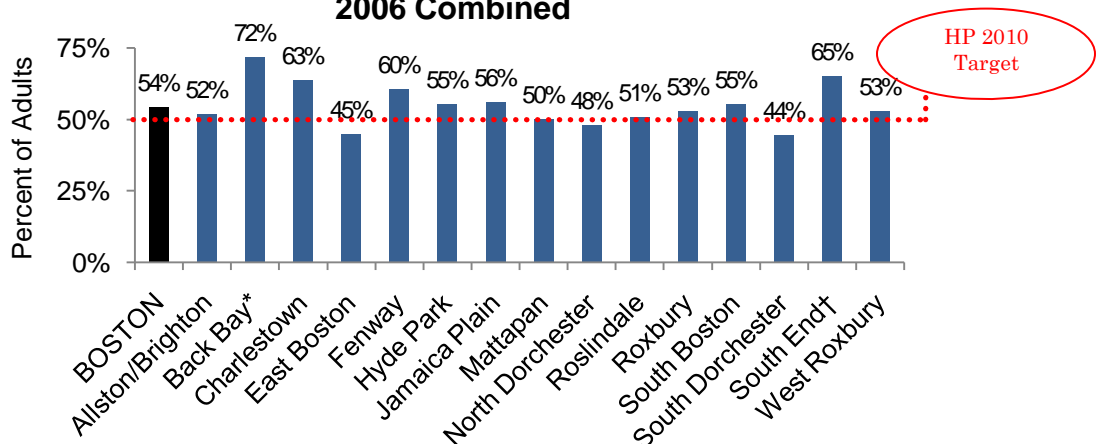
For adults, regular physical activity is defined as vigorous activity for 20 minutes per day on 3+ days a week or moderate activity for 30 minutes per day on 5+ days a week. Approximately 56% of Boston adults engaged in regular physical activity in 2006.

A higher percentage of White adults reported engaging in regular physical activity than Black, Latino, and Asian adults in 2005 and 2006.

Compared to Boston adults overall, a lower percentage of adults in South Dorchester reported engaging in regular physical activity.

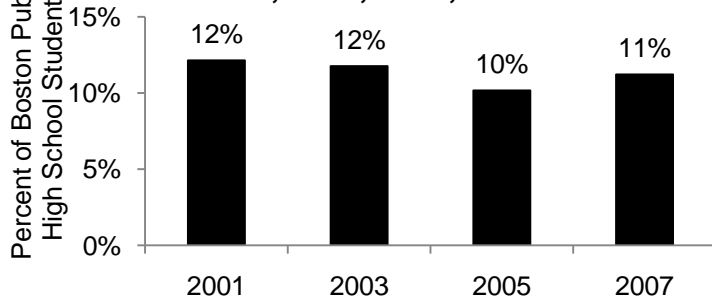
A higher percentage of Back Bay and South End adults reported engaging in regular physical activity compared to Boston adults overall.

Figure 6.5 Adults Who Engage in Regular Physical Activity by Neighborhood, 2005 and 2006 Combined



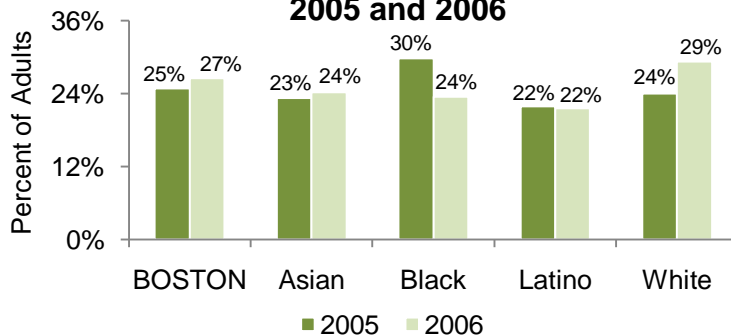
For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Figure 6.6 High School Students who Consume Recommended Daily Fruits and Vegetables, 2001, 2003, 2005, and 2007



Approximately one in ten Boston high school students reported eating five or more servings of fruits and vegetables daily. This low rate remained consistent over the years shown.

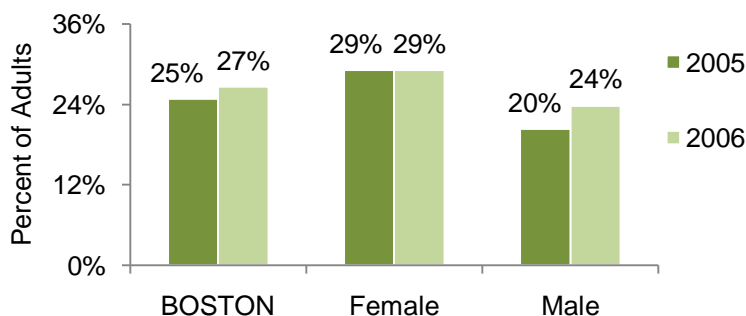
Figure 6.7 Adults who Consume Recommended Daily Fruits and Vegetables by Race/Ethnicity, 2005 and 2006



About one in four adults in Boston reported consuming five or more servings of fruits and vegetables per day.

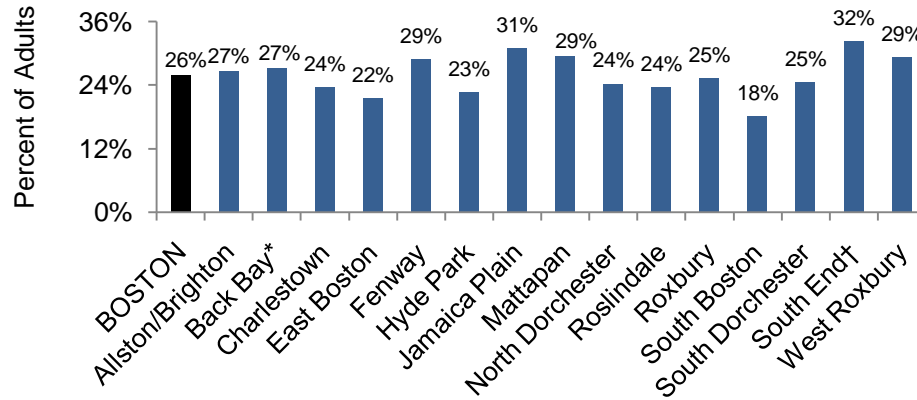
Across racial/ethnic groups the percentage of adults who reported consuming five or more servings of fruits and vegetables per day was similar.

Figure 6.8 Adults who Consume Recommended Daily Fruits and Vegetables by Gender, 2005 and 2006



In 2005, a higher percentage of females consumed five or more servings of fruits and vegetables per day than males.

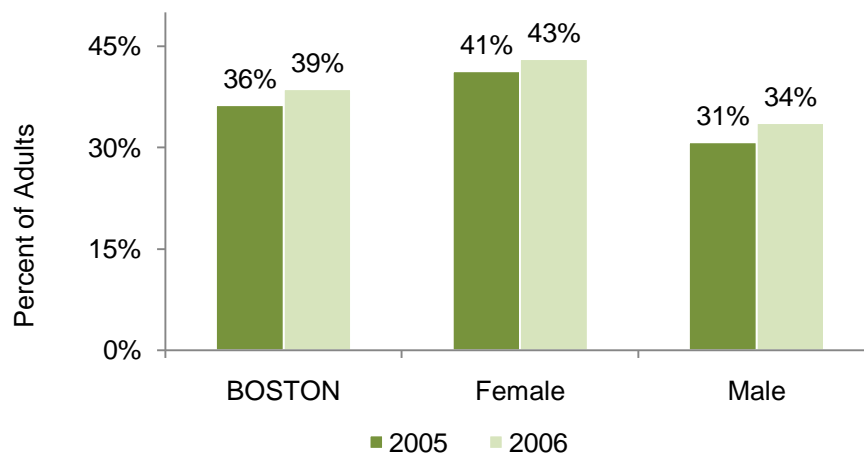
Figure 6.9 Adults who Consume Recommended Daily Fruits and Vegetables by Neighborhood, 2005 and 2006 Combined



Across neighborhoods, the percentage of Boston adults who reported consuming five or more servings of fruits and vegetables daily was similar to Boston overall, with the exception of South Boston where a lower percentage of adults reported adequate fruit and vegetable consumption.

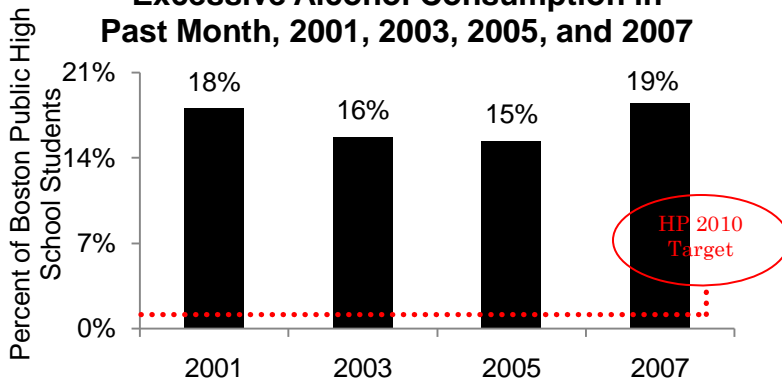
In 2005 and 2006, more than one-third of adult Bostonians reported trying to lose weight. A higher percentage of females reported trying to lose weight compared to males in both 2005 and 2006.

Figure 6.10 Adults Currently Trying to Lose Weight by Gender, 2005 and 2006



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

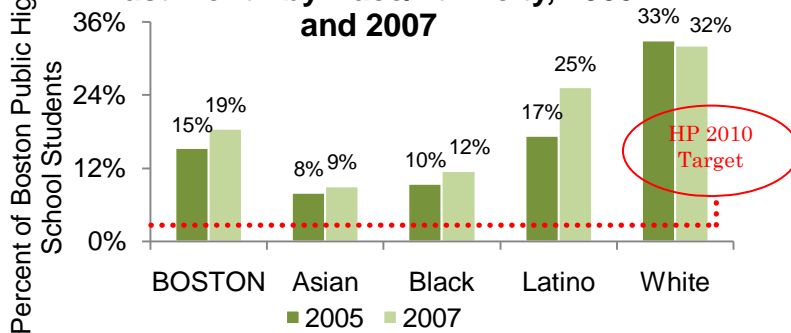
Figure 6.11 High School Students with Excessive Alcohol Consumption in Past Month, 2001, 2003, 2005, and 2007



In 2007, approximately one in five high school students reported excessive alcohol consumption or binge drinking (5 or more alcoholic drinks on one occasion in the past month).

The percentage of students who reported binge drinking alcohol was similar in 2001, 2003, 2005, and 2007.

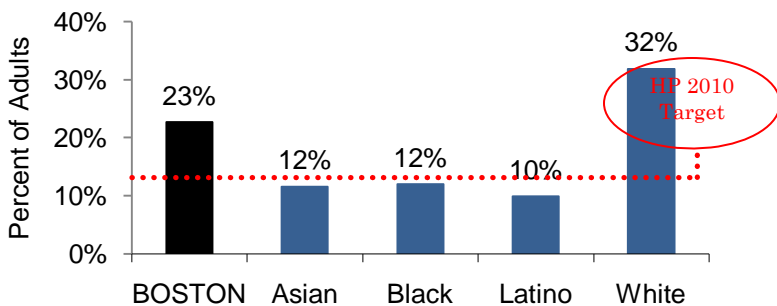
Figure 6.12 High School Students with Excessive Alcohol Consumption in Past Month by Race/Ethnicity, 2005 and 2007



A higher percentage of White students reported binge drinking than Black or Asian students in 2005 and 2007.

A lower percentage of less than 16 year old students reported binge drinking than students ages 16-17 and 18 and older (data not shown).

Figure 6.13 Adults with Excessive Alcohol Consumption in Past Month by Race/ Ethnicity, 2006



Excessive alcohol consumption or binge drinking is defined for adults as the consumption of five or more alcoholic drinks for men, or four or more drinks for women, on one occasion.

A higher percentage of White adults compared to Black adults reported binge drinking during the previous 30 days.

There was a decrease in the percentage of high school students who reported smoking from 2001 to 2007.

A higher percentage of White students reported smoking cigarettes during the past month than Black or Latino students in 2005 and 2007.

The percentage of students who reported smoking decreased among Blacks, Latinos, and Whites from 2005 to 2007.

There was a decline in the percentage of adults who smoked cigarettes from 2001 to 2006.

In 2006, 15% of females and 18% of males reported smoking cigarettes (data not shown).

Figure 6.14 High School Students who Smoked Cigarettes During Past Month, 2001, 2003, 2005, and 2007

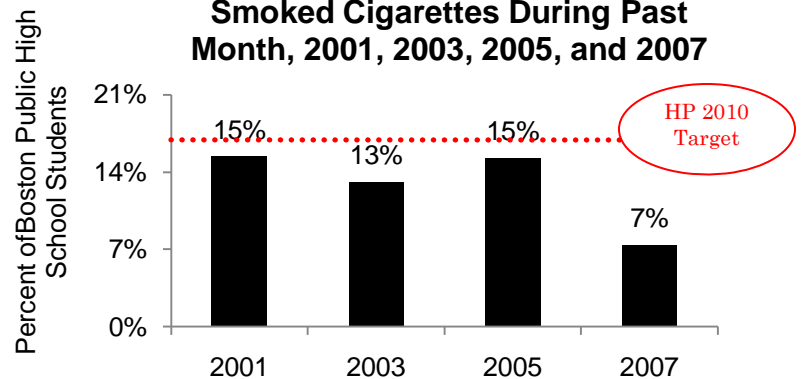


Figure 6.15 High School Students who Smoked Cigarettes During Past Month by Race/Ethnicity, 2005 and 2007

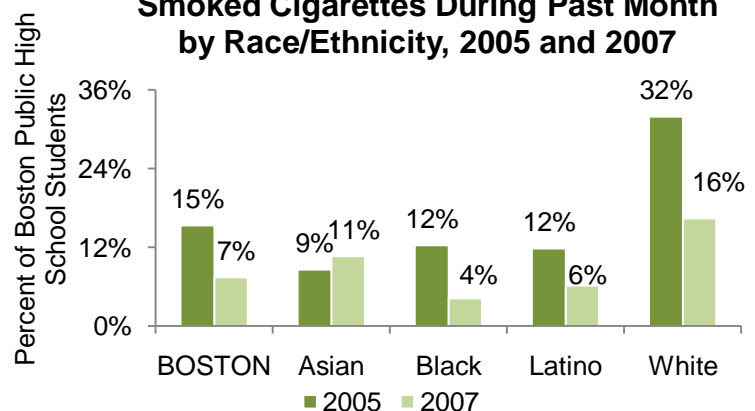
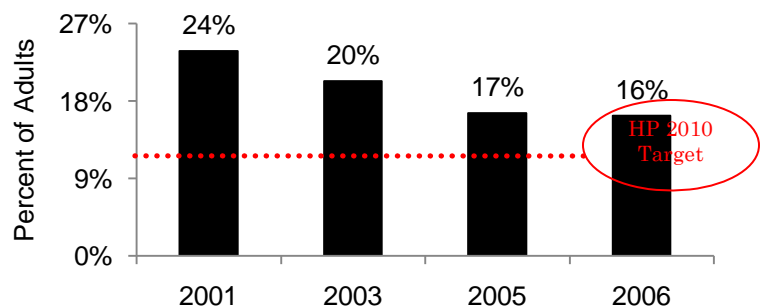


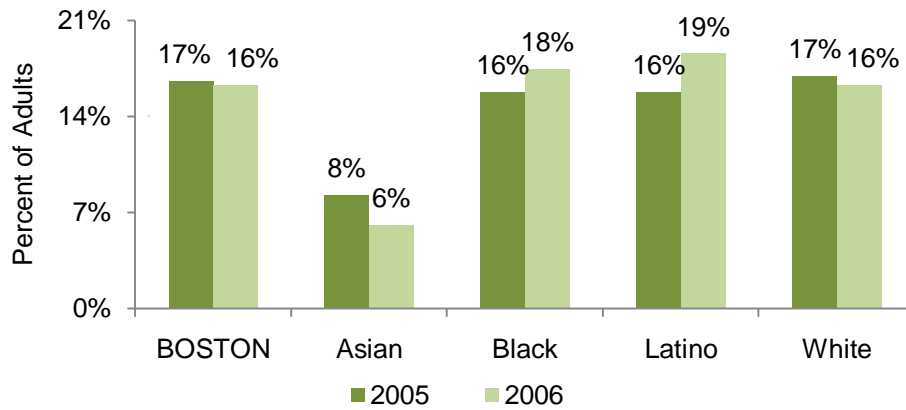
Figure 6.16 Adults who Currently Smoke Cigarettes, 2001, 2003, 2005 and 2006



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 6.17 Adults who Currently Smoke Cigarettes by Race/Ethnicity, 2005 and 2006



Approximately one in six Boston adults reported being a current cigarette smoker in 2005 and 2006.

In 2005 and 2006, a lower percentage of Asian adults reported being smokers than White adults.

Summary: Health Behaviors

Personal health behaviors are essential components of disease prevention and overall good health. In Boston, engaging in positive health behaviors varied among genders, racial and ethnic groups and age groups.

Regular physical activity for adults is defined as moderate physical activity for at least 30 minutes for five or more days per week, or vigorous physical activity for at least 20 minutes for three or more days per week. A higher percentage of White adults reported engaging in regular physical activity than Blacks, Latinos, and Asians. For adolescents, regular activity is defined as engaging in physical activity for at least one hour per day on five or more days during the past week. A higher percentage of White high school students reported getting regular physical activity than students of other race/ethnicities.

Approximately 25% of adults and 10% of high school students reported consumption of five or more servings of fruits and vegetables daily. There were no significant differences across age groups, genders or race/ethnicities.

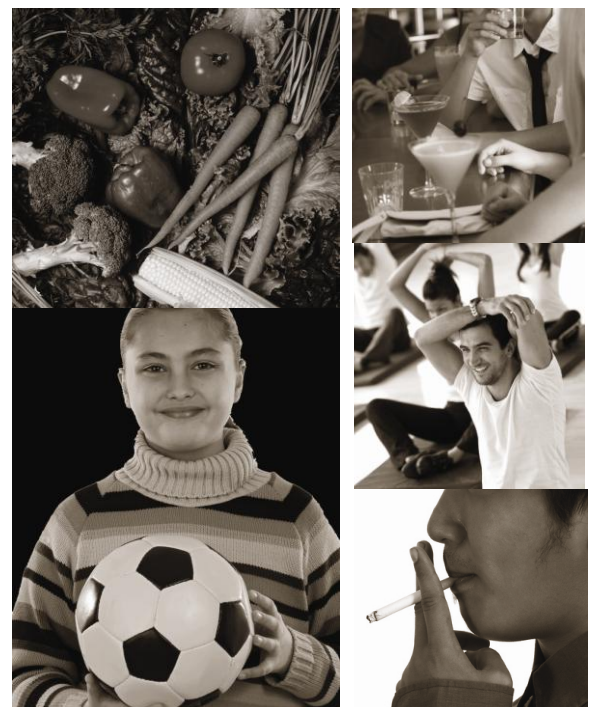
Excessive alcohol drinking or binge drinking is defined for adults as the consumption of five or more alcoholic drinks for men, or four or more drinks for women, on one occasion. In the most recent survey, over 23% of Boston adult residents reported binge drinking during the past month.

For adolescents the definition of excessive alcohol drinking or binge drinking is the same for both genders: five or more alcoholic drinks on a single occasion. One in five high school students reported past month binge drinking. Higher percentages of White adults and White high school

students reported binge drinking than Black adults and Black high school students.

From 2001 to 2006, there was a significant decrease in the percentage of adults who reported smoking. From 2001 to 2007, there was also a significant decrease in the percentage of students who reported smoking. Decreases in the percentage of students who reported smoking occurred across all racial/ethnic groups except for Asians.

Adopting positive behaviors is not merely a matter of personal choice, as is often believed, but often relies on a host of other factors including opportunities to engage in the particular behaviors, stress (for which engaging in a behavior may be a coping mechanism), environmental constraints, social supports, and economic status (2). The ability of individuals to engage in a specific behavior is shaped by their social, economic, and political situation (2).



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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Notes, Data Sources, and Data Analysis

Figure 6.1

NOTES: Survey question reads: “During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? (Add up all the time you spend in any kind of physical activity that increases your heart rate and makes you breathe hard some of the time)” Regular activity for adolescents is defined as engaging in physical activity for at least one hour per day on five or more days during the past week.

DATA SOURCES: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.2

NOTES: Survey question reads: “During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? (Add up all the time you spend in any kind of physical activity that increases your heart rate and makes you breathe hard some of the time)”. Regular activity for adolescents is defined as engaging in physical activity for at least one hour per day on five or more days during the past week.

DATA SOURCES: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.3

NOTES: Survey question reads: “During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? (Add up all the time you spend in any kind of physical activity that increases your heart rate and makes you breathe hard some of the time)”. Regular activity for adolescents is defined as engaging in physical activity for at least one hour per day on five or more days during the past week.

DATA SOURCES: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.4

NOTES: For adults, regular physical exercise is calculated as vigorous activity for 20 minutes per day on 3+days and/or moderate activity for 30 minutes per day on 5+days of the past week. (Vigorous activities cause large increases in breathing or heart rate while moderate activities cause small increases in breathing or heart rate.)

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.5

*Includes Beacon Hill, Downtown, North End and the West End

†Includes Chinatown

NOTE: For adults, regular physical activity is calculated as vigorous activity for 20 minutes per day on 3+days and/or moderate activity for 30 minutes on 5+days of the past week. (Vigorous activities cause large increases in breathing or heart rate while moderate activities cause small increases in breathing or heart rate.)

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.6

NOTES: Percentage calculated based on responses to multiple questions. Calculated variable description: ate five or more servings of fruits and vegetables (100% fruit juices, fruit, green salad, potatoes [excluding French fries, fried potatoes, or potato chips], carrots, or other vegetables) per day on five or more days during the 7 days prior to the survey.

DATA SOURCES: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.7

NOTE: Calculated as adults who reported eating five or more servings of fruits and vegetables per day for at least five days during the week prior to the survey. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.8

NOTES: Calculated as adults who reported eating five or more servings of fruits and vegetables per day for at least five days during the week prior to the survey.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.9

*Includes Beacon Hill, Downtown, North End and the West End

†Includes Chinatown

NOTES: Calculated as adults who reported eating five or more servings of fruits and vegetables per day for at least five days during the week prior to the survey.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.10

NOTE: Survey question reads, "Are you now trying to lose weight?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.11

NOTE: Survey question reads: "During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?"

DATA SOURCES: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.12

NOTES: Survey question reads: "During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?" These data do not include persons of other or unknown race/ethnicity.

DATA SOURCES: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.13

NOTES: Survey question reads, "Considering all types of alcoholic beverages, how many times during the past 30 days did you have X [X=5 for men, X=4 for women] or more drinks on an occasion?" These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.14

NOTE: Survey question reads: "During the past 30 days, on how many days did you smoke cigarettes?"

DATA SOURCES: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.15

NOTE: Survey question reads: "During the past 30 days, on how many days did you smoke cigarettes?"

DATA SOURCES: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.16

NOTE: Calculated as adults who have smoked at least 100 cigarettes in their life and report smoking every day or some days.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2001, 2003, 2005, and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 6.17

NOTE: Calculated as adults who have smoked at least 100 cigarettes in their life and report smoking every day or some days.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Section 7: Natality and Infant Mortality

Birth rates, infant characteristics such as birthweight, maternal health status, and infant mortality are some of the most frequently collected and reliable data available to public health professionals. Together birth and infant death data provide important measures of the well-being of infants, children, and pregnant women.

Several factors impact the health of infants. Low birthweight (birthweight less than 5 pounds 8 ounces or 2500 grams) and/or preterm birth (gestational age less than 37 weeks) are factors often associated with poor health outcomes for infants. Low birthweight and/or preterm infants are at risk for serious health problems as newborns, lasting disabilities and even death. A variety of maternal factors, including maternal health problems, such as diabetes or high blood pressure, nutritional status, and behaviors such as smoking during pregnancy can be associated with low birthweight and/or preterm birth in addition to other poor health outcomes for infants. Socioeconomic conditions, race, and access to medical care also play a role in the birth of healthy infants and having infants survive to their first birthday.

Historically, across the United States and in Boston, Black infants are two to four times more likely than White infants to die in the first year of life. Recent research indicates that the impact of racism may have a profound effect on birth outcomes. Women who are exposed to the chronic stress of racism and suffer the economic inequities associated with racism may experience physiological changes in their body that are detrimental to their health and the healthy development of their fetus.

Healthy People 2010 (1)

- Increase the proportion of pregnant women who receive early and adequate prenatal care to 90% of live births
- Reduce low birthweight to 5.0% of live births
- Reduce total preterm births to 7.6% of live births
- Reduce total infant deaths (within 1 year) to 4.5 per 1,000 live births
- Reduce neonatal deaths (during first 28 days) to 2.9 per 1,000 live births
- Reduce postneonatal deaths (between 28 days and 1 year) to 1.2 per 1,000 live births
- Increase the proportion of women who breastfeed in early postpartum period to 75%



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

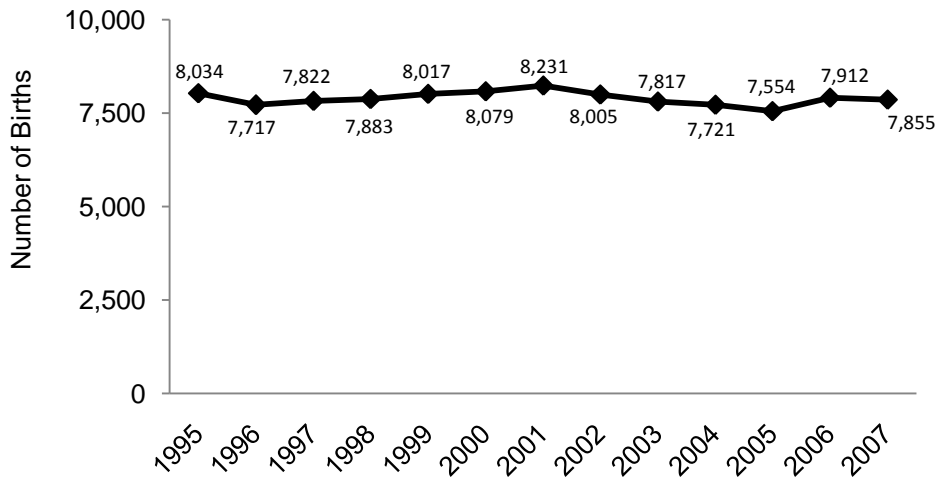
Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

A thorough examination of infant birth and death data provides an opportunity to identify high risk groups, allocate resources toward those at highest risk, and design and evaluate interventions. In addition, infant mortality rates are an accepted measure of the general welfare of a population. Subgroups of the infant mortality rates, neonatal and postneonatal mortality rates, can serve as indicators for several factors affecting the pregnancy, the delivery, and the neonate.

This section presents birth data including number of births, method of delivery, prenatal care, low birthweight and preterm births, maternal smoking during pregnancy, early postpartum breastfeeding, and infant mortality.



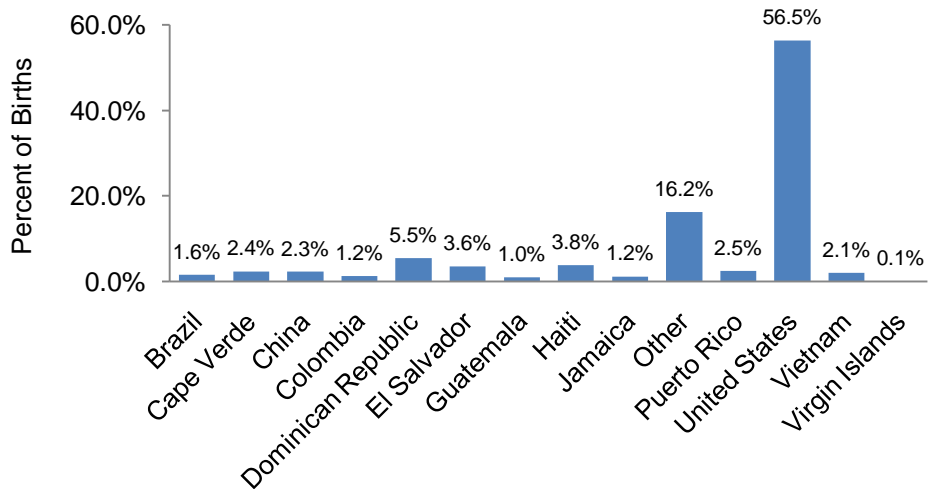
Figure 7.1 Births by Year, 1995-2007



The number of births to Boston residents decreased less than one percent (0.72%) from 2006 to 2007 after increasing 4.7% from 2005 to 2006.

Fifty-six percent of Boston births in 2007 were to women born in the United States. Births to women born in the Dominican Republic represented 5.5% of all births; Haiti, 3.8%; El Salvador, 3.6%; and Puerto Rico, 2.5%.

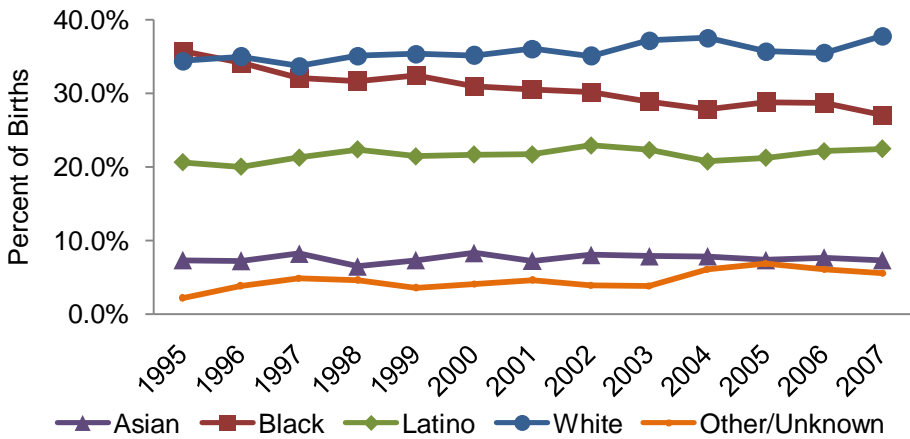
Figure 7.2 Births by Maternal Birthplace, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 7.3 Births by Race/Ethnicity, 1995-2007



In 2007, White women had the highest percentage of Boston births followed by Black women. There has been a decrease in the percentage of Boston births to Black women from 1995 to 2007.

Overall, Boston births, within the remaining racial/ethnic groups, have remained fairly consistent over the past thirteen years.

From 2006 to 2007, there was very little change in the age at which Boston women were having babies. In 2006 and in 2007 the largest percentage of births was to Boston women between ages 30 and 34.

Figure 7.4 Births by Maternal Age, 2006 and 2007

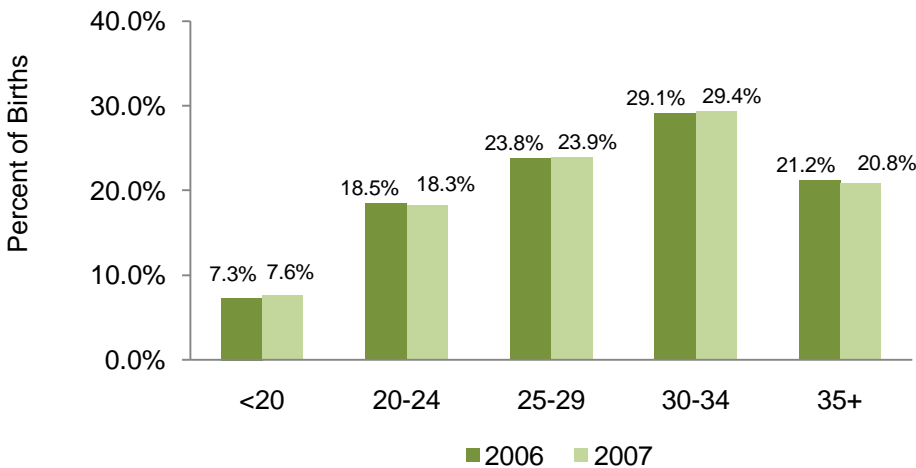
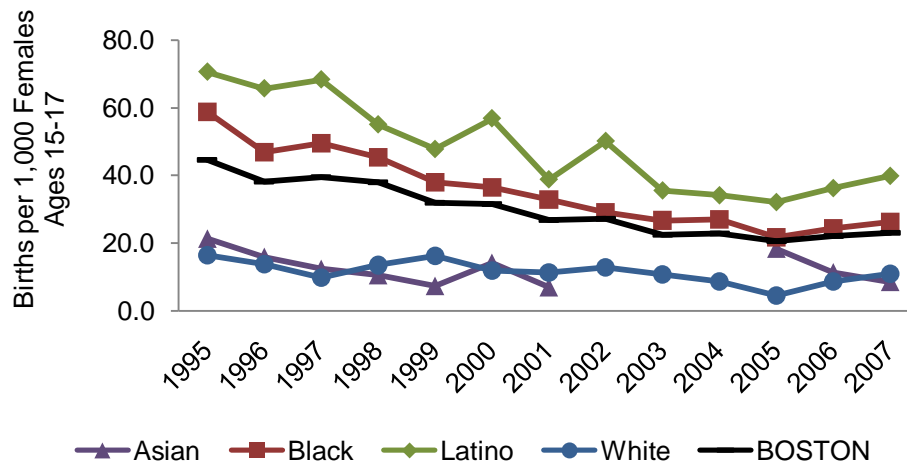


Figure 7.5 Births Among Adolescents Ages 15-17 by Race/Ethnicity, 1995-2007

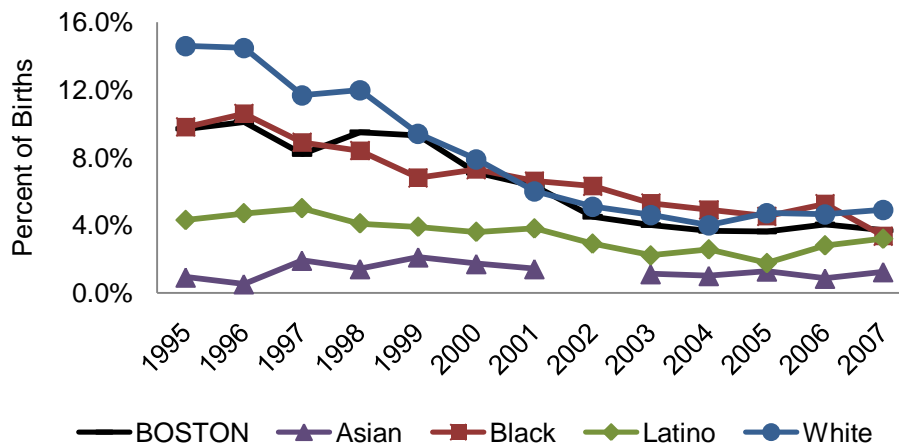


Boston’s adolescent birth rate declined slowly from 1995 to 2005, falling 53.9%; however, Boston’s adolescent birth rate increased 12.2% from 2005 to 2007.

In 2007, less than four percent of Boston women reported smoking during pregnancy. Self-reported maternal smoking substantially declined between 1995 and 2007 for Boston overall (by 61.9%) and for Black, Latino and White women.

In 2007, White women reported the highest percentage of smoking during pregnancy.

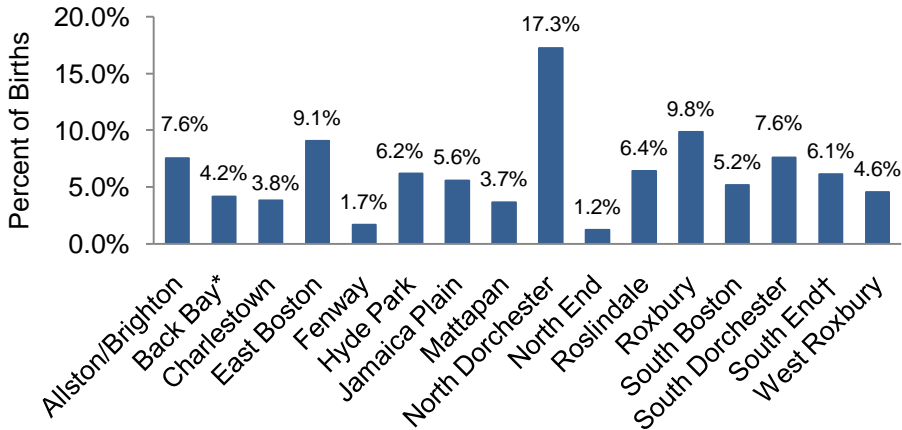
Figure 7.6 Maternal Smoking During Pregnancy by Race/Ethnicity, 1995-2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 7.7 Births to Women Ages 15-44 by Neighborhood, 2007



North Dorchester births accounted for 17.3% of Boston births to women ages 15-44 in 2007, while the North End births accounted for only 1.2% of total births.

The North End, Fenway, and Mattapan accounted for the smallest percentage of all Boston births, each with under four percent of the total.

From 1997 to 2007, the percentage of vaginal births declined 14.6% and the percentage of Cesarean births increased 64.3%.

Figure 7.8 Method of Delivery, 1997-2007

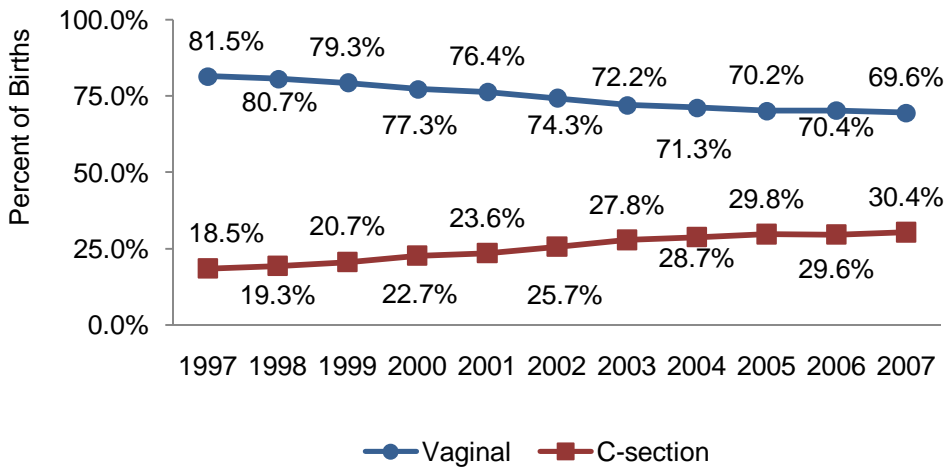
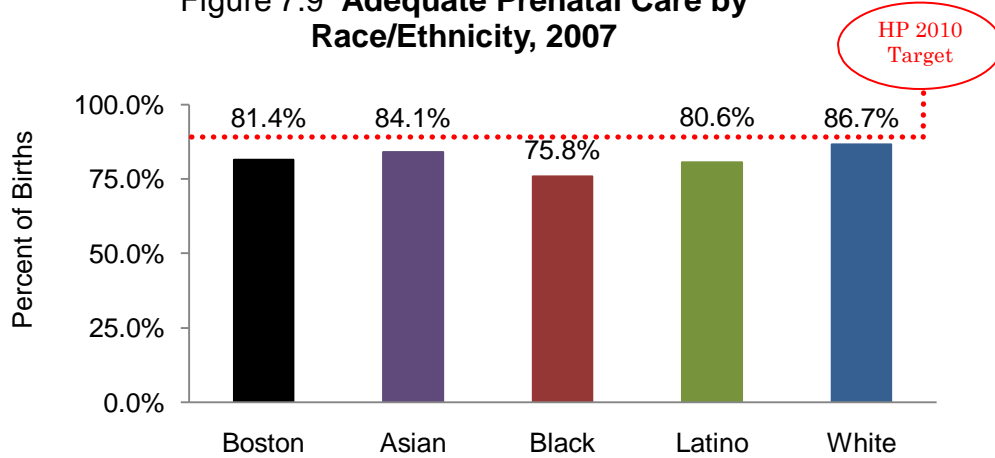


Figure 7.9 Adequate Prenatal Care by Race/Ethnicity, 2007

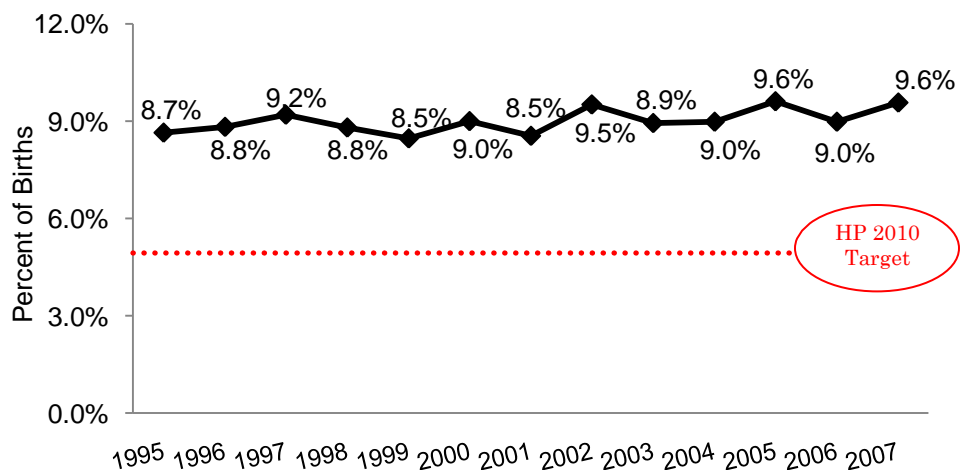


The majority of births to Boston women in all racial/ethnic groups had adequate prenatal care (includes Adequate-Basic and Adequate Intensive) in 2007, but the highest percentage of adequate prenatal care was among births to White women. Almost 87% of births to White women had adequate care.

In 2007, nearly one in every ten Boston births had low birthweight.

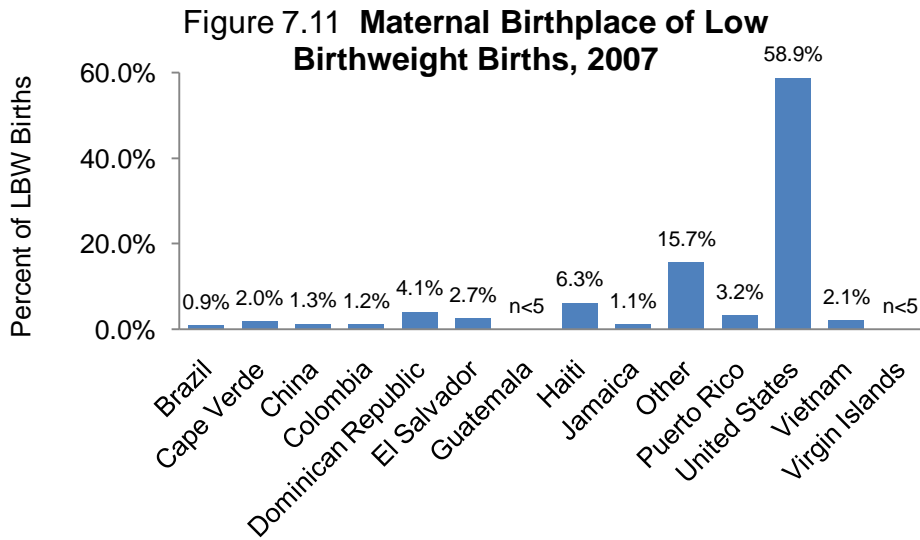
Between 1995 and 2007, Boston’s rate of low birthweight was relatively stable, fluctuating between 8.5% and 9.6% of all births.

Figure 7.10 Low Birthweight by Year, 1995-2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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In 2007, more than half of LBW babies were born to US-born women. Women born in Haiti had 6.3% of Boston's LBW babies in 2007, followed by women born in the Dominican Republic (4.1%), Puerto Rico (3.2%), El Salvador (2.7%), and Vietnam (2.1%).

From 2006 to 2007, the percentage of LBW babies increased for Asian, Latino, and White women but decreased for Black women.

From 2005 to 2007, the percentage of LBW babies to Black women decreased; however, for each year of 1995-2007, Black women have had the highest percentage of LBW babies.

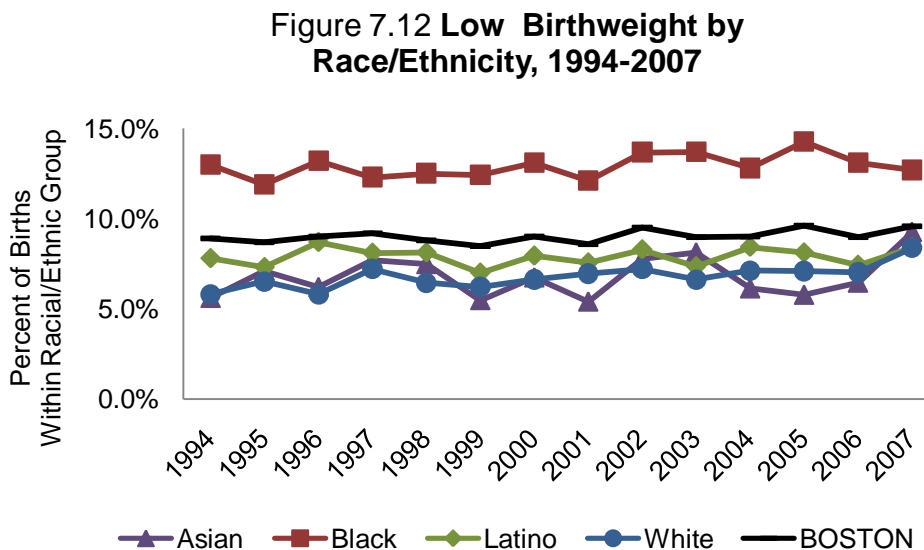
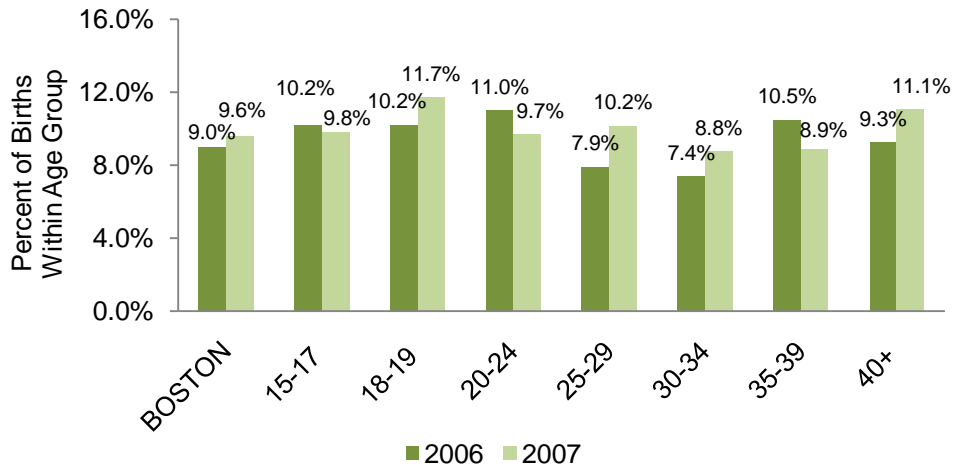


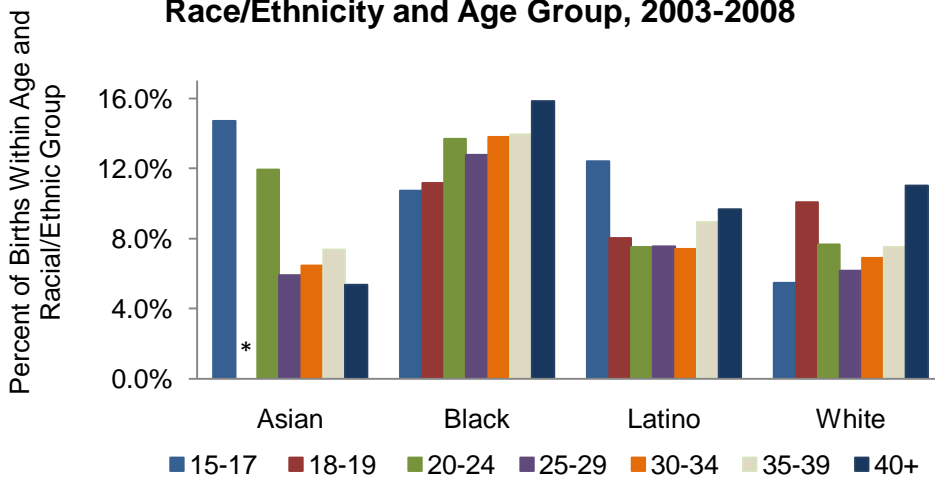
Figure 7.13 Low Birthweight by Maternal Age Group, 2006 and 2007



In 2007, the percentage of low birth weight births was highest among women ages 18-19 years and those ages 40 and over.

Asian and Latino women had the highest percentage of low birthweight births in the 15 to 17 age group. Black and White women have the highest percentage of low birth weight births in the 40 and over age group.

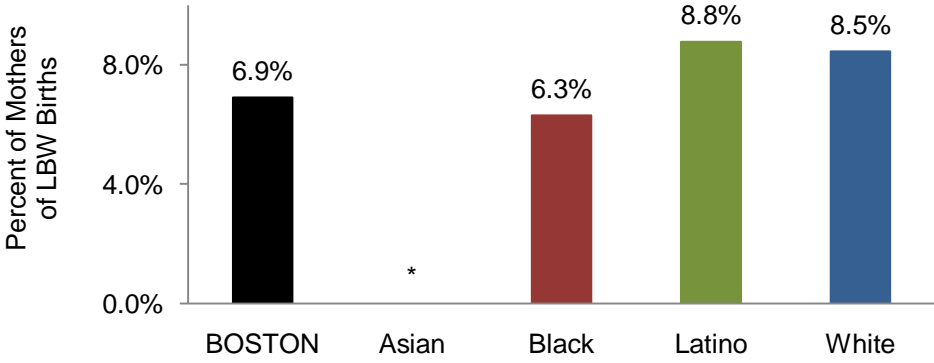
Figure 7.14 Low Birthweight by Maternal Race/Ethnicity and Age Group, 2003-2008



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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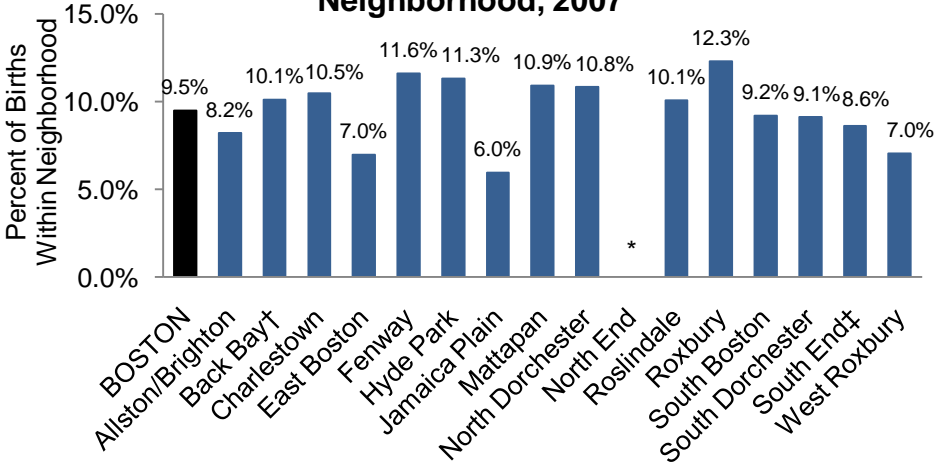
Figure 7.15 Maternal Smoking During Pregnancy Among Low Birthweight Births by Race/Ethnicity, 2007



In 2007, Latino women who had low birthweight infants reported the highest percentage of smoking during pregnancy followed by White women.

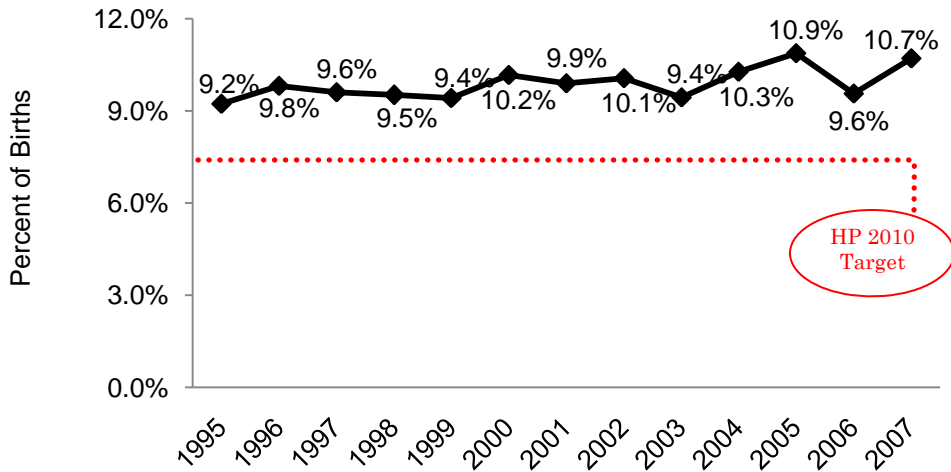
In 2007, low birthweight was most frequent among births to residents of Roxbury, Fenway, and Hyde Park. These neighborhoods were among several with low birthweight rates that exceeded the rate for Boston overall.

Figure 7.16 Low Birthweight by Neighborhood, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Figure 7.17 Preterm Births, 1995-2007

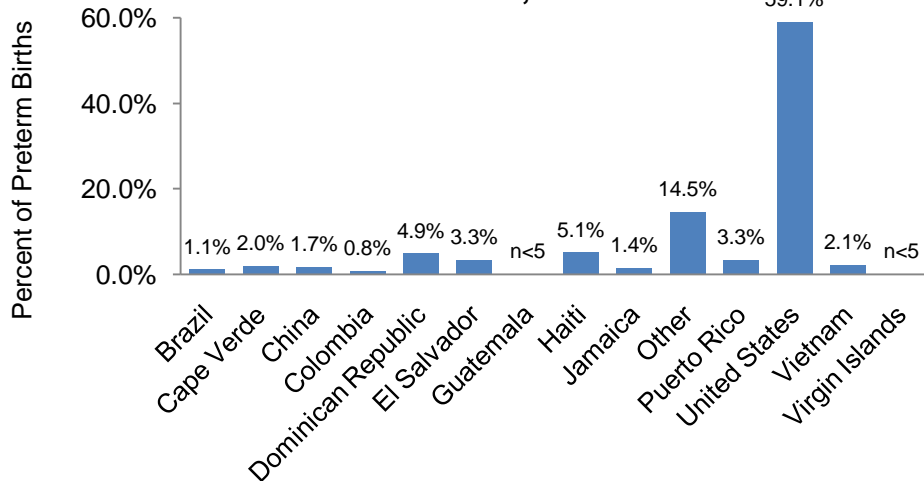


In 2007, nearly one in every nine births in Boston was premature.

Between 1995 and 2007, preterm births ranged between 1 in 11 and 1 in 9 of Boston births.

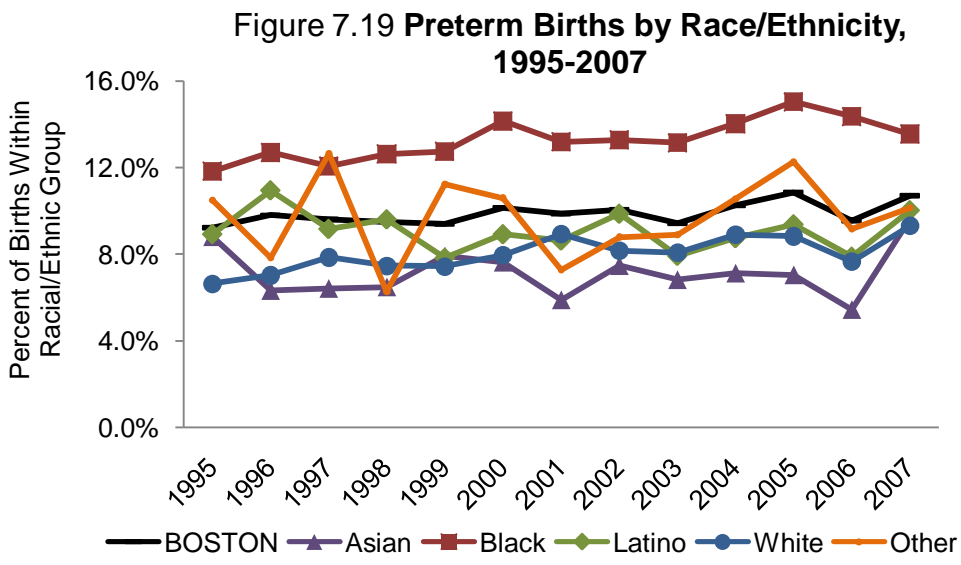
In 2007, the highest percentage of preterm births were to women born in the United States, followed by women born in Haiti, the Dominican Republic, El Salvador, and Puerto Rico.

Fig. 7.18 Maternal Birthplace of Preterm Births, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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From 2006 to 2007, the percentage of preterm births within each racial/ethnic group increased for all races/ethnicities except for Black women who experienced a decrease.

With the exception of 1997, Black women in Boston had the greatest percentage of preterm births between 1995 and 2007.

Preterm births were most common among births to women ages 35 to 39 and those ages 40 and over in 2006. In 2007, they were most common for women ages 40 years and over.

Figure 7.20 Preterm Births by Maternal Age, 2006 and 2007

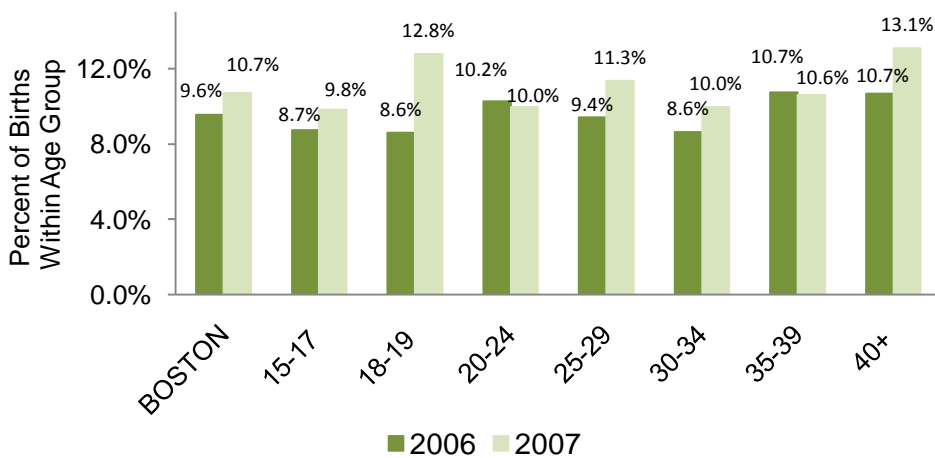
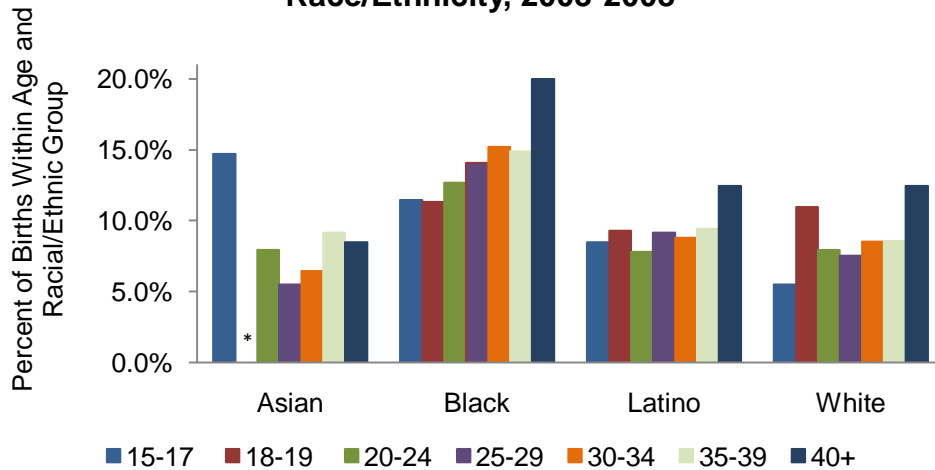


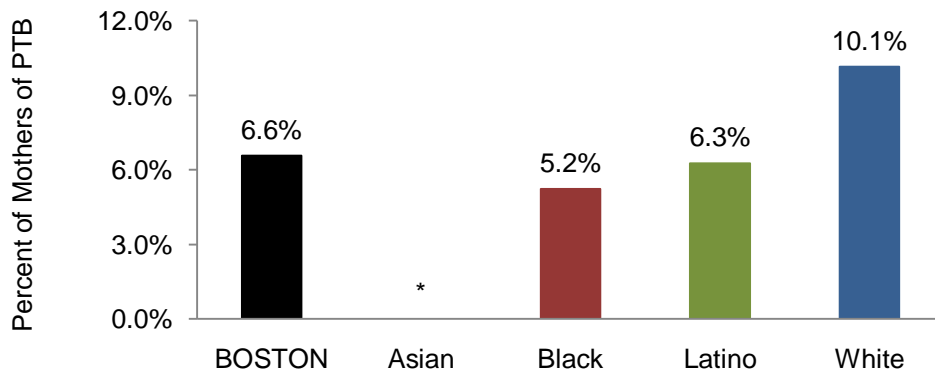
Figure 7.21 Preterm Births by Maternal Age and Race/Ethnicity, 2003-2008



Within their respective racial/ethnic groups, Black, White, and Latino women ages 40 and older experienced the highest percentage of preterm births. Asian women experienced the highest percentage of preterm births at ages 15 to 17.

In 2007, White women who had preterm infants reported the highest percentage of smoking during pregnancy followed by Latino women.

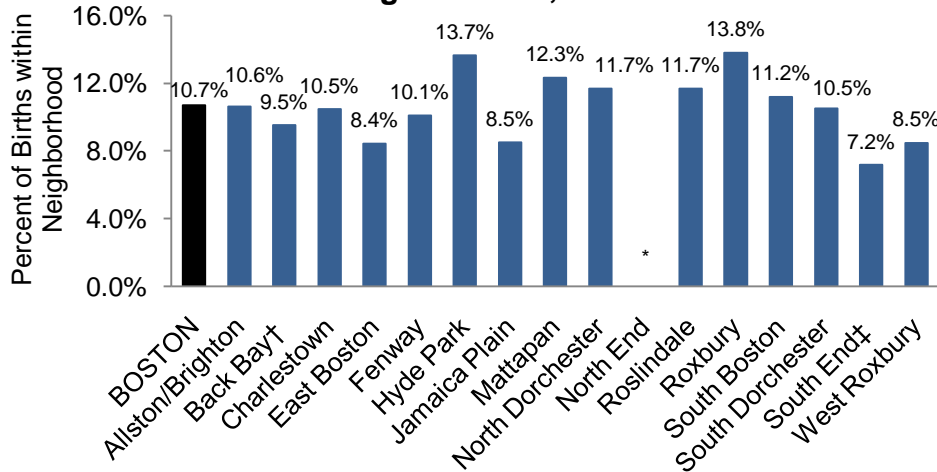
Figure 7.22 Maternal Smoking During Pregnancy Among Preterm Births by Race/Ethnicity, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 7.23 Preterm Births by Neighborhood, 2007



In 2007, preterm births were most frequent in births to residents of Hyde Park, Mattapan, and Roxbury. The percentage of preterm births for those neighborhoods was higher than the overall Boston percentage. The percentage for North Dorchester, Roslindale, and South Boston was also higher than the overall Boston percentage.

There were 50 Boston infant deaths in 2007, resulting in an infant mortality rate (IMR) of 6.4 deaths per 1,000 live births.

The 2007, IMR was only slightly lower than the rate in 1995. It has remained relatively consistent during this thirteen-year period excluding 1997 when the IMR peaked at 8.4 and 2005 when the IMR was 5.2, the lowest during 1995-2007.

Figure 7.24 Infant Mortality, 1995-2007

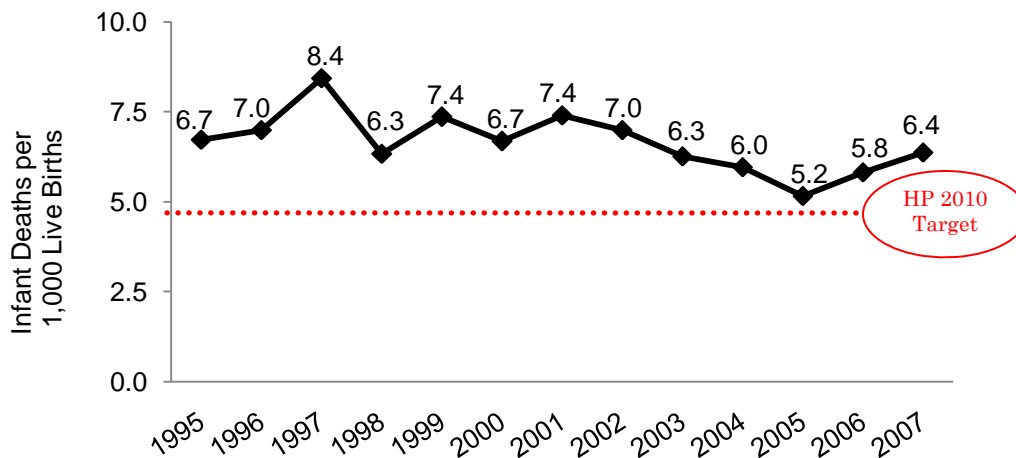
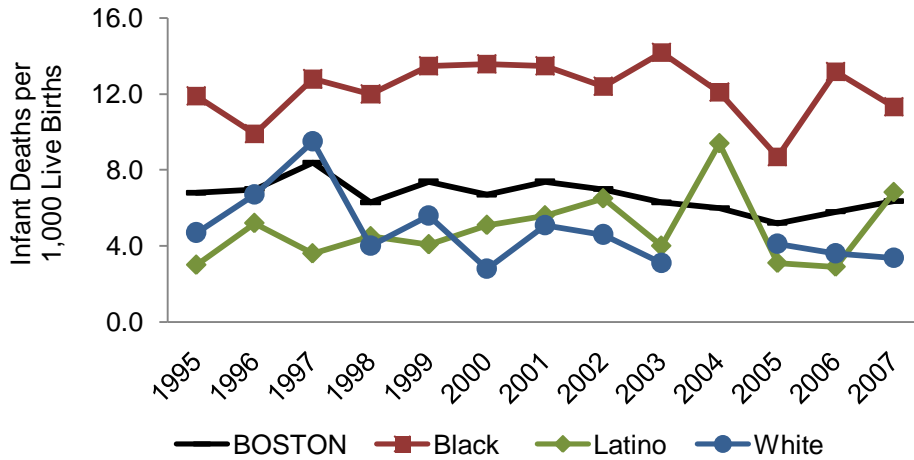


Figure 7.25 Infant Mortality by Race/Ethnicity, 1995-2007



From 2006 to 2007, there was a 14.4% decrease in Boston’s Black infant mortality rate (IMR). However, Boston IMRs have consistently been highest for Black infants and continue to be so despite the 2007 decrease. Black infants accounted for 27.0% of all Boston births in 2007 (Figure 7.3), but 48.0% of all infant deaths.

From 2006 to 2007, the IMR increased 10.3% for Boston overall, but more than doubled for Latinos. The increase in Latino IMR was not statistically significant.

From 2006 to 2007, there was a decrease in the IMR for Boston’s female infants and an increase in the IMR for male infants.

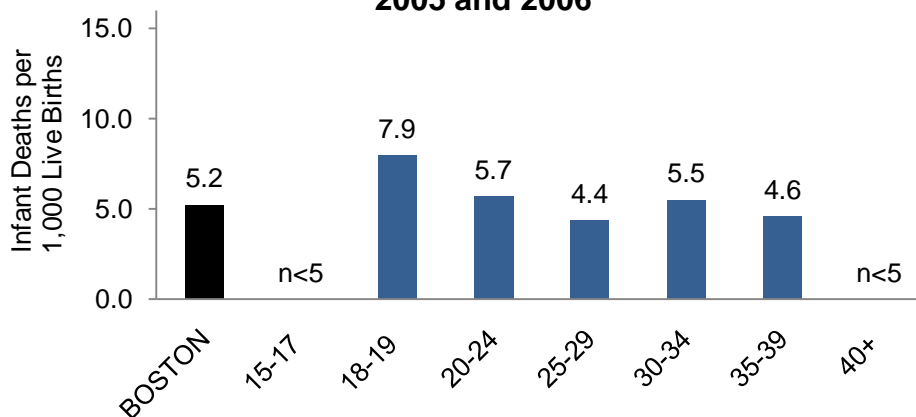
In 2007, the male infant IMR was 2.0 times higher than the female infant IMR. In 2006, the female infant IMR was higher.

Figure 7.26 Infant Mortality by Gender, 2006 and 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Figure 7.27 Infant Mortality by Maternal Age Group, 2005 and 2006



In 2007, the highest infant mortality rate (IMR) was among births to women ages 18 to 19; it was one-and-a-half times as high as the overall IMR for Boston.

During 2005 to 2007, Roxbury had the highest infant mortality rate (IMR) among Boston neighborhoods, more than 60% higher than the Boston overall rate of 5.8. North Dorchester and Mattapan had the second and third highest IMRs.

Six of Boston's 16 neighborhoods had too few infant deaths during 2005-2007 to permit the presentation of mortality rates. IMRs for Allston/Brighton, Charlestown, East Boston, and the South End should be interpreted with caution due to small numbers.

Most infant deaths occur during the neonatal period. The rate of Boston infants who died during this period was on a downward trend from 1999 to 2005, but has increased 18% from 2005 to 2007.

Figure 7.28 Infant Mortality by Neighborhood 2005-2007

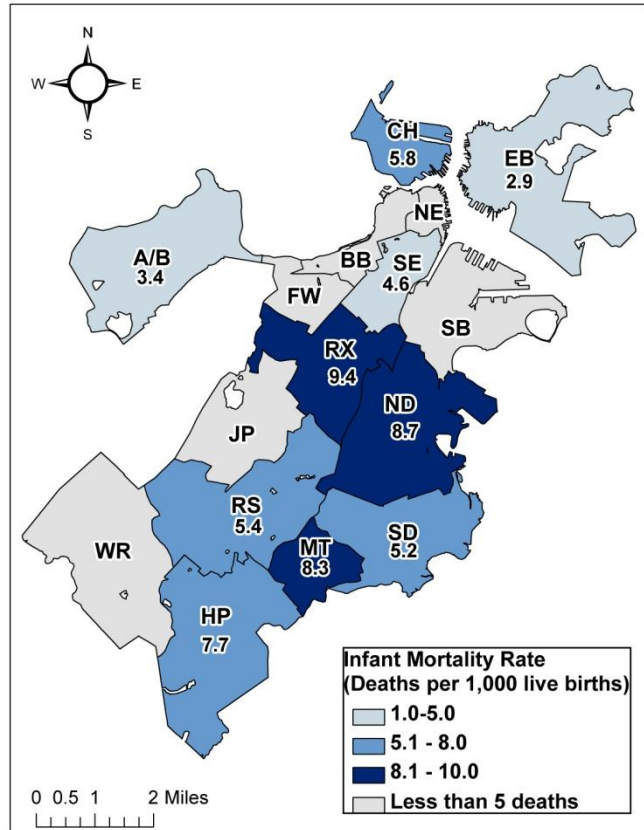
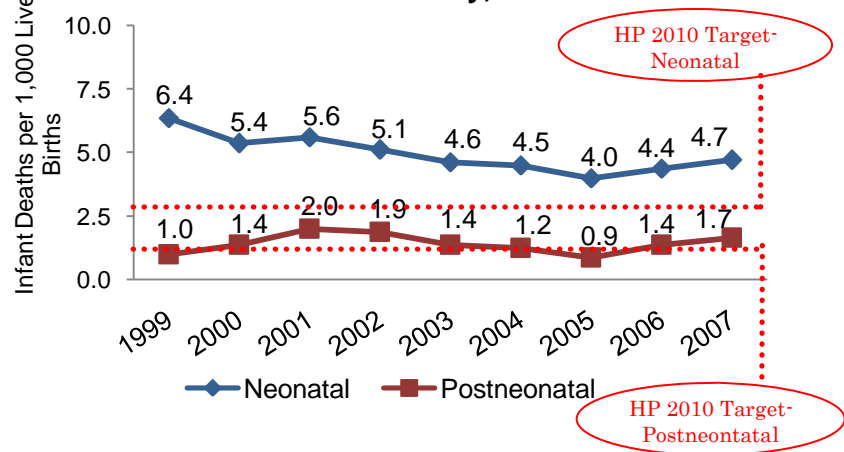


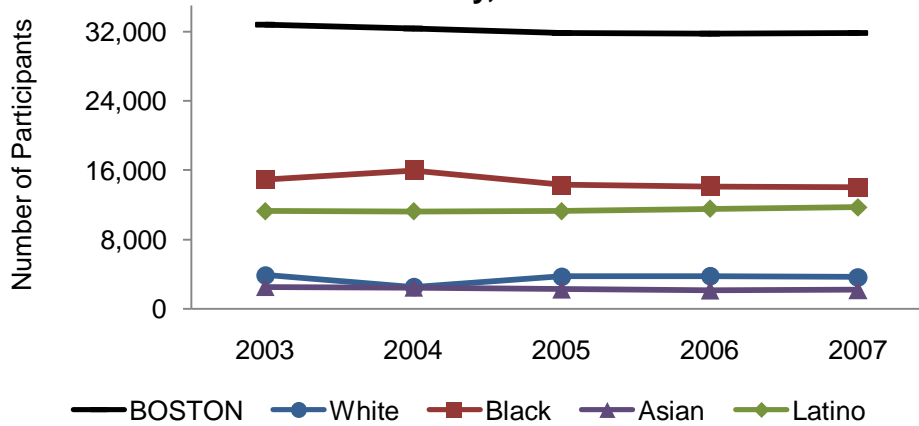
Figure 7.29 Infant Mortality by Neonatal vs. Postneonatal Mortality, 1999-2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 7.30 Women, Infants and Children (WIC) Nutrition Program Participation by Race/Ethnicity, 2003-2007



From 2003 to 2007, there was little fluctuation in the total number of Women, Infants, and Children (WIC) Nutrition Program participants in Boston overall or in the total number of participants by race/ethnicity.

North and South Dorchester and East Boston had the greatest number of WIC participants during 2007. Together, they accounted for almost 50% of WIC participants.

Figure 7.31 Women, Infants and Children (WIC) Nutrition Program Participation by Neighborhood, 2007

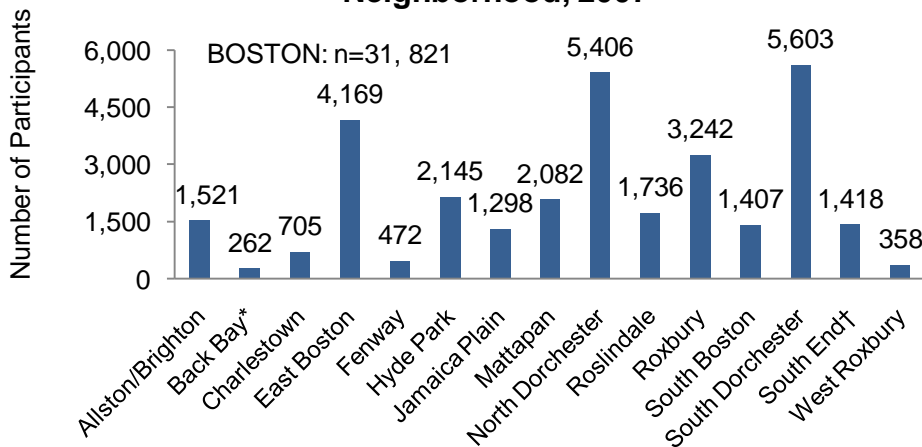
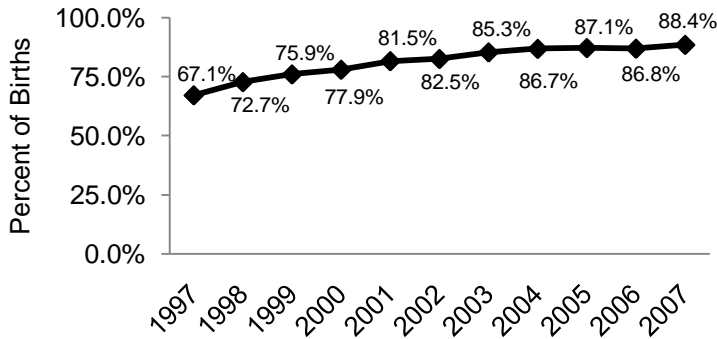


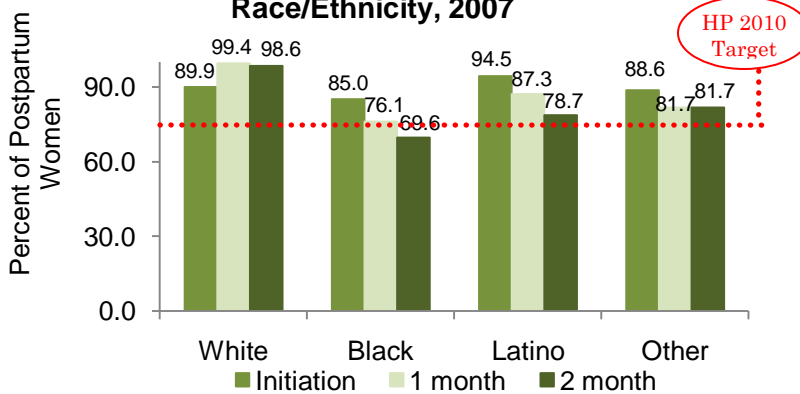
Figure 7.32 Intent to Breastfeed, 1997-2007



In 2007, upon discharge from the hospital, 88.4% of mothers said that they intended to breastfeed their babies.

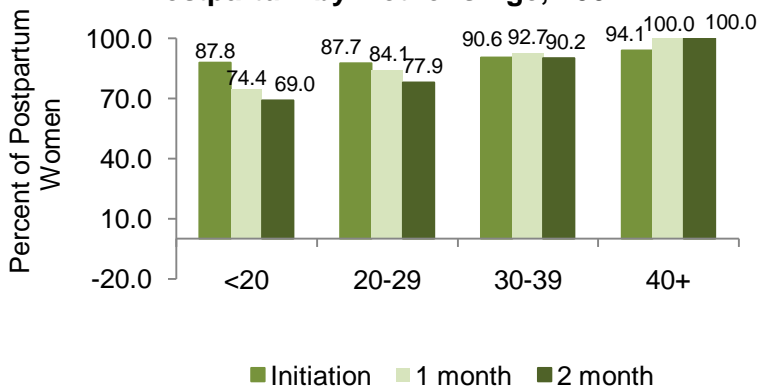
From 1997 to 2007, there was a 31.7% increase in the percentage of mothers that reported an intent to breastfeed their babies at the time of discharge from the hospital.

Figure 7.33 Breastfeeding in Early Postpartum Period by Mother's Race/Ethnicity, 2007



In 2007, Boston women of all racial/ethnic groups had similar percentages of breastfeeding initiation; however at one and two months postpartum, a significantly higher percentage of Boston White women reported breastfeeding than Black, Latino, and other women.

Figure 7.34 Breastfeeding in Early Postpartum by Mother's Age, 2007



In 2007, the initiation of breastfeeding and reported breastfeeding at 1 and 2 months postpartum was similar across all age groups.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Summary: Nativity and Infant Mortality

Infant mortality is one of the most important measures of a nation's health, yet the United States ranks 29th in the world in infant mortality – among the lowest of developed countries. The racial differences in infant mortality are sobering. In the U.S. in 2005, the infant mortality rate among Black infants was 13.6, more than twice the rate of 5.8 experienced by White infants. Although Boston is considered a center of medical care in the U.S., the rates are not very different.

Boston's residents of color had a disproportionately higher rate of infant mortality and higher percentages of low birthweight births, preterm births, and births to teen mothers. Boston IMRs have consistently been highest for Black infants and continue to be so despite a 14.4% decrease between 2006 and 2007. In 2007, the IMR for Black infants was 11.3 deaths per 1,000 live births while the IMR for White infants was 3.4 deaths per 1,000 live births. While the IMR for Black infants and for White infants decreased from 2006 to 2007, the IMR for Latino infants doubled to 6.8 deaths per 1,000 live births. The IMR was also high among births to women ages 18 to 19. In 2007, the infant mortality rate (IMR) among births to women in this age group was 13.4, more than twice as high as the overall IMR for Boston.

Low birthweight (LBW) and preterm births, major contributors to infant mortality, were highest among Black infants and among births to women ages 18 to 19. For each year of 1995-2007, Black women had the highest percentages of both LBW and pre-term babies.

Adolescent pregnancy is associated with increased health risks for mother and baby, as well as long term socioeconomic

consequences (2). Although Boston's adolescent birth rate declined by more than 50% from 1995 to 2005, the rate increased 12.2% from 2005 to 2007. Adolescent birth rates continue to be substantially higher for Latinas and Blacks than for Whites and Asians.



References

1. Department of Health and Human Services. (2007, April 9). *Healthy People 2010 Midcourse Review Focus Area 16 Maternal and Child Health*. Retrieved February 23, 2009, from Healthy People 2010 Midcourse Review:
<http://www.healthypeople.gov/data/midcourse/html/focusareas/FA16TOC.htm>
2. Klein, J. A. (2005). Adolescent pregnancy: current trends and issues. *Pediatrics*, 116(1).

Notes, Data Source and Data Analysis

Figure 7.1

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.2

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.3

NOTE: These data do not include persons whose race/ethnicity was not reported, except in the Boston percentage.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.4

NOTE: These data do not include persons whose age was not reported, except in the Boston percentage.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.5

NOTE: There were too few births among Asians ages 15-17 in 2002-2004 to permit the presentation of rates. These data do not include births whose race/ethnicity was not reported, except in the Boston percentages. These data do not include births whose maternal smoking status was not reported.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.6

NOTES: There were an insufficient number of Asian women to calculate a percentage for 2002. These data do not include births whose race/ethnicity was not reported, except in the Boston percentages.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.7

* Includes Beacon Hill, Downtown, and the West End

† Includes Chinatown

NOTES: Counts and percentage distributions include women between the ages of 15-44 only. These data do not include homeless persons or individuals whose neighborhood of residence was not reported.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.8

NOTE: Vaginal births include vaginal, VBAC, forceps, and vacuum births. C-section births include primary and repeated C-section births. Totals do not include missing values.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.9

NOTE: Adequate PNC is as defined by the APNCU index. It includes both the 'adequate basic' and the 'adequate intensive' levels of care.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.10

NOTE: A low birthweight birth is a baby that weighs less than 2,500 grams (or 5.5lbs.) when born.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.11

NOTE: A low birthweight birth is a baby that weighs less than 2,500 grams (or 5.5lbs.) when born.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.12

NOTE: A low birthweight birth is a baby that weighs less than 2,500 grams (or 5.5lbs.) when born.

These data do not include births whose race/ethnicity was not reported, except in the Boston percentage.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.13

NOTE: A low birthweight birth is a baby that weighs less than 2,500 grams (or 5.5lbs.) when born.

These data do not include births where mother's age was not reported, except in the Boston overall rate.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.14

*Too few low birthweight births to permit calculation of percentage among Asians ages 18-19 years.

NOTE: These data do not include births where mother's age and/or race/ethnicity was not reported.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.15

*Too few low birthweight births to permit calculation of percentage among Asians women in 2007.

NOTES: These data do not include births whose race/ethnicity was not reported, except in the Boston percentages. These data do not include births whose maternal smoking status was not reported.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.16

* Too few low birthweight births to permit calculation of percentage among births to North End residents.

†Includes Beacon Hill, Downtown, and the West End

‡ Includes Chinatown

NOTE: A low birthweight birth is a baby that weighs less than 2,500 grams (or 5.5lbs.) when born.

These data do not include births where neighborhood of residence was not reported, except in the Boston overall count and rates.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.17

NOTE: A preterm birth (PTB) is one that occurs at less than 37 completed weeks' gestation.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.18

NOTE: A preterm birth (PTB) is one that occurs at less than 37 completed weeks' gestation.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.19

NOTE: A preterm birth (PTB) is one that occurs at less than 37 completed weeks' gestation. These data do not include births whose race/ethnicity was not reported, except in the Boston percentages.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.20

NOTE: A preterm birth (PTB) is one that occurs at less than 37 completed weeks' gestation. These data do not include persons whose age was not reported, except in the Boston percentages.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.21

*Too few preterm births to permit calculation of percentage among Asians ages 18-19 years.

NOTES: These data do not include births whose race/ethnicity or whose age was not reported, except in the Boston percentages.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.22

*Too few preterm births to permit calculation of percentage among Asian women in 2007.

NOTES: These data do not include births whose race/ethnicity was not reported, except in the Boston percentages. These data do not include births whose maternal smoking status was not reported.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.23

* Too few preterm births to permit calculation of percentage among births to North End residents.

† Includes Beacon Hill, Downtown, and the West End

‡ Includes Chinatown

NOTE: A preterm birth (PTB) is one that occurs at less than 37 completed weeks' gestation. These data do not include births where neighborhood of residence was not reported, except in the Boston overall count and rates.

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.24

DATA SOURCE: Boston resident live births and deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.25

NOTE: Rates are not presented for Asians for 1995-2007 and Whites in 2004 due to the small number of infant deaths.

DATA SOURCE: Boston resident deaths and live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.26

NOTE: These data do not include deaths of infants whose gender was not reported, except in the Boston overall count and rate.

DATA SOURCE: Boston resident deaths and live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.27

NOTE: Rates are not presented for mothers ages 15-17 and 40+ due to the small number of infant deaths incurred by these groups.

DATA SOURCE: Boston resident linked birth/death files, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.28

ABBREVIATIONS KEY: A/B=Allston/Brighton, BB=Back Bay (includes Beacon Hill, Downtown, and the West End, CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, NE=North End, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

NOTE: Rates are not presented for Back Bay, Fenway, Jamaica Plain, North End, South Boston and West Roxbury due to the small number of infant deaths incurred by residents in these neighborhoods.

DATA SOURCE: Boston resident deaths and live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Figure 7.29

NOTE: Neonatal mortality is an infant death that occurs between live birth and 27 days of age.

Postneonatal mortality is an infant death at 28 through 364 days of age.

DATA SOURCE: Boston resident live births and deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.30

NOTES: Latino includes Puerto Rican, Central American, and Other Hispanic.

Chart does not include American Indians, due to their small number.

DATA SOURCE AND ANALYSIS: Women, Infant and Children (WIC) Nutrition Program, Massachusetts Department of Public Health

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 7.31

*Includes Beacon Hill, Downtown, North End, and the West End

†Includes Chinatown

DATA SOURCE AND ANALYSIS: Women, Infant and Children (WIC) Nutrition Program, Massachusetts Department of Public Health

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 7.32

DATA SOURCE: Boston resident live births, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 7.33

DATA SOURCE: Massachusetts Pregnancy Risk Assessment Monitoring System (MA PRAMS)

DATA ANALYSIS: Bureau of Family Health and Nutrition, Massachusetts Department of Public Health

Figure 7.34

DATA SOURCE: Massachusetts Pregnancy Risk Assessment Monitoring System (MA PRAMS) DATA

ANALYSIS: Bureau of Family Health and Nutrition, Massachusetts Department of Public Health

Section 8: Sexual Health

Sexual health is a critical component of physical and mental well being. Too often sexual health is defined in the context of sexually transmitted infections. This ignores other essential components of sexual health including healthy relationships and attitudes toward sexuality. The World Health Organization provides a comprehensive definition of sexual health (1):

“A state of physical, emotional, mental and social wellbeing in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence.”

This broad definition provides insight into effective sexual health promotion which must include awareness and education for residents at all ages, providing appropriate promotion and prevention services, supporting service providers to play an active role in promotion, and individual and community level capacity building (2). These efforts should work to build healthy relationships and promote responsible sexual behavior, eliminate discrimination and hatred related to sexuality and sexual minority groups, eliminate sexual violence, prevent transmission of sexually transmitted infections, and reduce unintended pregnancies (1, 2). In addition, these efforts must target communities who are particularly vulnerable in terms of their sexual health needs, such as young women of color.

Although sexual health should be defined broadly, often the most accessible data available to help understand the sexual health of a population are data on self-

reported sexual activity and behaviors, and sexually transmitted infections. This section provides a more detailed understanding of the sexual health of Boston residents by presenting data on self-reported sexual behaviors and sexually transmitted infections, including HIV, AIDS, chlamydia, gonorrhea, and syphilis.

Healthy People 2010 Targets (3)

Eliminate sustained domestic transmission of primary and secondary syphilis to 0.2 new cases per 100,000 population

Reduce new cases of gonorrhea in total population to 19.0 new cases per 100,000 population



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

In 2007, more than half (56%) of Boston public high school students reported having had sexual intercourse.

The percentage of students who have had sexual intercourse increased with increasing age.

Approximately two-thirds of male students and one half of female students reported having had sexual intercourse.

A higher percentage of male students than female students reported having had sexual intercourse.

A higher percentage of Latino, Black, and Multiracial public high school students reported having had sex than Asian or White students.

The percentage of Asian and White students who have had sex was lower than the overall percentage for Boston public high school students.

Figure 8.1 High School Students Who Have Had Sex by Age Group, 2007

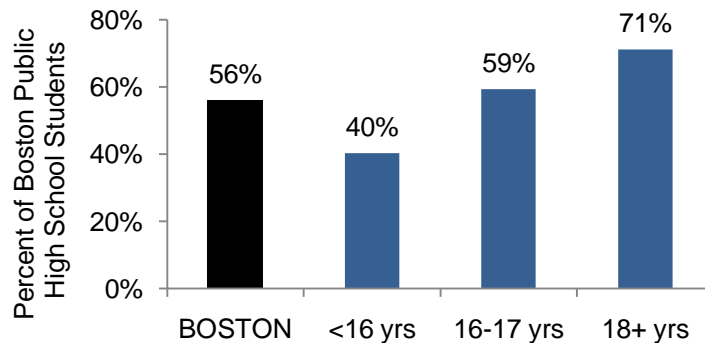


Figure 8.2 High School Students Who Have Had Sex by Gender, 2007

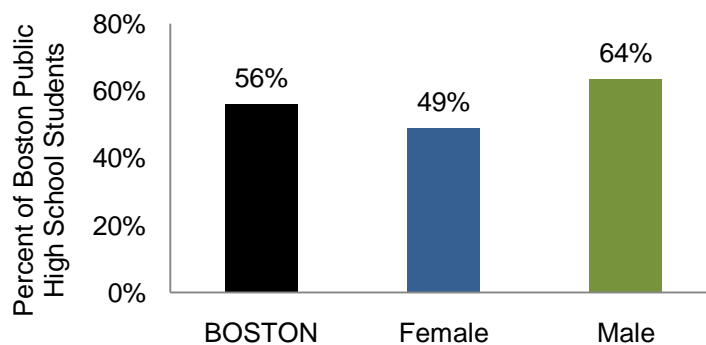


Figure 8.3 High School Students Who Have Had Sex by Race/Ethnicity, 2007

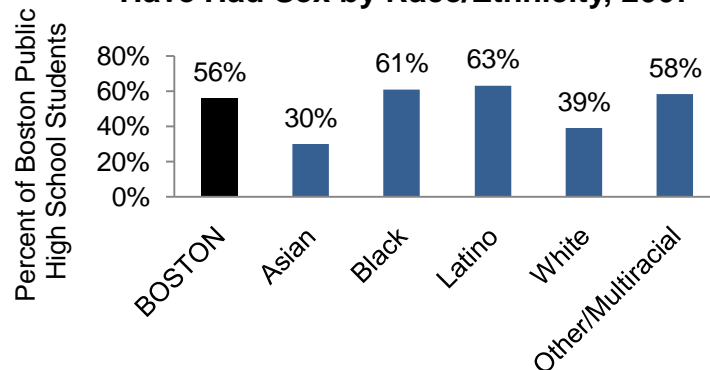


Figure 8.4 Age at First Sex Among High School Females and Males, 2007

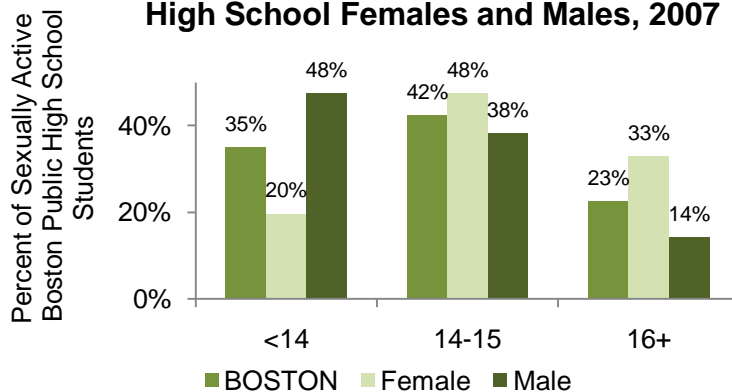


Figure 8.5 Number of Lifetime Sexual Partners Among High School Students by Age Group, 2007

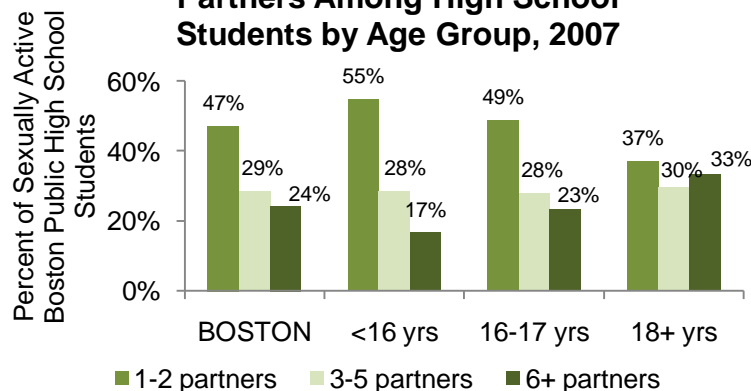
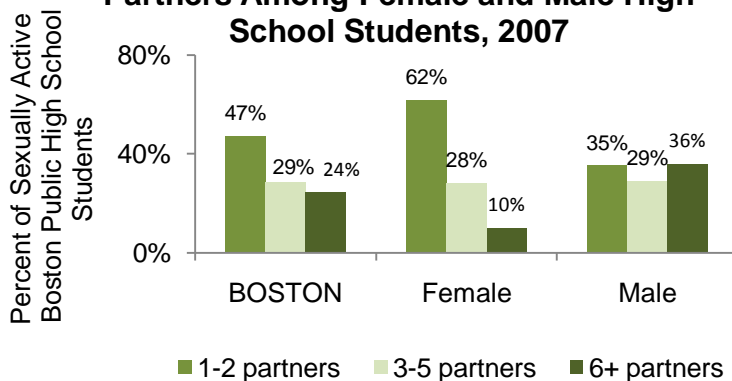


Figure 8.6 Number of Lifetime Sex Partners Among Female and Male High School Students, 2007



In 2007, of sexually active high school students (those who have had sexual intercourse), 35% reported having had sex for the first time before age 14 years.

A higher percentage of sexually active male students had had sexual intercourse before age 14 than female students.

Among sexually active Boston public high school students, 47% reported having had at least one lifetime sexual partner and 24% reported having had 6 or more lifetime sexual partners.

Across age groups, the percentage of students who had had between 1 and 5 partners was similar.

Among sexually active high school students, a higher percentage of females than males reported having 1-2 lifetime partners.

A higher percentage of males reported having 6 or more partners.

For explanation of symbols within charts (* † ‡ § ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Across racial/ethnic groups, a similar percentage of sexually active public high school students reported having 3-5 lifetime partners.

Of sexually active students, a higher percentage of White public high school reported having one to two lifetime partners compared to Black and Latino students.

Approximately 7 out of 10 sexually active public high school students reported using a condom the last time they had sex. The percentage who reported condom usage was similar across all age groups.

The percentage of sexually active female public high school students who reported using a condom the last time they had sex was lower than the percentage of sexually active male students.

The percentage of sexually active students who reported using a condom the last time they had sex was similar among racial/ethnic groups (data not shown).

Figure 8.7 Number of Lifetime Partners Among High School Students by Race/Ethnicity, 2007

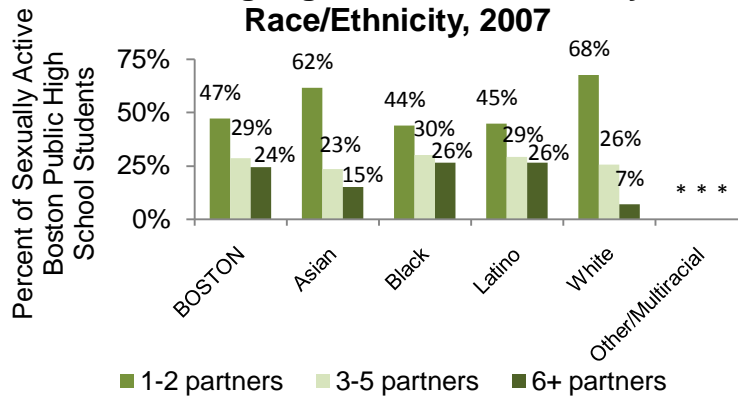


Figure 8.8 Condom Usage During Last Sex Among High School Students by Age Group, 2007

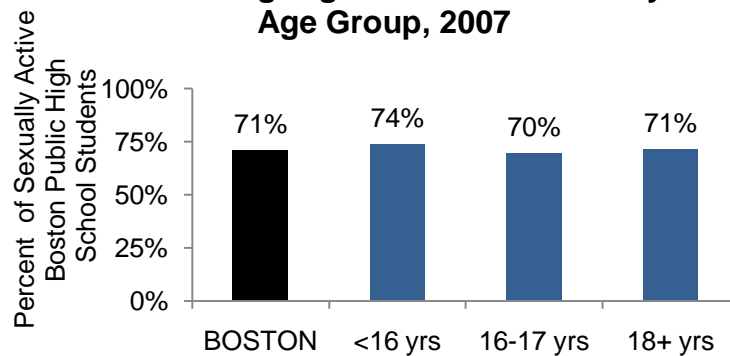


Figure 8.9 Condom Usage at Last Sex Among Female and Male High School Students, 2007

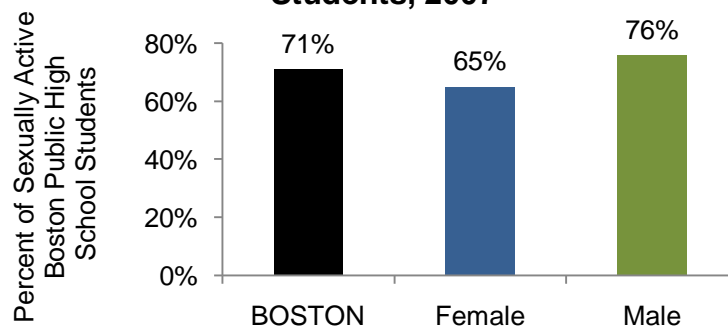


Figure 8.10 Alcohol or Drugs Before Last Sex Among High School Students by Age Group, 2007

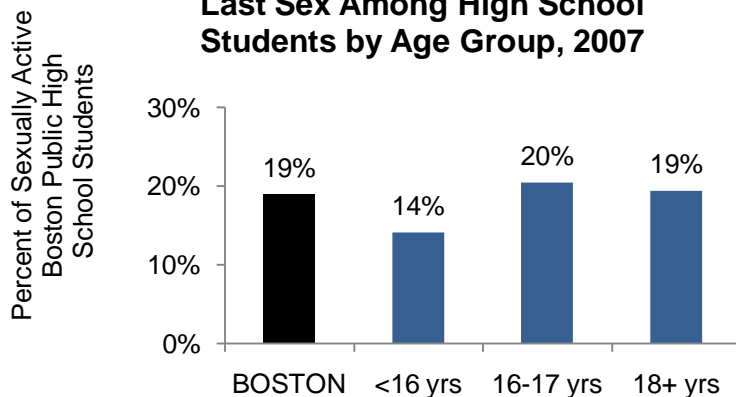


Figure 8.11 Alcohol or Drugs Before Last Sex Among High School Students by Gender, 2007

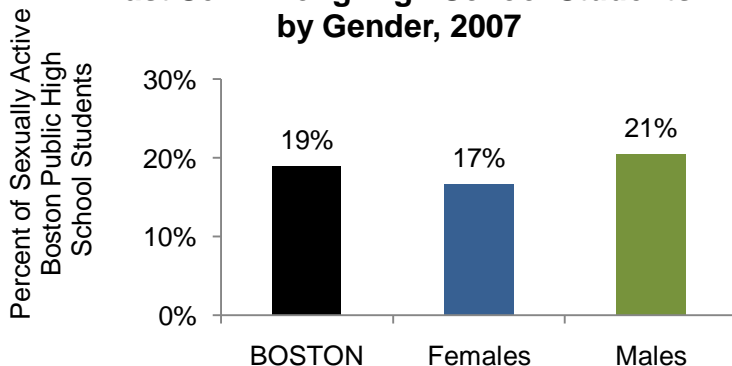
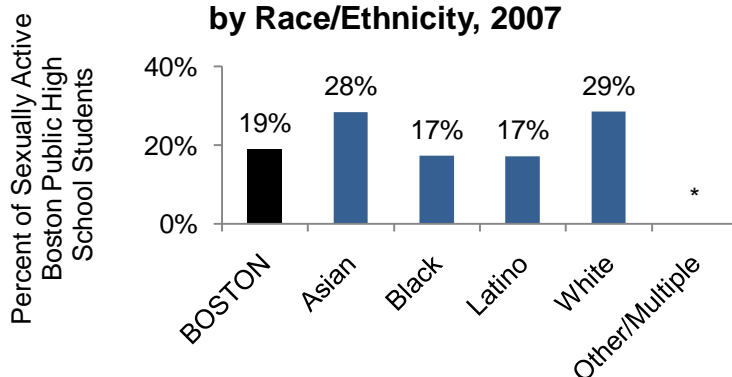


Figure 8.12 Alcohol or Drugs Before Last Sex Among High School Students by Race/Ethnicity, 2007



Almost 1 in 5 sexually active public high school students reported drinking alcohol or using drugs before their last sexual intercourse. The percentage was statistically similar across all age groups.

Reported use of alcohol or drugs before last sexual intercourse was statistically similar among female and male public high school students.

Reported use of alcohol or drugs prior to last sexual intercourse was statistically similar among Asian, Black, Latino and White Boston public high school students.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Approximately six out of 100 public high school students reported ever being told they had HIV infection or any other sexually transmitted disease.

This percentage was statistically similar across all age groups.

Approximately one in 20 female and one in 14 male Boston public high school students reported ever being told they had HIV infection or any other sexually transmitted disease.

The percentage of Asian, Black, Latino, and Multiracial public high school students who reported ever being told they had HIV infection or other sexually transmitted disease was similar.

Figure 8.13 High School Students Who Have Ever Been Told Had HIV or STD by Age Group, 2007

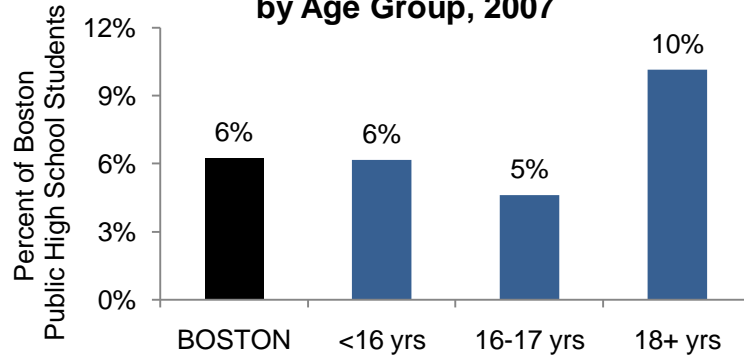


Figure 8.14 High School Students Who Have Ever Been Told Had HIV or STD by Gender, 2007

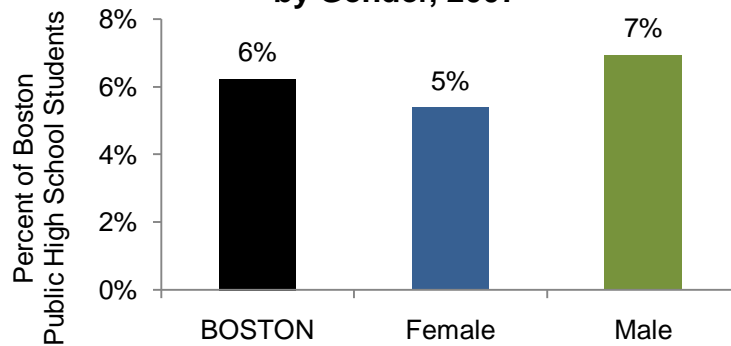


Figure 8.15 High School Students Who Have Ever Been Told Have HIV or STD by Race/Ethnicity, 2007

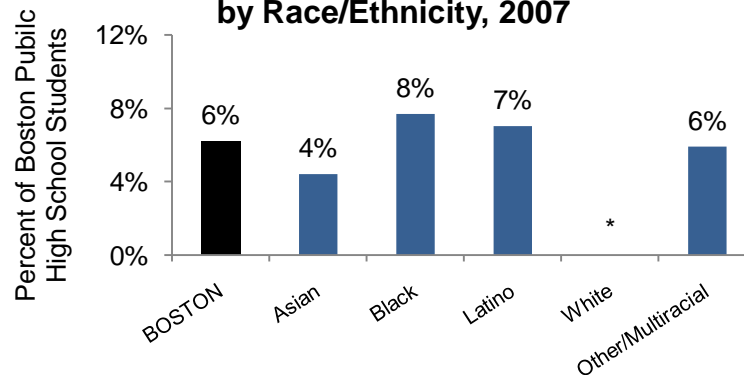
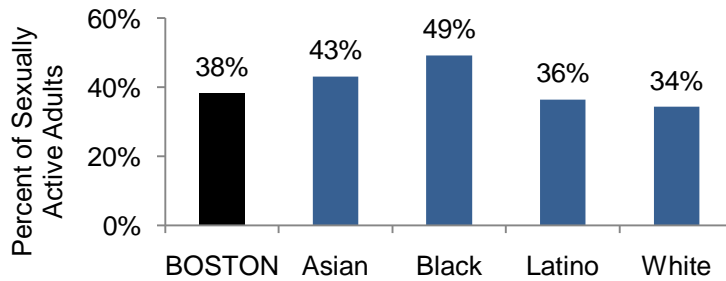


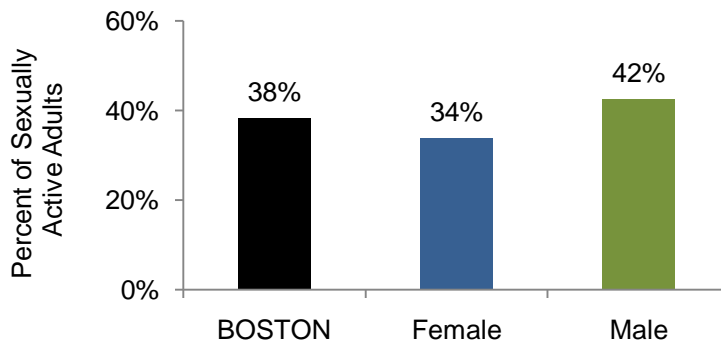
Figure 8.16 Condom Usage Among Adults by Race/Ethnicity, 2005



In 2005, over one-third of sexually active Boston adults reported using a condom the last time they had sex.

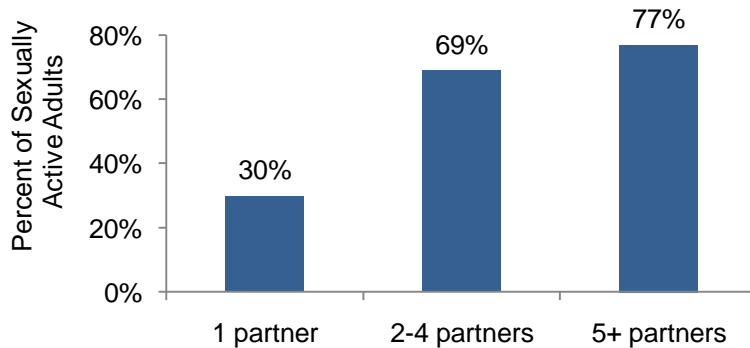
Among sexually active adults, a higher percentage of Blacks reported using condoms the last time they had sex than Whites.

Figure 8.17 Condom Usage Among Adults by Gender, 2005



In 2005, reported condom usage during last sexual intercourse was statistically similar among sexually active Boston adult female and male residents.

Figure 8.18 Condom Usage by Number of Partners in Past 12 Months, 2005



Approximately one-third of sexually active adults with one partner in the past 12 months reported using condom while over three-fourths of those with five or more partners in the past 12 months reported using a condom at last sexual intercourse.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Among sexually active female and male adults with one to four partners in the last 12 months, the percentage who reported using a condom was similar.

Among sexually active adults who did not use a condom during last sexual intercourse, over half reported the reason for not using a condom was involvement in a monogamous relationship.

Among sexually active female and male adults, a higher percentage of males reported having more than one partner in the last 12 months compared to females.

Figure 8.19 Condom Usage Among Adults by Number of Partners and Gender, 2001, 2003 and 2005 Combined

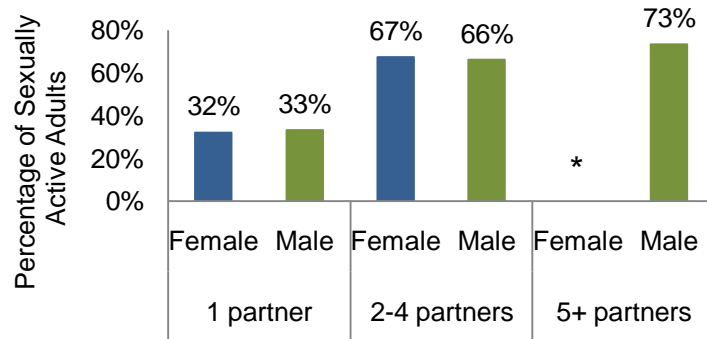


Figure 8.20 Reasons Given for not Using Condom, 2005

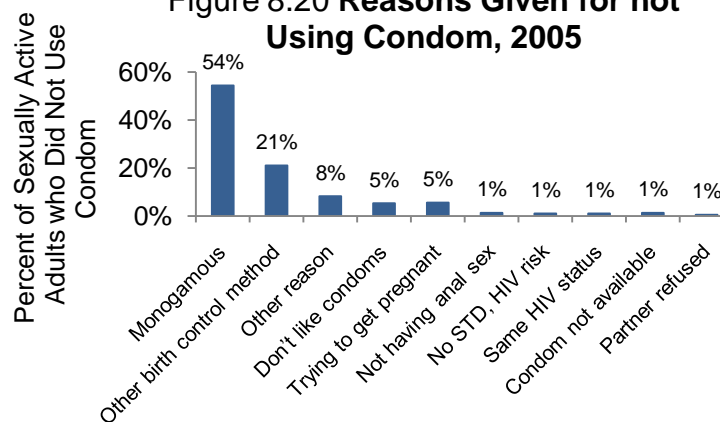
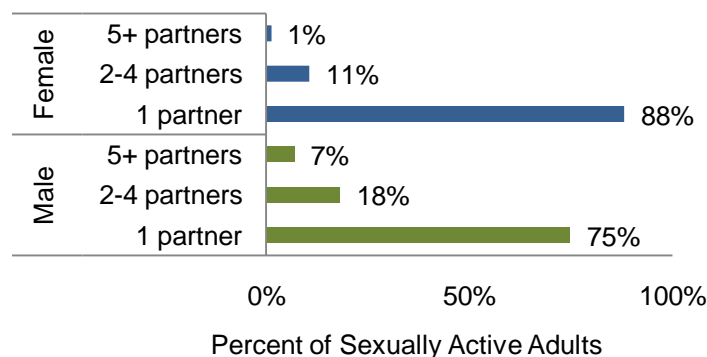


Figure 8.21 Number of Sexual Partners in Past Year by Gender, 2003 and 2005 Combined



What are HIV and AIDS?

HIV stands for the Human Immunodeficiency Virus and is a virus that attacks a person's immune system. AIDS, or Acquired Immunodeficiency Syndrome, is the final stage of an HIV infection. It can take many years for an HIV infection to progress to AIDS, and current drug treatments can slow this progression even further. AIDS is diagnosed when the immune system of a person infected with HIV can no longer fight off infections from other sources (4).

Many individuals who are infected with HIV do not have symptoms for many years. Someone can look and feel healthy but can still be infected. The only way to know whether you are infected is to be tested for HIV.

HIV is not transmitted via casual contact. HIV is present in the blood, vaginal fluid, and semen of an infected person. According to the CDC, there are three primary ways that HIV is transmitted in the US (4):

- Having sex (anal, vaginal, or oral) with someone infected with HIV
- Sharing needles and syringes with someone infected with HIV
- Being exposed (fetus or infant) to HIV before or during birth or through breast feeding

All donated blood in the United States is tested for HIV. Therefore, the risk for HIV infection through the transfusion of blood or blood products is extremely low.

Population at greatest risk

At greatest risk for HIV or AIDS are individuals who inject drugs, have unprotected vaginal, anal or oral sex,

unprotected sex with multiple partners, men who have sex with men, or anonymous partners, exchange sex for money, have been given a diagnosis or treated for hepatitis, TB or a sexually transmitted disease such as syphilis, received a blood transfusion during 1978-1985 or had unprotected sex with someone who has any of the risk factors listed here (4).

Prevention

Individuals at greatest risk should be tested annually for HIV. If either partner is infected or if there is uncertainty about infection status, a condom should be used for oral, vaginal, and anal sex. If injecting drugs, use only new needles and do not share needles. In addition, individuals should talk about HIV and other STDs with each partner to learn as much as possible about each partner's past behavior and if they have recently been tested for HIV. If an individual has been exposed to another sexually transmitted infection such as Chlamydia, one should seek testing and treatment as these diseases can increase one's risk for contracting HIV (4).



Massachusetts began reporting HIV cases in 1999. There has been a gradual decrease in HIV incidence rates between 2000 and 2006; however, the rate peaked in 2000.

Between 2002 and 2006, the HIV incidence rate decreased by 33%.

Since 1999, Blacks have consistently had the highest HIV incidence rate and Asians have consistently had the lowest HIV incidence rate.

Boston's HIV incidence rates varied substantially by gender. Males have consistently had higher HIV incidence rates than females.

Since 1999, the HIV incidence rate has gradually decreased with slight fluctuations for both males and females.

Figure 8.22 HIV Incidence Rates by Year, 1999-2006

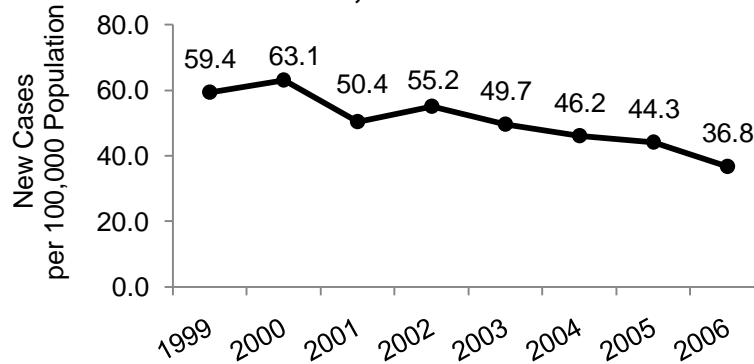


Figure 8.23 HIV Incidence Rates by Race/Ethnicity, 1999-2006

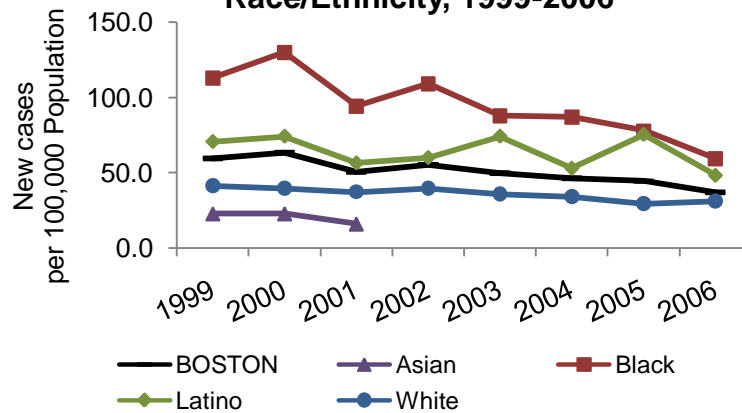


Figure 8.24 HIV Incidence Rates by Gender, 1999-2006

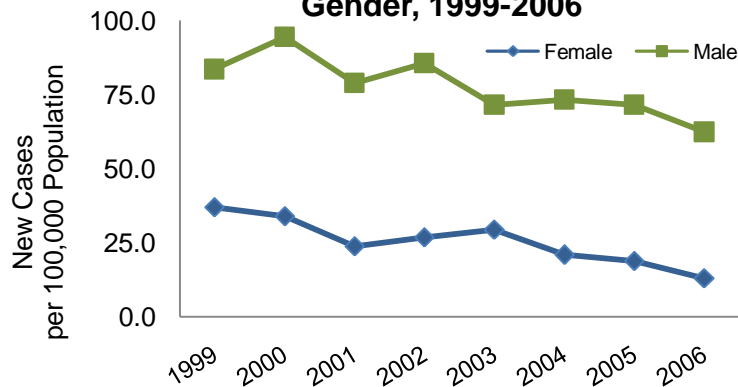
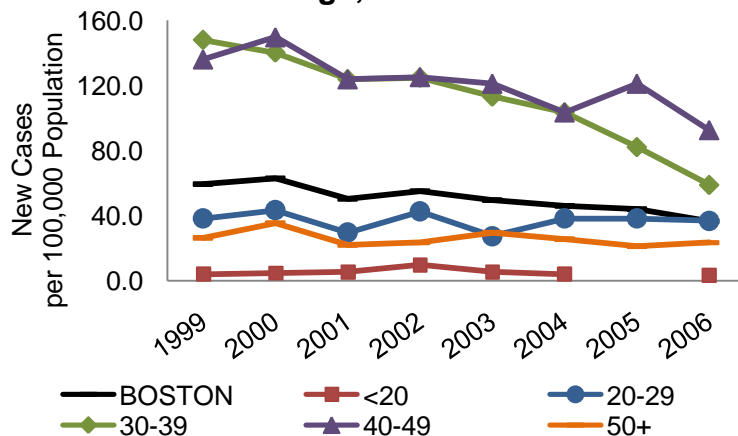
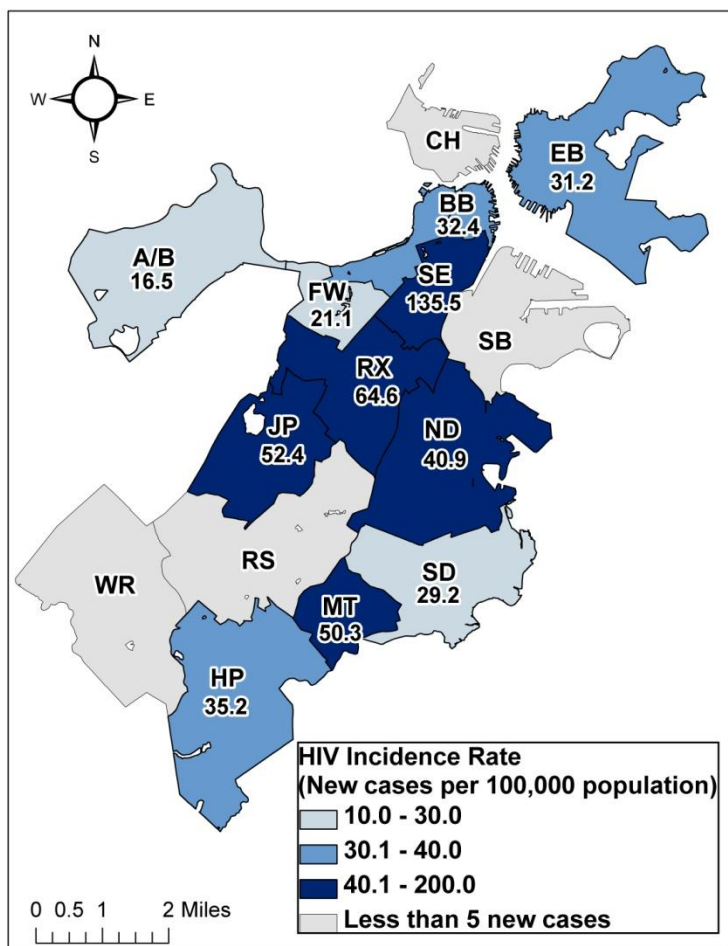


Figure 8.25 HIV Incidence Rates by Age, 1999-2006



Since 1999, individuals between the ages of 40 and 49 as well as individuals between the ages of 30 and 39 have had the highest incidence rates, while individuals under age 20 have had the lowest HIV incidence rate.

Figure 8.26 HIV Incidence Rates by Neighborhood, 2006



In 2006, the South End had the highest HIV incidence rate, more than three times the overall Boston rate of 36.8 per 100,000, while Charlestown, Roslindale, South Boston, and West Roxbury had the fewest new cases of HIV infection.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

The rate of new AIDS cases reported each year has been steadily declining since 2000. The rate of new cases reported in 2006 was the lowest it has been in a decade and is 65.4% lower than in 1995.

The AIDS incidence rate in Boston continues to be the highest for Blacks, followed by Latinos and Whites. Between 1995 and 2006, the rate for all racial/ethnic groups has declined. The rate for Whites declined by 73.3%, for Blacks by 60.9% and for Latinos by 51.6%.

Since 1995, the AIDS incidence rate for males has been more than double the rate for females. In 2006, the rate for males was more than 5 times the rate for females.

Figure 8.27 AIDS Incidence Rates, 1995-2006

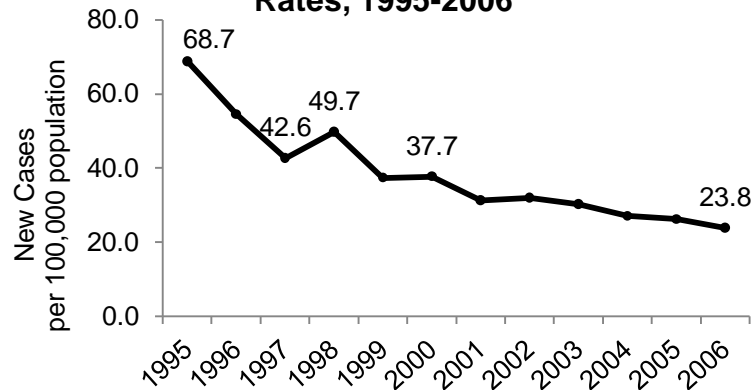


Figure 8.28 AIDS Incidence Rates by Race/Ethnicity, 1995-2006

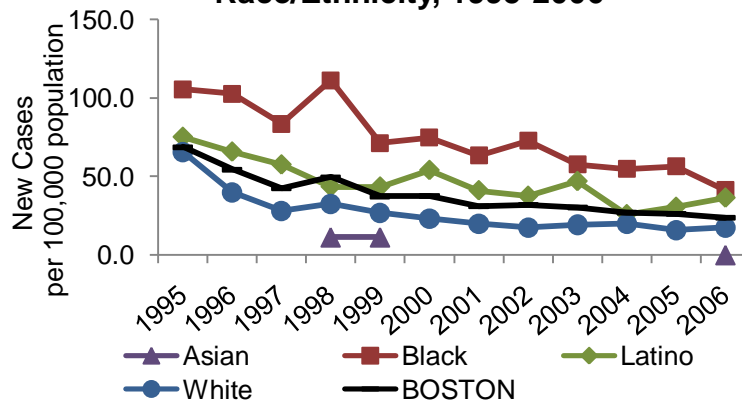


Figure 8.29 AIDS Incidence Rates by Gender, 1995-2006

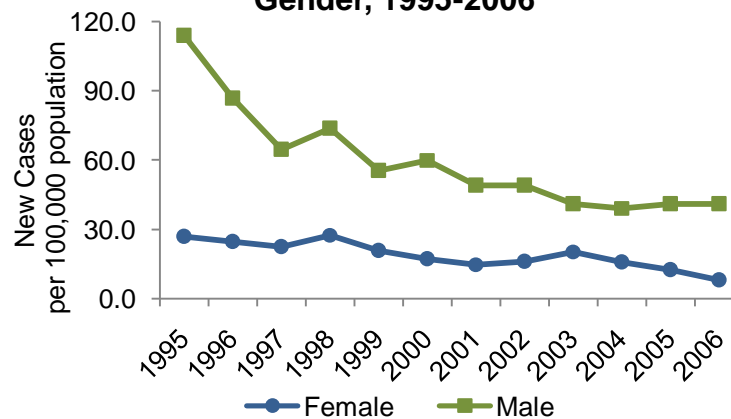
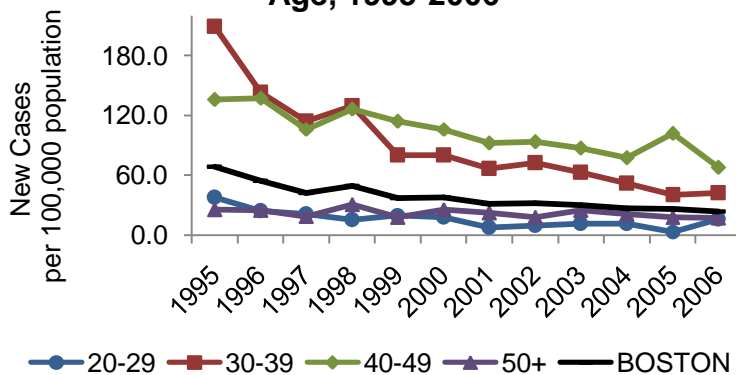
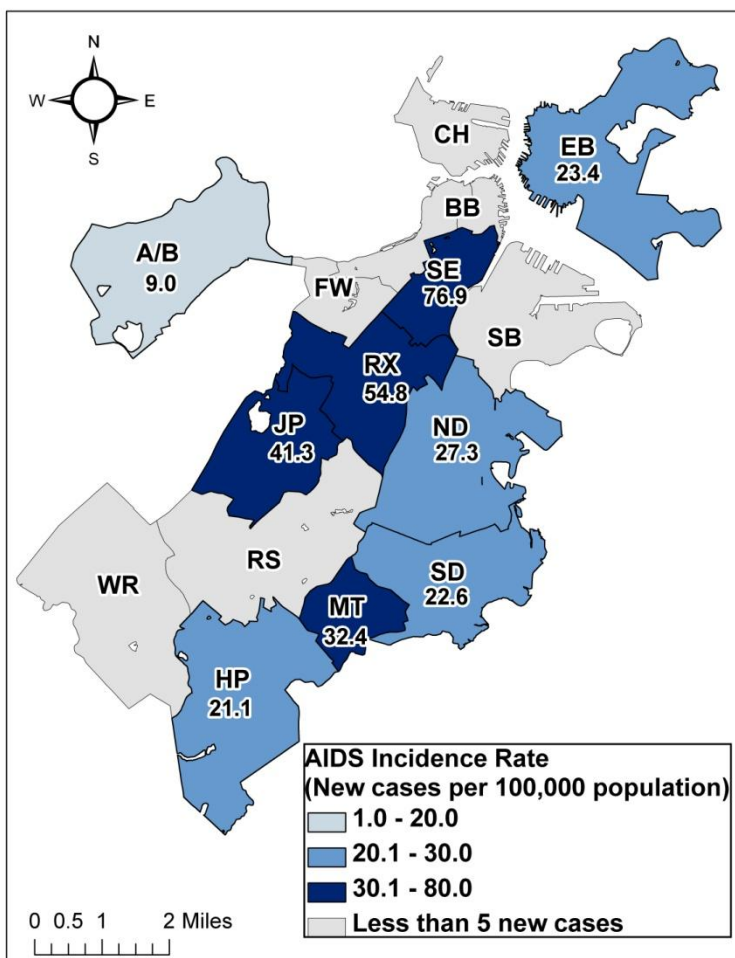


Figure 8.30 AIDS Incidence Rates by Age, 1995-2006



The AIDS incidence rate has declined for all age groups from 1995 to 2006. However, between 2005 and 2006, the incidence rates rose for the 20-29 year olds and the 30-39 year olds. After a spike in the 2005, the rate for 40-49 year olds fell to its lowest level in 12 years.

Figure 8.31 AIDS Incidence Rates by Neighborhood, 2006



In 2006, the AIDS incidence rate for five neighborhoods exceeded the Boston overall rate (23.8 cases per 100,000 population): Jamaica Plain, Mattapan, North Dorchester, Roxbury, and the South End.

The South End had the highest AIDS incidence rate for Boston in 2006. It was 3.2 times the Boston overall rate.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

What is chlamydia?

Chlamydia is a sexually transmitted disease caused by the bacterium *Chlamydia trachomatis*. About half of infected men, and three-quarters of infected women, have no symptoms (5). Chlamydia can permanently damage a woman's reproductive organs if not treated promptly. Chlamydia is the most frequently reported bacterial sexually transmitted disease in the United States.

Population at greatest risk

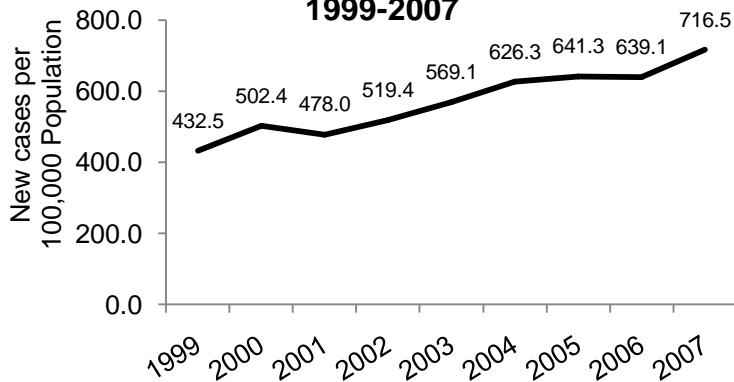
Young women ages 15-24 are at greatest risk for chlamydia infection.

Prevention

Latex male condoms, when used consistently and correctly, can reduce the risk of transmission of chlamydia. Yearly chlamydia testing of all sexually active women ages 25 or younger, older women with risk factors for chlamydia infections (those who have a new sex partner or multiple sex partners), and all pregnant women is recommended (5).



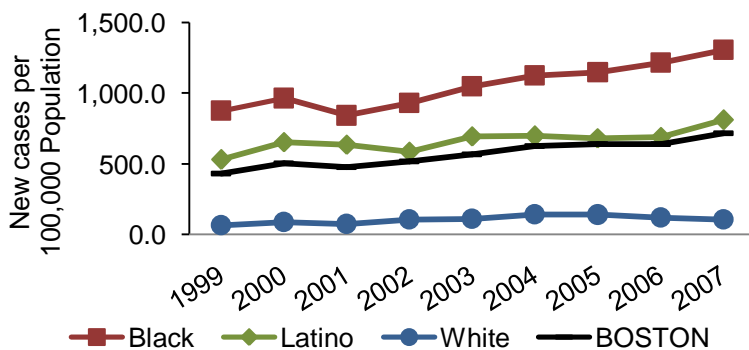
Figure 8.32 Chlamydia Cases, 1999-2007



The rate of reported new cases of chlamydia has been on the rise in recent years.

The rate of new cases among Boston residents in 2007 was 66% higher than in 1999.

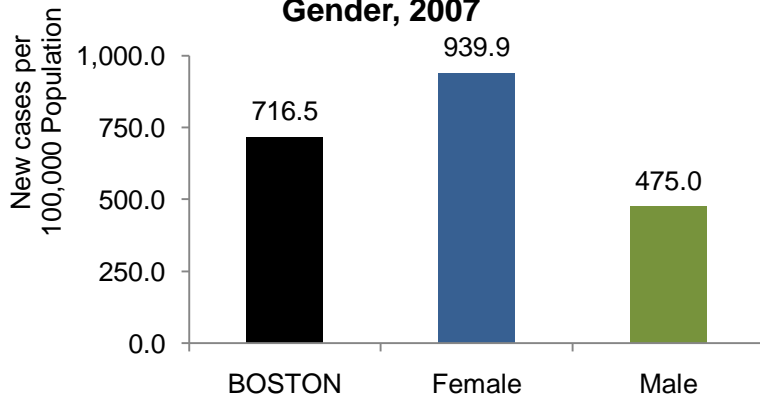
Figure 8.33 Chlamydia Cases by Race/Ethnicity, 1999-2007



For every year between 1999 and 2007, Black Boston residents had a far higher number and rate of new cases of chlamydia, compared to White and Latino residents.

The incidence rate for chlamydia in 2007 was higher among all three of these racial/ethnic groups than it was in 1999.

Figure 8.34 Chlamydia Cases by Gender, 2007



In 2007, the rate of new cases of chlamydia in females was almost twice the rate for males.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Reported chlamydia infection is most common among young people ages 15-19 and falls off steeply with increasing age.

In 2007, several Boston neighborhoods had a chlamydia incidence rate well above the overall city rate (716.5 cases per 100,000 population). Mattapan, Roxbury, and South Dorchester each had a rate thirty percent or higher than the rate for Boston overall.

Figure 8.35 Chlamydia Cases by Age Group, 2007

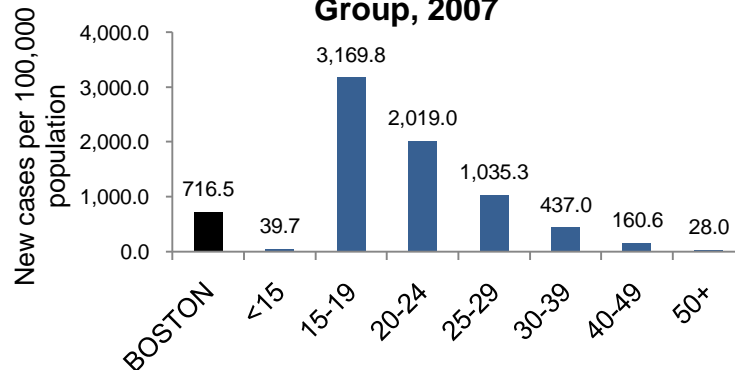
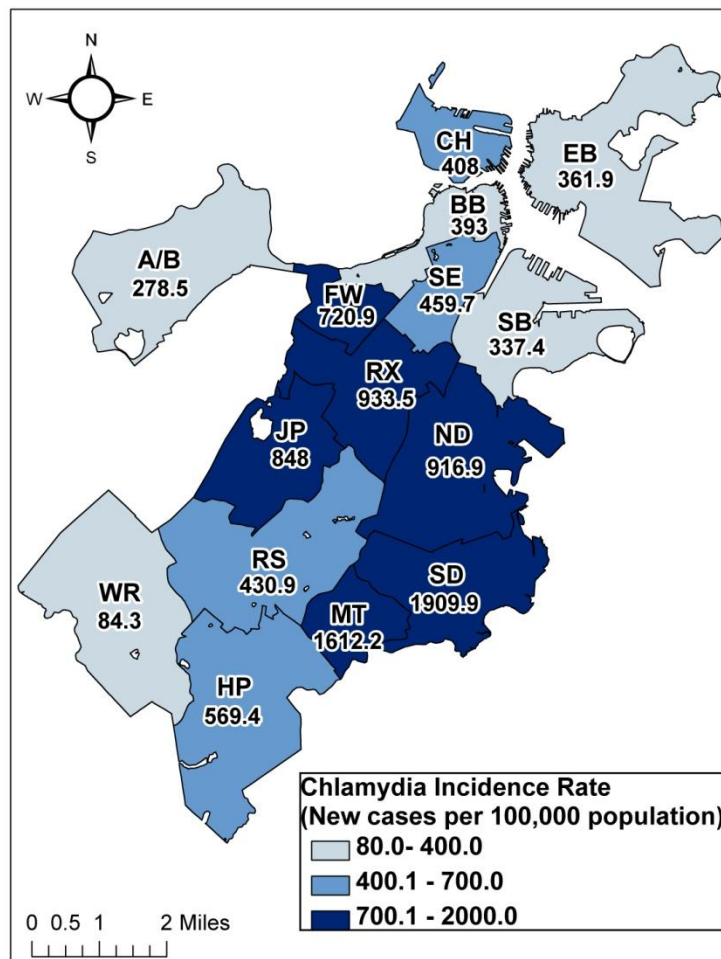


Figure 8.36 Chlamydia Cases by Neighborhood, 2007



What is gonorrhea?

Gonorrhea is a sexually transmitted disease caused by the bacterium *Neisseria gonorrhoea*. Signs and symptoms include a burning sensation when urinating, or a white, yellow, or green discharge from the penis or vagina. Infected individuals may have no symptoms at all. Gonorrhea is spread through contact with the penis, vagina, mouth, or anus of an infected individual. Gonorrhea can also be spread from mother to baby during delivery. People who have had gonorrhea and received treatment may get infected again if they have sexual contact with a person infected with gonorrhea (6).

Population at greatest risk

Young adults ages 15-24 are at greatest risk for gonorrhea infection.

Prevention

Latex male condoms, when used consistently and correctly, can reduce the risk of transmission of gonorrhea. Any genital symptoms such as discharge or burning during urination or unusual sore or rash should be a signal to stop having sex and to see a doctor immediately (6).



After rising sharply between 1999 and 2002, the rate of new cases of gonorrhea decreased from 2002 to 2006. The incidence rate increased 17.3% from 2006 to 2007.

The 2007 incidence rate of 163.5 was the highest rate for Boston since 2002.

From 1999 through 2007, the incidence rate of gonorrhea varied among racial/ethnic groups, with the incidence rate for Black residents substantially higher than the incidence rate for Whites and Latinos.

The male gonorrhea rate was 30% higher than the female rate.

The difference in gonorrhea rate between genders is less pronounced than that for chlamydia or syphilis.

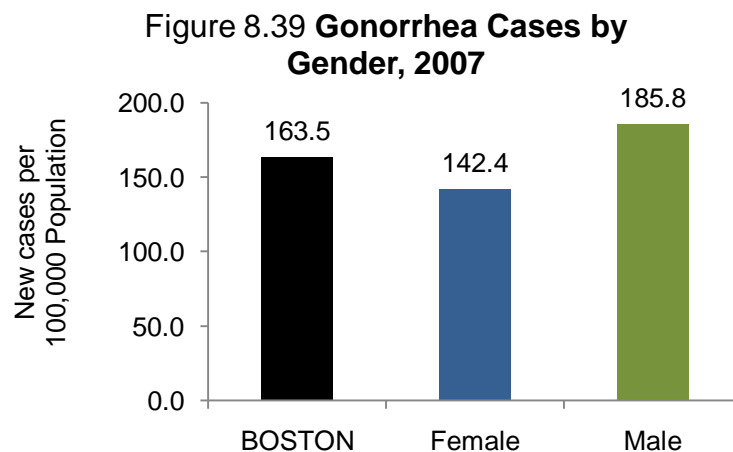
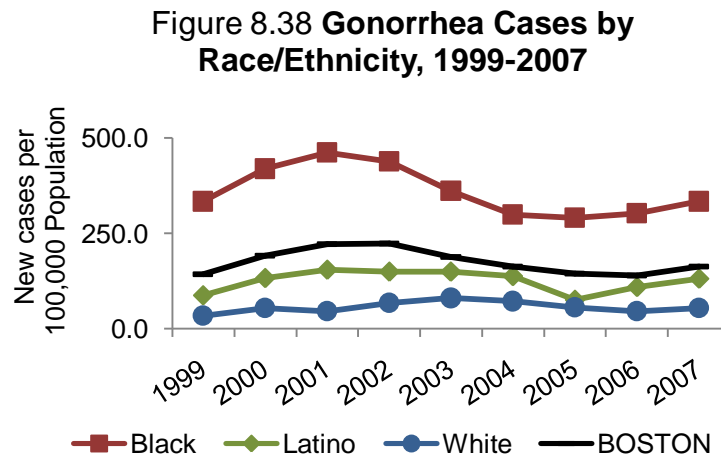
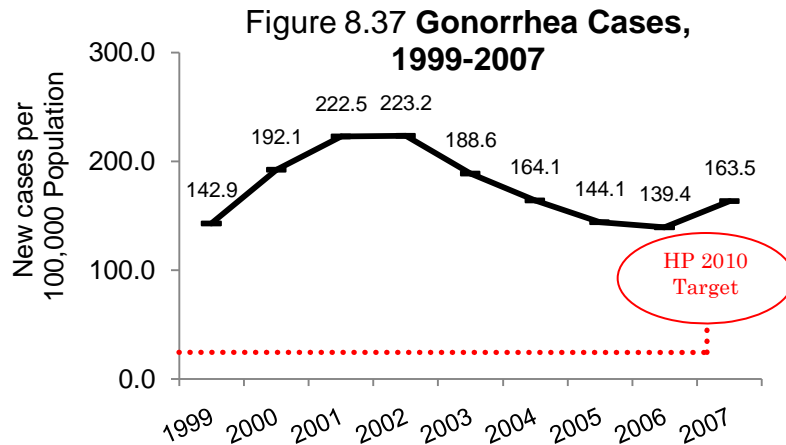
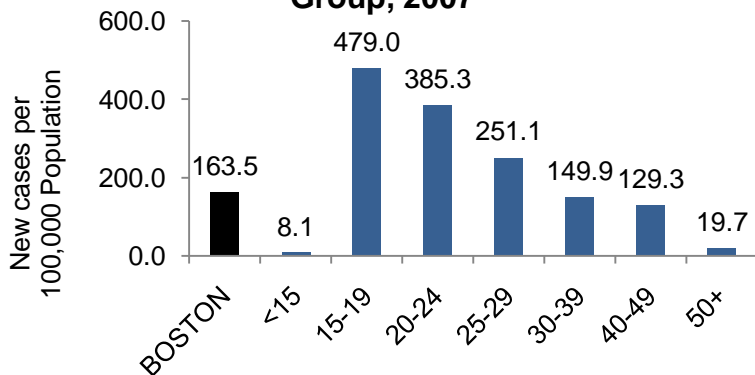
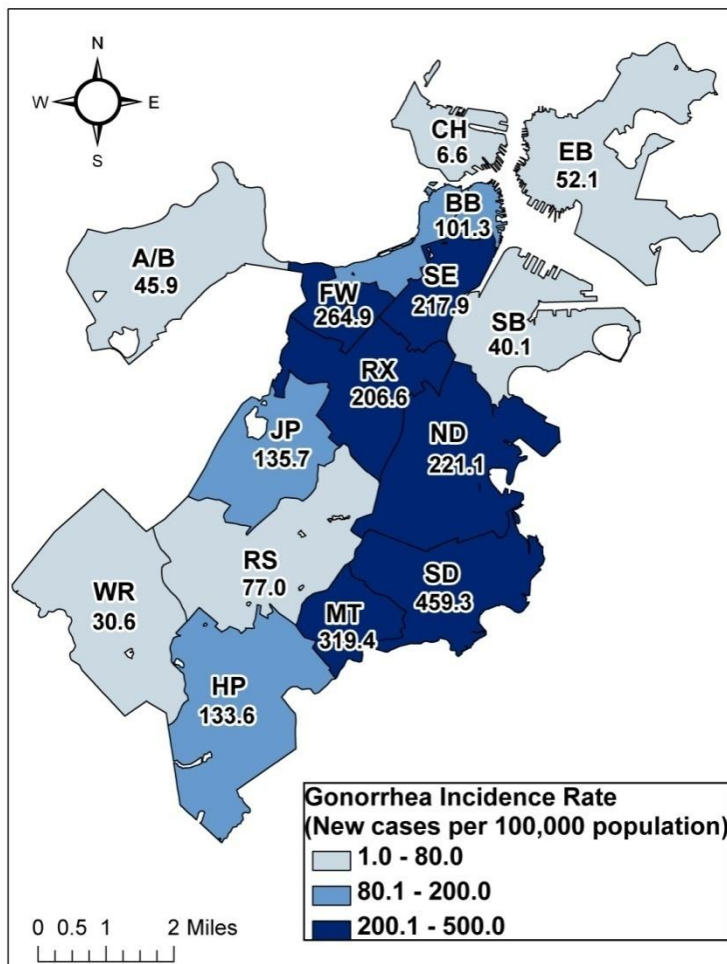


Figure 8.40 **Gonorrhea Cases by Age Group, 2007**



In Boston, as elsewhere, gonorrhea infection is most prevalent among young people ages 15-19. Half of all new cases among Boston residents in 2007 occurred in people under age 25.

Figure 8.41 **Gonorrhea Cases by Neighborhood, 2007**



South Dorchester and Mattapan had the highest rate of new cases of gonorrhea among Boston neighborhoods in 2007.

The Fenway neighborhood had Boston's third highest rate of gonorrhea among Boston neighborhoods in 2007.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

What is syphilis?

Syphilis is a sexually transmitted disease caused by the bacterium *Treponema pallidum*. Many people infected with syphilis do not have any symptoms for years, yet remain at risk for later complications if they are not treated. Initial symptoms include firm, round, small, and painless genital sores. In later stages, symptoms may include skin rashes and mucous membrane lesions. Sores occur mainly on the external genitals, vagina, anus, or in the rectum. Sores also can occur on the lips and in the mouth. Syphilis is passed from person to person through direct contact with a syphilis sore. Transmission of the organism occurs during vaginal, anal, or oral sex. The syphilis bacterium can infect the baby of a woman during her pregnancy (7).

Population at greater risk

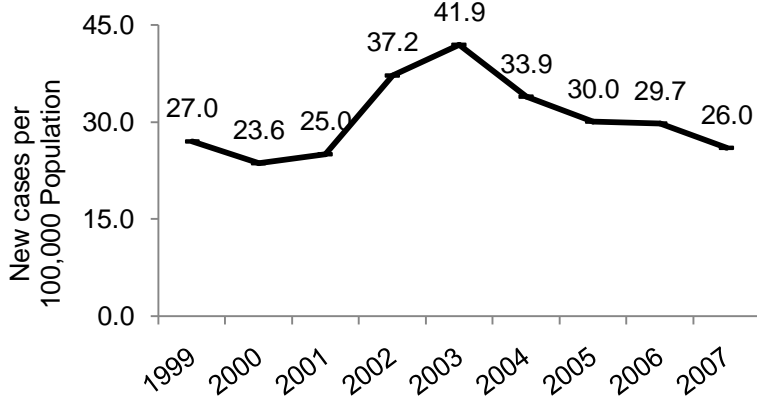
Adults age 40 and older and men are at greater risk for syphilis infection.

Prevention

Latex male condoms, when used consistently and correctly, can reduce the risk of transmission of syphilis. Any genital symptoms such as unusual sore or rash should be a signal to stop having sex and to see a doctor immediately (7).



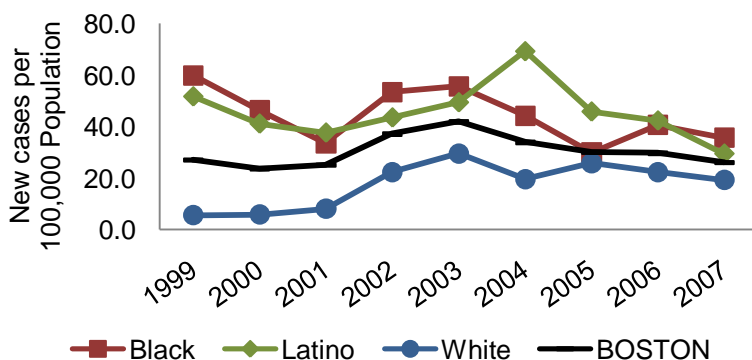
Figure 8.42 Syphilis Cases, 1999-2007



The syphilis incidence rate peaked in 2003. This peak is largely attributed to an increase in the number of reported syphilis infections in men who have sex with men.

The syphilis incidence rate declined 37.9% from 2003 to 2007.

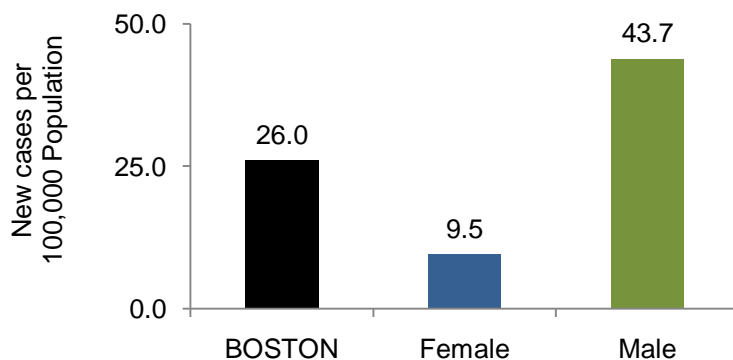
Figure 8.43 Syphilis Cases by Race/Ethnicity, 1999-2007



From 1999 to 2007, the incidence rate of syphilis varied by race, with the rate for Blacks and Latinos being higher than the rate for Whites.

The rate of syphilis for Whites increased dramatically from 2001 to 2003 and has continued to remain well above the lower levels seen from 1999 to 2001.

Figure 8.44 Syphilis Cases by Gender, 2007



The rate of syphilis among males is more than four times higher than the rate among females.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Syphilis is most common among adults ages 30 to 49.

The South End had the city's highest syphilis rate in 2007, more than three times the overall Boston rate of 25.5 per 100,000 population.

Figure 8.45 Syphilis Cases by Age Groups, 2007

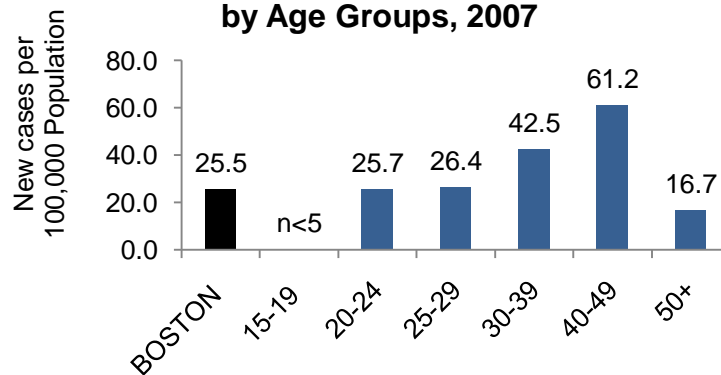
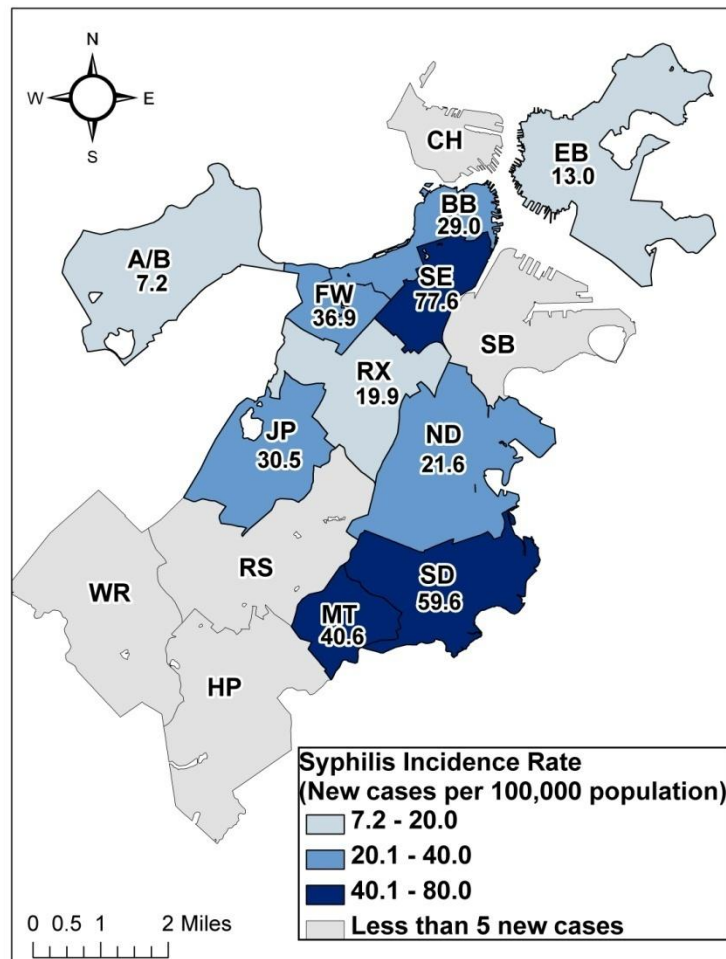


Figure 8.46 Syphilis Cases by Neighborhood, 2007



Summary: Sexual Health

The data presented here show a picture of continued participation in high-risk sexual behaviors by Boston residents and increasing rates of certain common sexually transmitted infection.

In Boston, over half of public high school students report having had sexual intercourse and 35% of those who had sex reported having sexual intercourse for the first time before age 14 years. Some, but not all, of the experiences of male and female students differed, as did those of Asian, Black, Latino and White students. Compared to females, a higher percentage of males reported having had sex, having had a first sexual intercourse before age 14, and having a greater number of partners. A similar percentage of males and females reported having a history of HIV infection or other sexually transmitted disease. In addition, use of alcohol or drugs prior to last sexual intercourse was similar among males and females.

Compared to Asian and White students, a higher percentage of Black, Latino, and Multiracial students reported having had sexual intercourse. In addition, a higher percentage of Black and Latino students reported having had a greater number of sexual partners than their White counterparts. Condom usage, the use of alcohol or drugs prior to last sexual intercourse, and history of HIV or STD was similar among these Asian, Black, Latino, White and Multiracial students.

Among adults, condom usage was similar across genders and racial and ethnic groups. A higher percentage of males compared to females reported having more than one sexual partner in the last 12 months but partner status was similar among Asians, Blacks, Latinos and Whites.

As expected, condom use increased with increasing number of partners.

In 2007, Black Boston residents continued to experience higher rates of chlamydia and gonorrhea than Latino and White residents. The rate of syphilis was also higher in Black Boston residents in 2007. Residents ages 15-19 years experienced higher rates of new chlamydia and gonorrhea infections than any other age group while those ages 40-49 experienced the highest rate of new syphilis cases. Females had a higher rate of chlamydia infection while males had a higher rate of gonorrhea and syphilis infection. Among Boston neighborhoods, South Dorchester had the highest rates of new chlamydia and gonorrhea infection, and the second highest rate of new syphilis infection.

With respect to sexual health, certain experiences of males, females, racial and ethnic groups, age groups and even neighborhoods varied dramatically while other experiences were shared across members of a group. The data presented in this section served to highlight the similarities and differences across these experiences.



References

1. **World Health Organization.** Defining Sexual Health: Report of a Technical Consultation on Sexual Health, 28–31 January 2002. Geneva: WHO Press; 2006: 5-7.
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Notes, Data Source and Data Analysis

Figure 8.1

NOTE: Survey question reads: "Have you ever had sexual intercourse?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.2

NOTE: Survey question reads: "Have you ever had sexual intercourse?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.3

NOTE: Survey question reads: "Have you ever had sexual intercourse?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.4

NOTE: Survey question reads: "How old were you when you had sexual intercourse for the first time?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.5

NOTE: Survey question reads: "During your life, with how many people have you had sexual intercourse?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.6

NOTE: Survey question reads: "During your life, with how many people have you had sexual intercourse?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.7

* Insufficient sample size for Other/Multiracial students.

NOTE: Survey question reads: "During your life, with how many people have you had sexual intercourse?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.8

NOTE: Survey question reads: "The last time you had sexual intercourse, did you or your partner use a condom?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.9

NOTE: Survey question reads: "The last time you had sexual intercourse, did you or your partner use a condom?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.10

NOTE: Survey question reads: "Did you drink alcohol or use drugs before you had sexual intercourse the last time?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.11

NOTE: Survey question reads: "Did you drink alcohol or use drugs before you had sexual intercourse the last time?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.12

* Insufficient sample size for Other/Multiple students.

NOTE: Survey question reads: "Did you drink alcohol or use drugs before you had sexual intercourse the last time?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.13

NOTE: Survey question reads: "Have you ever been told by a doctor or nurse that you had HIV infection or any other sexually transmitted disease (STD)?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.14

NOTE: Survey question reads: "Have you ever been told by a doctor or nurse that you had HIV infection or any other sexually transmitted disease (STD)?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.15

* Insufficient sample size for White students.

NOTE: Survey question reads: "Have you ever been told by a doctor or nurse that you had HIV infection or any other sexually transmitted disease (STD)?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.16

NOTES: Survey question reads: "Now, thinking back about the last time you had sex, did you or your partner use a condom?" This question was asked of individuals who responded affirmatively to the following question: "During the past 12 months, have you had sex?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.17

NOTES: Survey question reads: "Now, thinking back about the last time you had sex, did you or your partner use a condom?" This question was asked of individuals who responded affirmatively to the following question: "During the past 12 months, have you had sex?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.18

NOTES: Survey question reads: "Now, thinking back about the last time you had sex, did you or your partner use a condom?" This question was asked of individuals who responded affirmatively to the following question: "During the past 12 months, have you had sex?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.19

* Insufficient sample size for females with 5+ partners

NOTES: Survey question reads: "Now, thinking back about the last time you had sex, did you or your partner use a condom?" This question was asked of individuals who responded affirmatively to the following question: "During the past 12 months, have you had sex?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.20

NOTES: Survey question reads: "Which best describes the reason you did not use a condom the last time you had sex?" This question was asked of individuals who responded affirmatively to the following question: "During the past 12 months, have you had sex?" and negatively to the question: "Now, thinking back about the last time you had sex, did you or your partner use a condom?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.21

NOTE: Survey question reads: "During the past 12 months, with how many people have you had sex?" This question was asked of individuals who responded affirmatively to the following question: "During the past 12 months, have you had sex?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2003 and 2005, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.22

NOTE: In January 1999, Massachusetts began reporting HIV cases. The number of new HIV cases shown excludes those that have progressed to AIDS. None of the data presented include inmates of correctional facilities. Rates for years prior to 2005 may differ from those reported in previous publications due to file updates by the Massachusetts Department of Public Health HIV/AIDS Surveillance Program. Due to changes in reporting, 2007 data are not yet available.

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

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.23

NOTES: These data do not include persons of other or unknown race/ethnicity or inmates of correctional facilities. There were too few cases of HIV among Asians from years 2002 through 2006 to permit the presentation of incidence rates. Due to changes in reporting, 2007 data are not yet available.

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

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.24

NOTES: These data do not include inmates of correctional facilities. Due to changes in reporting, 2007 data are not yet available.

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

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.25

NOTES: These data do not include inmates of correctional facilities. There were too few cases of HIV among individuals less than 20 years old in 2005 to permit the presentation of incidence rates. Due to changes in reporting 2007 data are not yet available.

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

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.26

ABBREVIATIONS KEY: A/B=Allston/Brighton, BB=Back Bay (includes Beacon Hill, Downtown, North End and the West End), CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

NOTES: These data do not include inmates of correctional facilities. There were too few cases of HIV among residents of Charlestown, Roslindale, South Boston and West Roxbury to permit the presentation of incidence rates. Due to changes in reporting 2007 data are not yet available.

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

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Figure 8.27

NOTES: These data do not include inmates of correctional facilities. Due to changes in reporting, 2007 data are not yet available.

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

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.28

NOTES: These data do not include persons of other or unknown race/ethnicity or inmates of correctional facilities. There were too few new cases of AIDS among Asians in 1995, 1997, and 2000-2005 to permit the presentation of incidence rates. Due to changes in reporting, 2007 data are not yet available.

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

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.29

NOTES: These data do not include inmates of correctional facilities. Due to changes in reporting, 2007 data are not yet available.

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

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.30

NOTES: These data do not include inmates of correctional facilities. Due to changes in reporting, 2007 data are not yet available. There were too few new cases of AIDS among individuals less than age 20 in every year presented except 1996 and 2005 to permit the presentation of incidence rates. Due to changes in reporting 2007 data are not yet available.

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

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.31

ABBREVIATIONS KEY: A/B=Allston/Brighton, BB=Back Bay (includes Beacon Hill, Downtown, North End and the West End), CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

NOTES: These data do not include inmates of correctional facilities. There were too few new cases of AIDS among residents of Back Bay, Charlestown, Fenway, Roslindale, South Boston, and West Roxbury to permit the presentation of incidence rates. Due to changes in reporting, 2007 data are not yet available

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

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Figure 8.32

NOTES: Data are presented as crude incidence rates. Rates for previous years may differ from those reported in previous publications due to file updates by the Massachusetts Department of Public Health.

DATA SOURCE: Massachusetts Department of Public Health, STD Division and Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.33

NOTES: These data do not include persons of other or unknown race/ethnicity, except in the Boston overall count and rate. There were too few cases of chlamydia among Asians to permit the presentation of an incidence rate. Data are presented as crude incidence rates. Rates for previous years may differ from those reported in previous publications due to file updates by the Massachusetts Department of Public Health.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.34

NOTES: These data do not include persons whose sex was not reported, except in the Boston overall count and rate. Data are presented as crude incidence rates.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.35

NOTES: These data do not include persons whose age was not reported, except in the Boston overall count and rate. Data are presented as age-specific incidence rates.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.36

ABBREVIATIONS KEY: A/B=Allston/Brighton, BB=Back Bay (includes Beacon Hill, Downtown, North End, and the West End), CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

NOTES: These data do not include homeless persons, individuals whose neighborhood of residence was not reported, inmates of correctional facilities, and clients of drug treatment programs, except in the Boston overall counts and rates. Data are presented as crude incidence rates.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Figure 8.37

NOTES: Data are presented as crude incidence rates. Rates for previous years may differ from those reported in previous publications due to file updates by the Massachusetts Department of Public Health.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.38

NOTES: These data do not include persons of other or unknown race/ethnicity, except in Boston overall count and rate. There were too few cases of gonorrhea among Asians to permit the presentation of an incidence rate. Data are presented as crude incidence rates. Rates for previous years may differ from those reported in previous publications due to file updates by the Massachusetts Department of Public Health.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.39

NOTE: These data do not include persons whose sex was not reported, except in the Boston overall count and rate. Data are presented as crude incidence rates.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.40

NOTES: These data do not include persons whose age was not reported, except in the Boston overall count and rate. Data are presented as age-specific incidence rates.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.41

ABBREVIATIONS KEY: A/B=Allston/Brighton, BB=Back Bay (includes Beacon Hill, Downtown, North End and the West End), CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

NOTE: These data do not include homeless persons, individuals whose neighborhood of residence was not reported, inmates of correctional facilities, and clients of drug treatment programs, except in the Boston overall counts and rates. Data are presented as crude incidence rates.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Figure 8.42

NOTES: Data are presented as crude incidence rates. Rates for previous years may differ from those reported in previous publications due to file updates by the Massachusetts Department of Public Health. All syphilis cases are included, not just primary and secondary.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.43

NOTES: These data do not include persons of other or unknown race/ethnicity, except in the Boston overall count and rate. There were too few cases of syphilis among Asians to permit the presentation of an incidence rate. Data are presented as crude incidence rates. Rates for previous years may differ from those reported in previous publications due to file updates by the Massachusetts Department of Public Health. All syphilis cases are included, not just primary and secondary.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.44

NOTES: These data do not include persons whose sex was not reported, except in the Boston overall count and rate. All syphilis cases are included, not just primary and secondary. Data are presented as crude incidence rates.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.45

NOTE: These data do not include persons whose age was not reported, except in the Boston overall count and rate. All syphilis cases are included, not just primary and secondary. Data are presented as age-specific incidence rates.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 8.46

ABBREVIATIONS KEY: A/B=Allston/Brighton, BB=Back Bay (includes Beacon Hill, Downtown, North End and the West End), CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

NOTES: These data do not include homeless persons, individuals whose neighborhood of residence was not reported, inmates of correctional facilities, and clients of drug treatment programs, except in the Boston overall counts and rates. All syphilis cases are included, not just primary and secondary. There were too few cases of syphilis among residents of Charlestown, Hyde Park, South Boston, Roslindale, and West Roxbury to permit the presentation of incidence rates.

DATA SOURCE: Massachusetts Department of Public Health, STD Division

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Section 9: Infectious Diseases

Infectious diseases are caused by bacteria, viruses, parasites or fungi and can be spread, directly or indirectly, from one person to another. Globally, infectious diseases such as malaria, tuberculosis, and HIV kill millions of men, women and children each year. In the United States as well as around the world, infectious diseases are major causes of disability, and social and economic disruption, and burden already strained health systems. Examples of commonly occurring infectious diseases in the United States include influenza (“the flu”), the common cold, and pneumonia.

With sustainable improvements in sanitation, and the development and widespread use of vaccines to prevent illnesses and drugs to treat infections, the burden of certain infectious diseases has eased in the United States. Infectious diseases remain, however, a significant threat to public health in the United States. Food-borne illnesses including salmonella, the reemergence of vaccine preventable diseases such as pertussis, and the threat of newly emerging infectious diseases as well as drug-resistant strains of widespread infectious diseases are among the many potential threats.

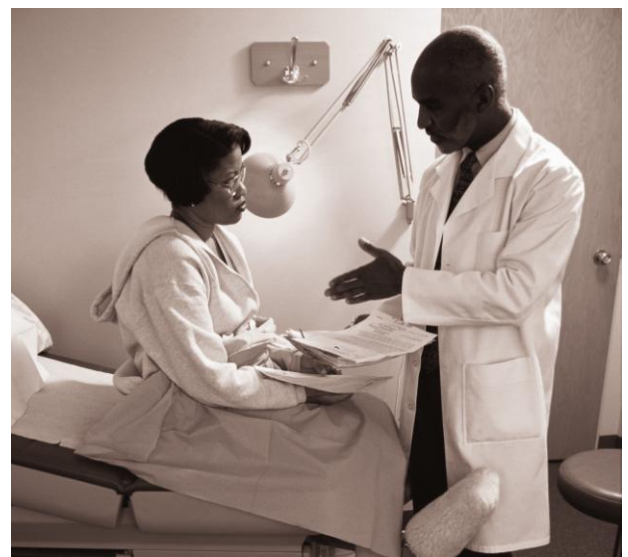
Effective prevention measures and treatment exist for many of the most common and deadly infectious diseases. Unfortunately, many people still suffer needlessly due to lack of awareness and access to needed preventive and treatment care. Schools, health care providers, public health agencies, and community organizations must continue to work with individuals and communities to raise awareness of proven prevention strategies and enhance access to preventive and treatment care.

This section provides information on four infectious diseases that affect Boston residents: Hepatitis B and C, Pertussis, Salmonella and Tuberculosis. In addition to providing data on disease burden, each section provides definitions, identifies populations at greatest risk, and describes established prevention strategies. Data on hepatitis A and acute hepatitis B are not presented due to the absence of a sufficient number of new cases to perform a detailed analysis. Data on sexually transmitted infections including HIV/AIDS, chlamydia, gonorrhea and syphilis can be found in the Sexual Health section of the report.

Healthy People 2010 Targets (1):

Reduce hepatitis C infections to 1.0 new case per 100,000 population.

Reduce tuberculosis to 1.0 new case per 100,000 population.



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

What is Hepatitis B Infection?

Hepatitis B is an infection in the liver caused by the hepatitis B virus. It can be a serious disease that can cause cirrhosis (scarring of the liver) and liver cancer. Most people who get acute hepatitis B infection recover from it. However, about 10% of people who are infected will develop chronic hepatitis B infection and carry the virus for a long time, perhaps their entire lifetime. Hepatitis B virus is spread by contact with the blood, semen, vaginal fluids, or certain other body fluids of an infected person. When these fluids enter a person's blood through a break in the skin (such as a needle stick) or through sexual contact, the virus can also enter. The virus can be spread by having sex (particularly when a barrier such as a condom is not used) or by sharing needles (for injecting drugs, ear or body piercing, or tattooing) with an infected person. Health care workers who are stuck by used needles can become infected. Pregnant women who have the virus in their blood can pass it to their babies while giving birth.

Population at greatest risk

Injection drug users, adults in correctional facilities, health care workers, men who have sex with men, hemodialysis patients, individuals engaged in high risk sexual activity such as having multiple sex partners, individuals who have been diagnosed with a sexually transmitted infection, infants born to mothers who are infected at the time of delivery and recipients of body piercing and tattoos are at increased risk for hepatitis B infection.

Prevention Strategies

The best way to prevent hepatitis B is to receive three doses of hepatitis B vaccine. Pregnant women who have chronic hepatitis B infection should have appropriate care so that their babies can receive preventive treatment. Other practices to prevent infection are:

- Using barrier protection such as condoms when having sex
- Wearing protective gloves if handling body fluids such as blood
- Never sharing a toothbrush, razor or injection needle
- Not using illegal drugs. If using illegal drugs, seek treatment to try to stop. If you continue to use drugs, make sure to do the following to reduce risk-
 - Use a new, sterile syringe and equipment (including cotton, filters, caps, spoons, cookers and alcohol swabs) every time you inject.
 - If you cannot get a new syringe, use bleach to clean your works and equipment for at least 2 minutes.

What is Hepatitis C infection?

Hepatitis C is a virus that causes liver disease. Approximately 70%–80% of people with acute hepatitis C do not have any symptoms. Some people, however, can have mild to severe symptoms soon after being infected, including fever, abdominal pain, loss of appetite, dark urine, and clay-colored bowel movements. The virus is spread primarily through blood. The hepatitis C virus can be spread whenever blood or fluids containing blood come in contact with an opening on the skin or other tissues. This can occur even when these openings cannot be seen. Hepatitis C virus can also be transmitted by sexual contact.

- If you snort drugs, do not share straws since these can get blood on them too
- Use a latex condom every time you have sex
- Only get tattoos or body piercing from places using sterile equipment
- Health care workers and custodial staff in hospitals or places where needles or sharps are used should follow standard (universal) precautions for every patient
- Never share a toothbrush, razor or injection needle
- If you have hepatitis C, do not donate blood, sperm, or organs

Population at greatest risk

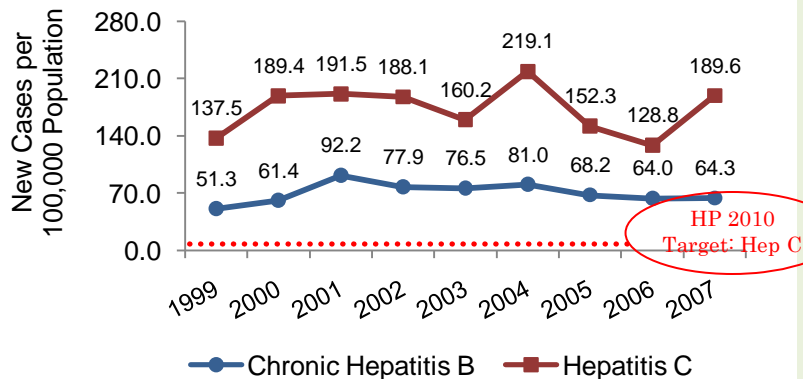
People most at risk are those who have had a blood transfusion or an organ transplant before 1992, or people who use or have used needles contaminated by blood (for example, the injection of drugs).

Prevention Strategies

There is no vaccine for hepatitis C. The best way to prevent hepatitis C is to avoid contact with the blood and other body fluids of infected people. This means:

- Find out about drug treatment programs that can help you stop using drugs
- If injecting drugs, never share works (cotton, cooker, water, or syringe) with anyone. Free equipment is available on the BPHC Needle Exchange Van

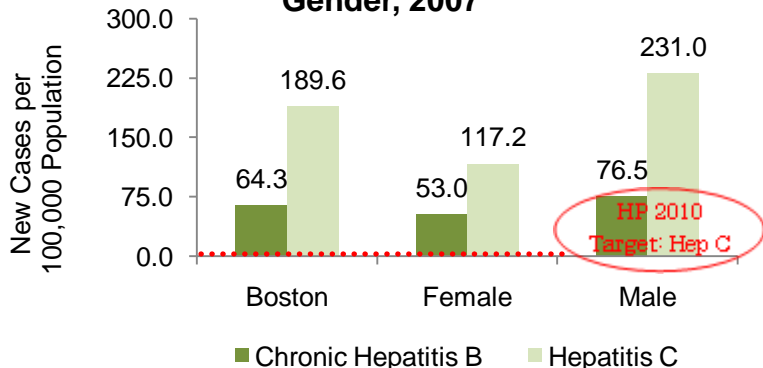
Figure 9.1 Hepatitis Types B and C Cases, 1999-2007



There was no significant change in the rate of chronic hepatitis B infection between 2006 and 2007.

During this time, the incidence of reported hepatitis C infection increased 47.2%. The increase was likely due, in part, to improved case reporting resulting from expansion of electronic laboratory reporting.

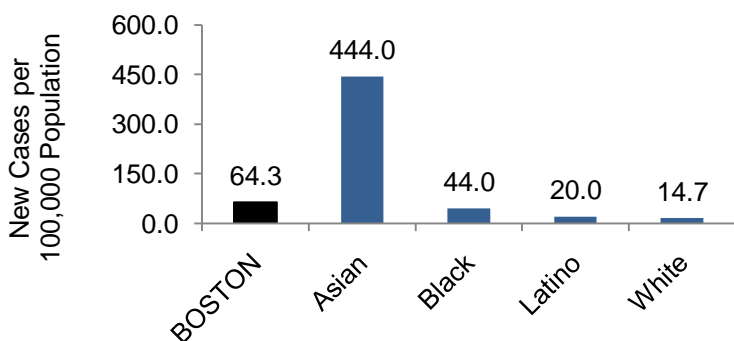
Figure 9.2 Hepatitis Types B and C by Gender, 2007



The incidence rate of reported chronic hepatitis B infection was 1.4 times as high in males as in females.

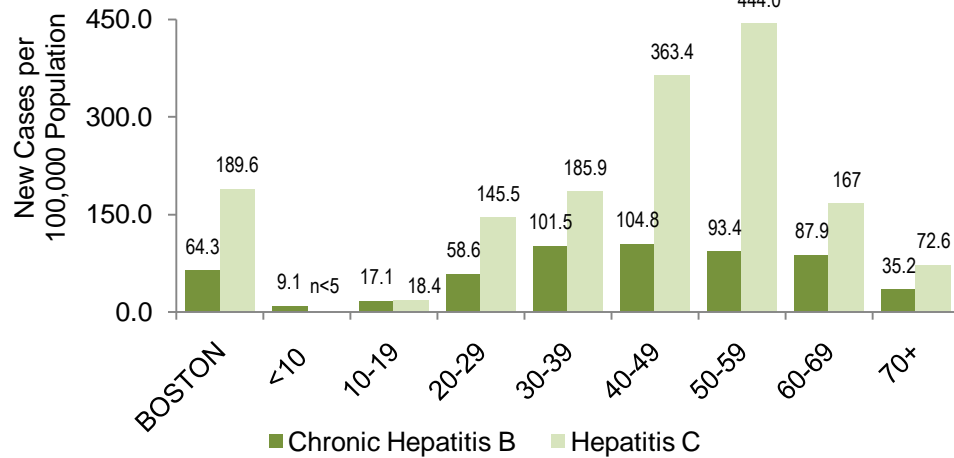
The incidence rate of reported hepatitis C infection was 2.0 times as high in males as in females.

Figure 9.3 Hepatitis B Cases by Race/Ethnicity, 2007



Asian residents had the highest incidence rate of reported chronic hepatitis B infection. However, information on race ethnicity was unavailable for 11% of cases. Data on hepatitis C are not presented by race/ethnicity due to a large proportion of cases in which race/ethnicity was not identified.

Figure 9.4 Hepatitis Types B and C Cases by Age Group, 2007

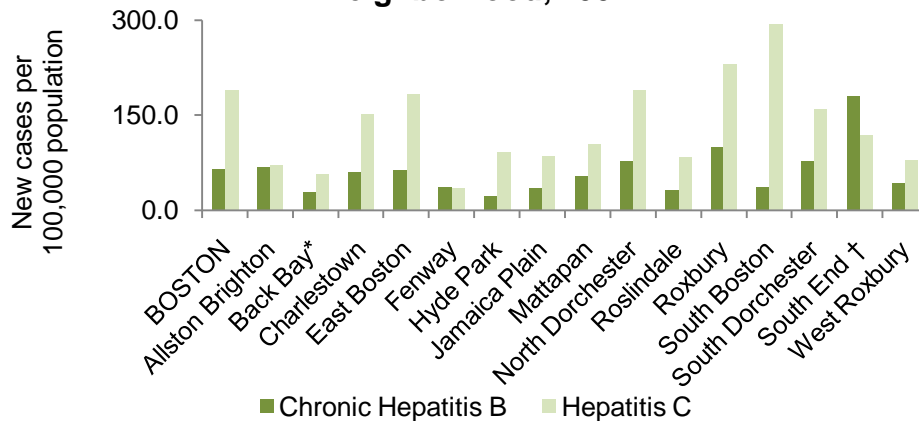


The highest rates of reported chronic hepatitis B infection were among those ages 40-49 and 30-39, with both having a rate 1.6 times the Boston overall rate. The highest rate of reported hepatitis C infection was among those ages 50-59 with a rate 2.3 times that of Boston overall. Those ages 40-49 had a rate 1.9 times that of the Boston rate.

The highest incidence rates of reported chronic hepatitis B infection among Boston neighborhoods in 2007 were in North Dorchester, Roxbury, South Dorchester, and South End. South End had a rate 2.8 times as high as the overall Boston rate, the highest among all neighborhoods. The highest incidence rates of reported hepatitis C infection in 2007 were in East Boston, North Dorchester, Roxbury and South Boston with South Boston having the highest rate, 1.5 times as high as the overall Boston rate.

In part, these rates may reflect differences in local screening practices and improved reporting of communicable diseases.

Figure 9.5 Hepatitis Types B and C Cases by Neighborhood, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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What is Pertussis (Whooping Cough)?

Pertussis (also called “whooping cough”) is a respiratory illness caused by a bacterium. The bacteria that causes pertussis lives in the nose, mouth and throat and is sprayed into the air when an infected person sneezes, cough or talks. People nearby can then breathe in the germs. Transmission of pertussis occurs by droplets or direct contact with mucus or saliva from an infected person. People with pertussis can spread the disease starting two weeks before until three weeks after their cough starts. Pertussis is highly contagious. However, treatment with appropriate antibiotics can make a person non-contagious after five days.



Population at greatest risk

Children who are too young to be fully vaccinated and those who have not completed the primary vaccination series are at highest risk for severe illness. Adolescents and adults become susceptible when immunity wanes.

Prevention Strategies

Vaccination is the best way to protect against pertussis. Pertussis vaccine is usually combined with tetanus and diphtheria vaccines (called DtaP or DTP) and given to children at 2 months, 4 months, 6 months, 15-18 months and at 4-6 years old. Adolescents and adults can get a vaccine called Tdap to protect against pertussis, tetanus, and diphtheria. At this time, only one dose of Tdap vaccine is recommended. The Tdap vaccine is usually given to adolescents at 11 to 12 years of age.

The incidence rate of reported pertussis increased 11.9% from 2006 to 2007.

The increase was likely due, in part, to improved case finding as a result of public health investigation and response.

Latino Boston residents had the highest incidence of reported pertussis, a rate 1.7 times that of Boston overall.

There was no significant difference by gender in the incidence rate of reported pertussis.

Figure 9.6 Pertussis Cases, 2003-2007

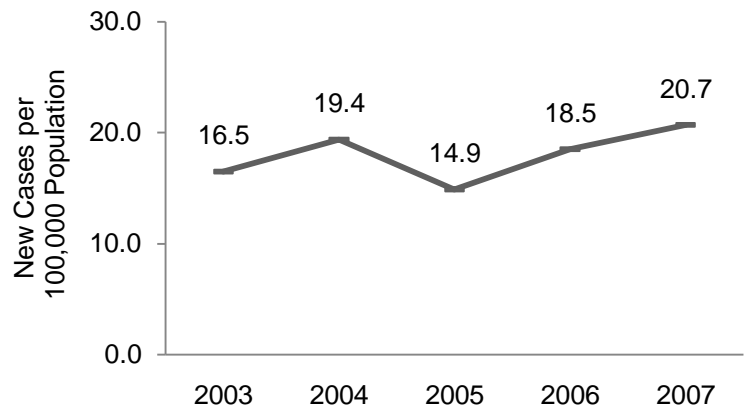


Figure 9.7 Pertussis Cases by Race/Ethnicity, 2007

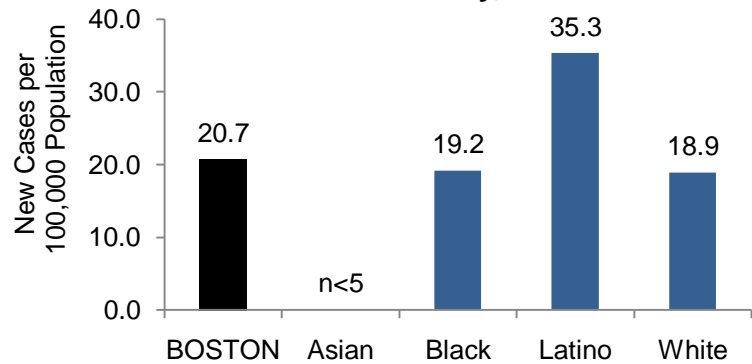
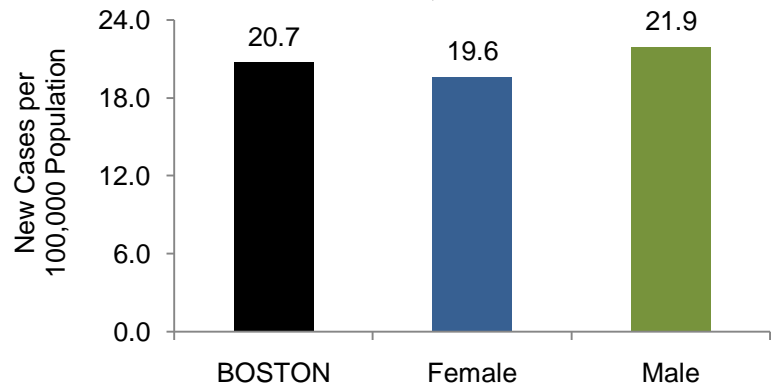


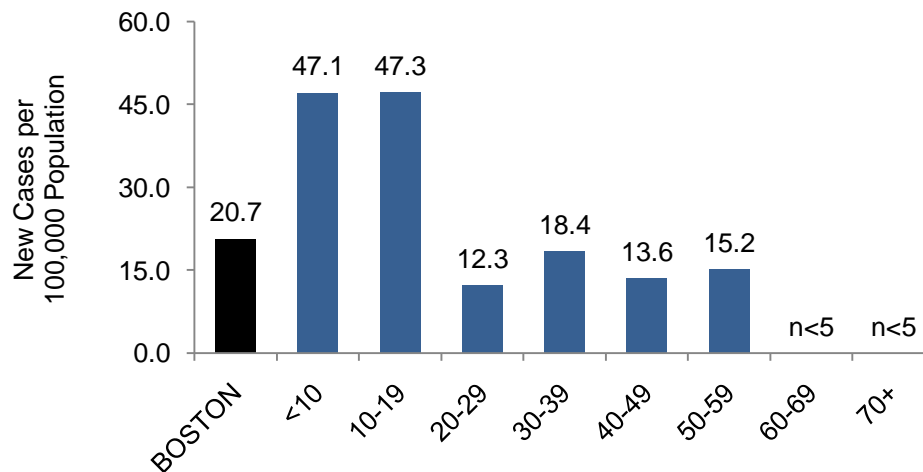
Figure 9.8 Pertussis Cases by Gender, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 9.9 Pertussis Cases by Age Group, 2007

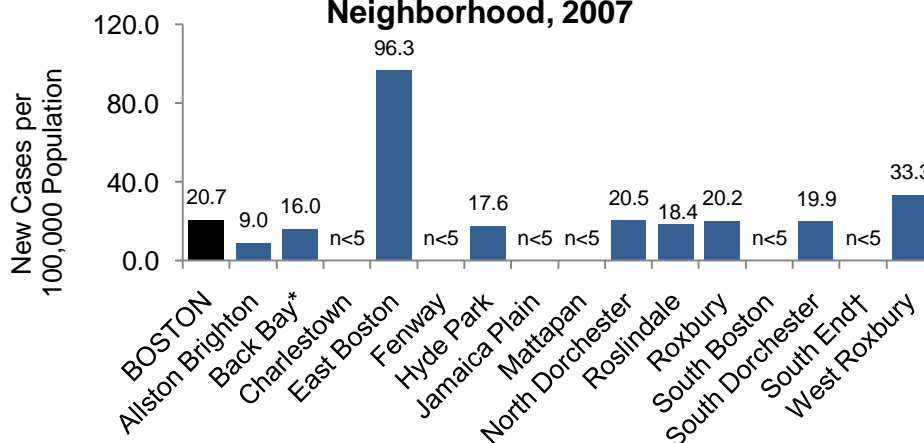


The highest incidence rates of reported pertussis were among those less than 10 years of age and ages 10-19 with both having a rate 2.3 times that of Boston overall.

The highest incidence rates of reported pertussis among Boston neighborhoods in 2007 were in East Boston and West Roxbury. In part, these rates may reflect differences in local immunization rates particularly among adolescents and testing practices.

In 2007, East Boston had the highest incidence rate of reported pertussis, 4.7 times as high as the overall Boston rate.

Figure 9.10 Pertussis Cases by Neighborhood, 2007



What is Salmonella Infection

Salmonella is a bacterium that causes diarrhea, fever, and stomach cramps. The germ is found in the stool (feces) of infected people and animals. It must be swallowed to cause illness. Usually this happens when someone eats food that has not been properly prepared, handled, or cooked. Salmonella is common in undercooked food products from animals, such as eggs, egg products, meat, poultry, and unpasteurized dairy products; however, all foods can become contaminated.

Population at greatest risk

Children are the most likely to get salmonella infection. Those at risk for severe infection include young children, the elderly, and the immune compromised.

Prevention Strategies

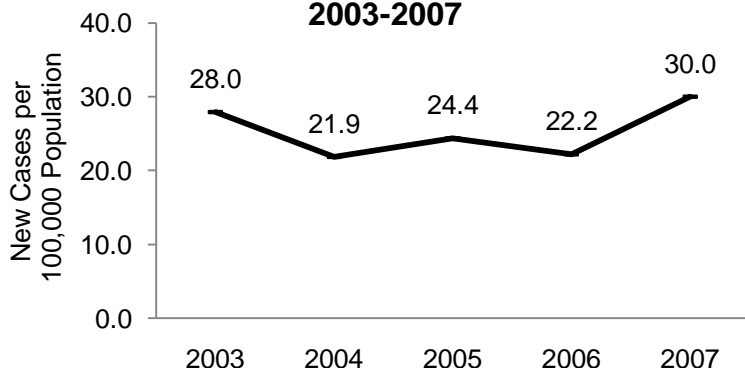
The following strategies will effectively prevent Salmonella infection:

- Carefully wash hands with soap and warm water before and after preparing food, after using the toilet and after handling pets
- Food surfaces and utensils, including knives, cutting boards, counter tops and dishes, should be washed with clean warm, soapy water before and after preparing food. Keep everything that touches food clean
- Wash all fruits and vegetables with clean drinking water and use a brush if needed
- Place appropriate food items in the refrigerator or freezer right away. Refrigerator temperatures should be at 40°F or below. Freezer temperatures should be below 0°F
- Cooking food to proper temperatures kills the germ

- Freeze or refrigerate leftovers immediately. Keep leftover meat well wrapped in the refrigerator.



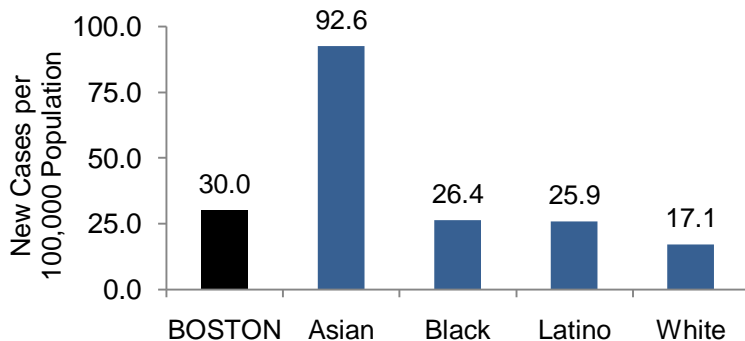
Figure 9.11 Salmonella Cases by Year, 2003-2007



From 2006 to 2007, the incidence of reported Salmonella infection increased 35.1%.

The increase was likely due, in part, to improved case finding as a result of public health investigation and response.

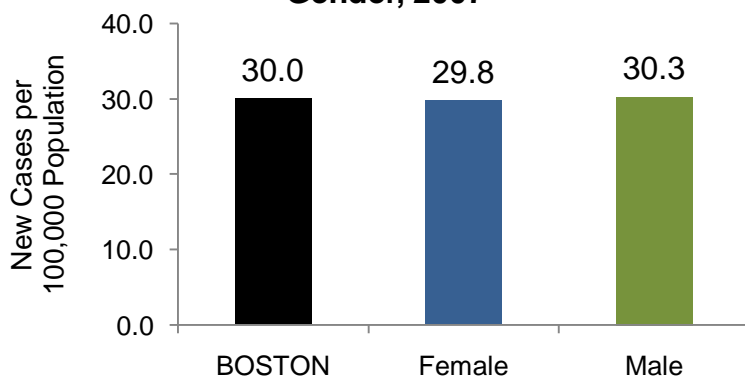
Figure 9.12 Salmonella Cases by Race/Ethnicity, 2007



Asian Boston residents had the highest incidence of reported Salmonella infection.

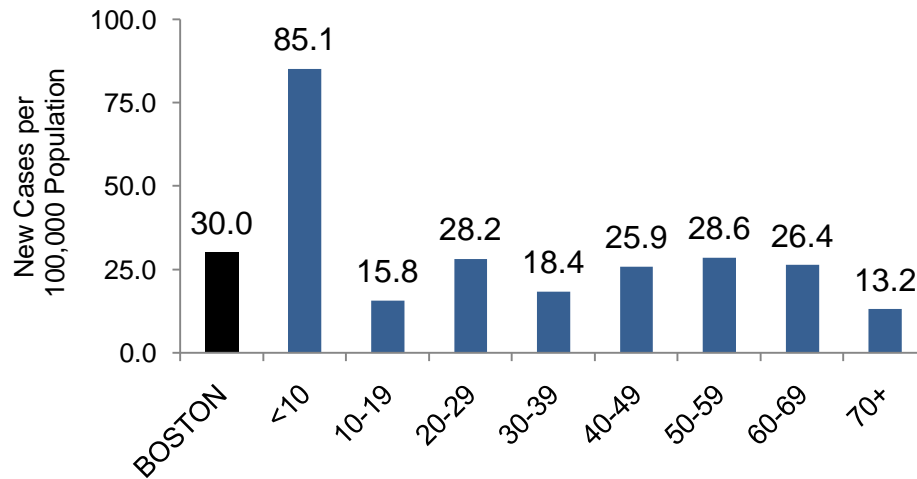
However, information on race/ethnicity was unavailable for 15% of all cases.

Figure 9.13 Salmonella Cases by Gender, 2007



The incidence rate of reported Salmonella infection was similar among males and females.

Figure 9.14 Salmonella Cases by Age Group, 2007

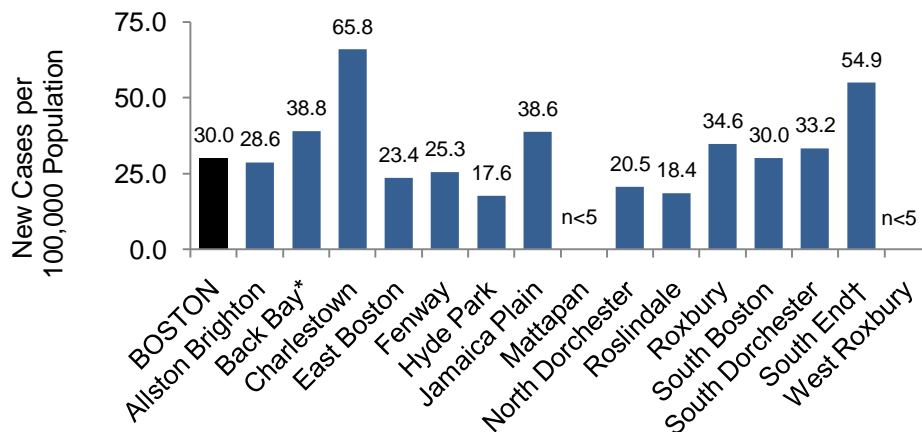


The highest incidence rate of reported Salmonella infection was among children less than 10 years of age with a rate 2.8 times that of the Boston overall rate.

The highest incidence rates of reported Salmonella infection among Boston neighborhoods in 2007 were in Charlestown and South End. In part, these rates may reflect differences in local diagnostic practices.

In 2007, Charlestown had the highest incidence rate of reported Salmonella infection, 2.2 times as high as the overall Boston rate.

Figure 9.15 Salmonella Cases by Neighborhood, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

What is Tuberculosis?

Tuberculosis (TB) is a disease caused by bacteria that mostly affects the lungs. When a person with TB disease of the lungs coughs, sneezes, laughs, or sings, the germs get into the air. Anyone who is near the person can breathe TB germs into their lungs which can live in the body without causing sickness. This is called TB infection without disease (latent TB). The immune system traps TB germs and keeps them from making the person sick. However, sometimes the TB germs are able to spread and cause TB disease (active TB). Symptoms of TB disease include fever, weight loss, coughing, night sweats, and chest pain.

A TB skin test is the best way to tell if a person has TB infection. A positive reaction usually means that the person has been infected with the TB germ. It does not necessarily mean that the person has TB disease (active TB). Other tests, such as a chest x-ray are needed to see if the person has TB disease (active TB). It is important for people who have a positive skin test to see a health care provider.

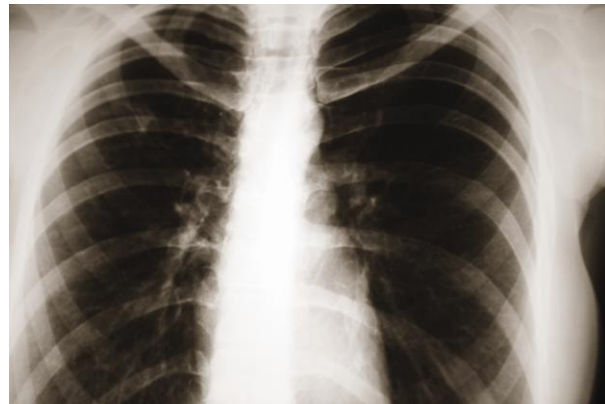
Special drugs that kill TB germs can cure TB disease. If someone has TB disease, he/she will need to take medicine for six to nine months to kill the germs. Medicine to prevent TB germs from ever becoming active is also available.

Population at greatest risk

Individuals who have spent time with a person known or suspected to have active TB disease, have HIV infection or another condition that weakens the immune system, have lived in a country where TB disease is common or lived/worked in a homeless shelter, prison/jail, or nursing home are at greatest risk for TB.

Prevention Strategies

The best way to control TB is to diagnose and treat people with TB infection before they develop active disease. People who have a high risk of TB should get a skin test once a year. If an individual tests positive for latent TB infection, medications are available to reduce the risk of developing active TB.



The reported TB incidence rate decreased by 20% from 2006 to 2007.

The highest incidence rate for reported tuberculosis was among Asians, with a rate 3.8 times the Boston overall rate. Black residents had a rate 1.8 times that of the Boston rate.

Differences in rates may be related to immigration of individuals from countries with high rates of tuberculosis.

The male TB incidence rate of reported tuberculosis was 2.7 times that for females.

Figure 9.16 Tuberculosis Cases, 1999-2007

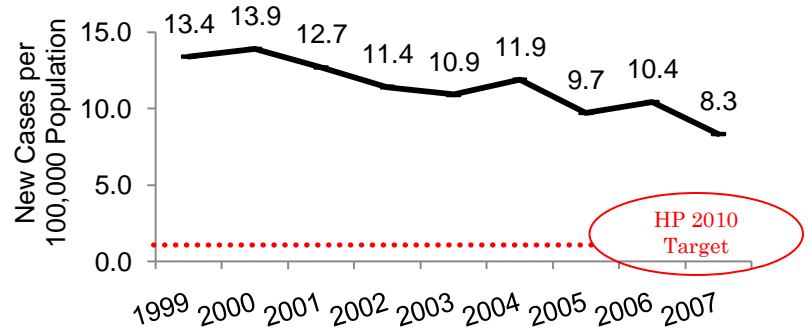


Figure 9.17 Tuberculosis Cases by Race/Ethnicity, 2007

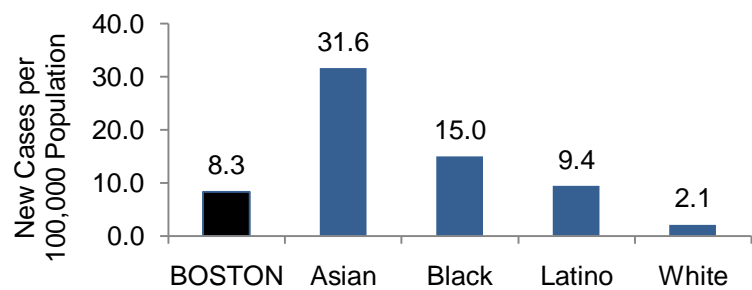
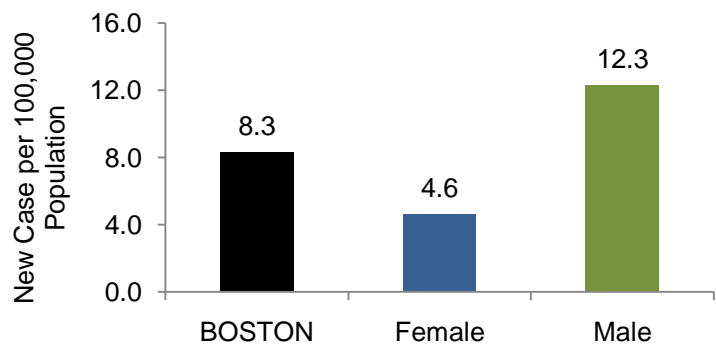


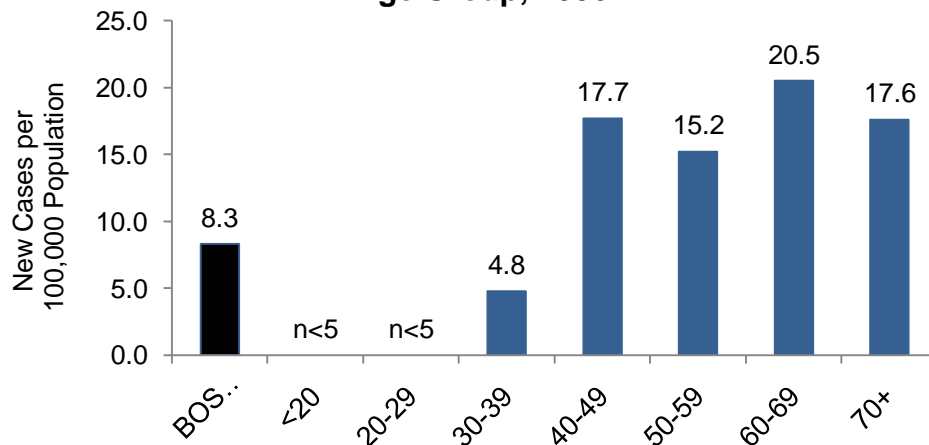
Figure 9.18 Tuberculosis Cases by Gender, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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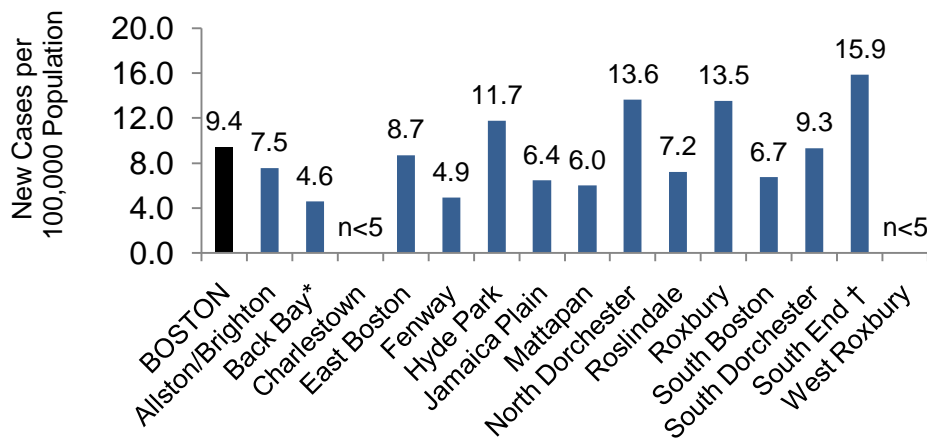
Figure 9.19 Tuberculosis Cases by Age Group, 2006



The highest incidence rate of reported tuberculosis was among those ages 60-69 with a rate 2.5 times that of the rate for Boston overall. Those ages 40-49 and those ages 70 and older had a rate 2.1 times that of the Boston rate and those ages 50-59 had a rate 1.8 times that of the Boston rate.

The highest average incidence rates of reported tuberculosis among Boston neighborhoods in 2005-2007 were in Hyde Park, North Dorchester, Roxbury, and South End. For 2005-2007, the South End had the highest average incidence rate of reported tuberculosis, 1.7 times as high as the overall Boston rate.

Figure 9.20 Tuberculosis Cases by Neighborhood, 2005-2007



Summary: Infectious Diseases

Chronic hepatitis B, hepatitis C, pertussis, salmonella and tuberculosis are infectious diseases that affect Boston residents. The data presented here help to provide us with a better understanding of who, among Boston residents, is most affected by these diseases.

From 2006 to 2007, the rate of chronic hepatitis B infection remained stable while the rate of hepatitis C infection increased by 47%. The increase in new cases was likely due, in part, to improved case reporting resulting from expansion of electronic laboratory reporting. Chronic hepatitis B and hepatitis C disproportionately affects males. Among Asian, Black, Latino and White residents of Boston, Asians had the highest incidence rate of chronic hepatitis B. However, race/ethnicity identification was not available for 11% of chronic hepatitis B cases. Finally, older residents had higher rates of both infections. Individuals ages 30 and over had a higher rate of chronic hepatitis B while individuals ages 40 and over had a higher rate of hepatitis C.

Pertussis is a vaccine-preventable disease. Appropriate vaccination offers almost complete protection from disease. Data presented here reveal that Boston residents ages 19 and under had a higher rate of pertussis than other age groups. Among racial/ethnic groups, Latinos had the highest rate of new cases. East Boston residents had a higher rate of pertussis than residents of other neighborhoods. Higher cases of pertussis in individuals ages 19 and under, Latinos and East Boston residents may reflect, in part, the immunization status of those disproportionately affected.

Salmonella is a well-known food-borne infectious disease. An increase in the rate

of salmonella infection in 2007 was likely due to improved case finding as a result of a public health investigation and response. In 2007, children under 10 years of age had a higher rate of salmonella infection than other age groups. Among racial/ethnic groups, Asians had the highest rate of salmonella infection. However, racial/ethnic group was not reported for 15% of salmonella cases in 2007. Lack of race/ethnicity data on a large proportion of cases could potentially skew results. Charlestown had higher rates of salmonella compared to other Boston neighborhoods. The differences in neighborhood rates could reflect differences in local diagnostic practices.

The incidence rate of tuberculosis declined 20% from 2006 to 2007. The rate of tuberculosis was highest among Boston's Asian residents and second highest among Black residents. Male residents of Boston had higher rates of tuberculosis than female residents. Boston residents ages 60-69 years had the highest incidence rate of tuberculosis.



References

1. U.S. Department of Health and Human Services. *Healthy People 2010 Midcourse Review: Focus Area 14 Immunization and Infectious Diseases*
<http://www.healthypeople.gov/data/midcourse/html/focusareas/FA14TOC.htm>

Notes, Data Source, and Data Analysis

Figure 9.1

NOTES: Incidence rates are presented only when there are least 5 occurrences of disease. Hepatitis A and acute hepatitis B are not shown because there were less than 5 occurrences of those infections.

DATA SOURCE: Commonwealth Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.2

NOTES: Incidence rates are presented only when there are least 5 occurrences of disease. Hepatitis A and acute hepatitis B are not shown because males and female had less than 5 occurrences of those infections. These data do not include individuals whose gender was not reported, except in the Boston overall rates.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission, Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.3

NOTES: Incidence rates are presented only for race/ethnicities that had at least 5 occurrences of disease. Hepatitis A and acute hepatitis B are not shown because all race/ethnicities had less than 5 occurrences of those infections. These data do not include individuals whose race/ethnicity was not reported or was reported as other, except in the Boston overall rates.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.4

NOTES: Incidence rates are presented only for those age groups that had at least 5 occurrences of disease. Hepatitis A and acute hepatitis B are not shown because all age groups had less than 5 occurrences of those infections. These data do not include individuals whose age was not reported, except in the Boston overall rates.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission, Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.5

*Includes the Beacon Hill, North End and West End

† Includes Chinatown

NOTES: Incidence rates are presented only for those age groups that had at least 5 occurrences of disease. Hepatitis A and acute hepatitis B are not shown because all neighborhoods had less than 5 occurrences of those infections. These data do not include homeless persons, individuals whose neighborhood of residence was not reported, correctional facilities, or drug treatment programs. The rates shown are new cases per 100,000 population.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.6

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.7

NOTE: There were too few cases among Asians to permit calculation of a rate.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.8

NOTE: These data do not include persons whose gender was not reported, except in the Boston overall count and rate.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.9

NOTE: Incidence rates are presented only for those age groups with at least 5 cases of pertussis.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.10

*Includes Beacon Hill, North End and West End

† Includes Chinatown

NOTE: Incidence rates are presented only for those neighborhoods with at least 5 cases of pertussis.

These data do not include homeless persons, individuals whose neighborhood of residence was not reported, inmates of correctional facilities, and clients of drug treatment programs, except in the Boston overall rates.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.11

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.12

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission, Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.13

NOTE: These data do not include persons whose gender was not reported, except in the Boston overall count and rate.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission, Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.14

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.15

*Includes Beacon Hill, North End and West End

†Includes Chinatown

NOTE: Incidence rates are presented only for those neighborhoods with at least 5 cases of salmonella. These data do not include homeless persons, individuals whose neighborhood of residence was not reported, inmates of correctional facilities, and clients of drug treatment programs, except in the Boston overall counts and rates.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission, Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.16

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.17

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.18

NOTE: These data do not include persons whose gender was not reported, except in the Boston overall count and rate.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.19

NOTE: Incidence rates are presented only for those age groups with at least 5 cases of tuberculosis.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 9.20

NOTE: Incidence rates are presented only for those neighborhoods with at least 5 cases of tuberculosis. These data do not include homeless persons, individuals whose neighborhood of residence was not reported, inmates of correctional facilities, and clients of drug treatment programs, except in the Boston overall counts and rates.

DATA SOURCE: Communicable Disease Database, Boston Public Health Commission, Communicable Disease Control Division

DATA ANALYSIS: Boston Public Health Commission, Communicable Disease Control Division

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Section 10: Injury

Injury is a leading cause of disability and death among individuals of all ages. Injuries can be described as “intentional” or “unintentional.” Intentional injury includes assault and battery, homicide, and suicide. Unintentional injury includes events such as falls, accidental poisonings, motor vehicle crashes, pedestrians injured by motor vehicles, or a mass casualty event.

No age group, gender, or racial/ethnic group is immune from injury. Nationwide, among children ages 1-19 and adults ages 20-44, injury is the leading cause of death. Motor vehicle crashes are the most common cause of injury death in both groups (1). Homicide and suicide are the second and third leading causes of death, respectively, among 12-19 year olds. Among 20-44 year olds, suicide and homicide are the fourth and fifth leading causes of death, respectively (1). Injury continues to rank among the top ten leading causes of death for Americans 45 years and older. Falls were the most common cause of injury death in this age group.

In addition to premature death, injury can result in significant disability and a reduction in the quality of life. Non-fatal and fatal injuries impact not only the individual, but family members, friends, employers, and the community at large.

Injuries stress an already burdened health care system and drain financial resources. In 2004, injuries resulted in an annual average of 31 million initial hospital emergency department visits and almost 2 million hospitalizations in the United States (2). In 2000, 16% of the population reported needing medical attention for an injury. It is estimated that injuries cost at least \$120 billion a year (1). Clearly, the impact of injuries reaches far beyond the

individual and family to include society as a whole.

This section presents hospital emergency department visit data for injuries, hospitalization discharge data for injuries, and motor vehicle crash data. For data on intentional injury, please see the Violence section of this report. For data on suicide, please see the Mental Health section of this report. For data on injury mortality, please see the Mortality section of this report.

Healthy People 2010 Targets (3)

Reduce hospital emergency department visits caused by injuries to 126 per 1,000 population.



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

In 2007, Boston residents made 64,595 visits to hospital emergency departments (EDs) for treatment of injuries (data not shown).

From 2002 to 2007, the highest level of ED injury visits occurred in 2003. From 2003 to 2007, the rate of ED visits for injury declined.

In 2007, visits for all injuries accounted for 27% of ED visits, about the same as in 2006 (data not shown).

In both 2006 and 2007, falls, “other unintentional injuries,” and motor vehicle or traffic crash accounted for almost 70% of all ED visits for injury.

For each year from 2002 to 2007, the rate of emergency department injury visits was higher for Boston’s male residents than for Boston’s female residents.

From 2002 to 2007, the rate decreased 17% for males and 14% for females.

Figure 10.1 Emergency Department Visits for Injury, 2002-2007

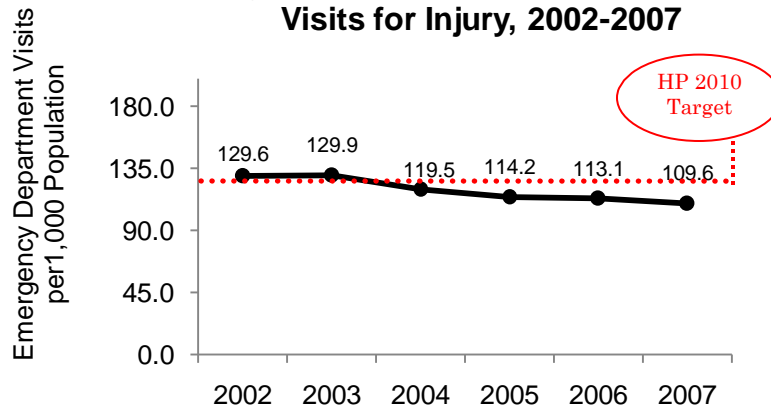


Figure 10.2 Emergency Department Visits for Injury by Type, 2006-2007

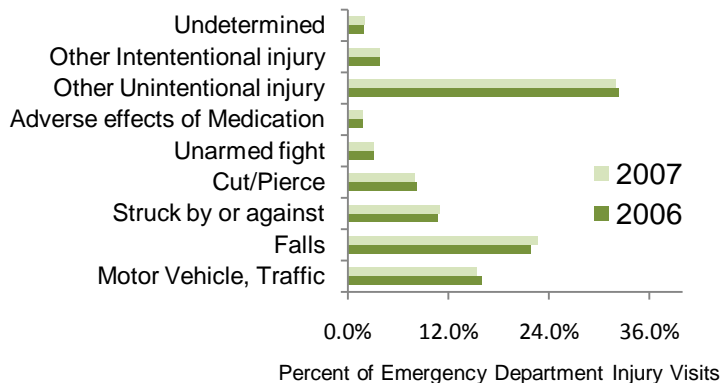


Figure 10.3 Emergency Department Visits for Injury by Gender, 2002-2007

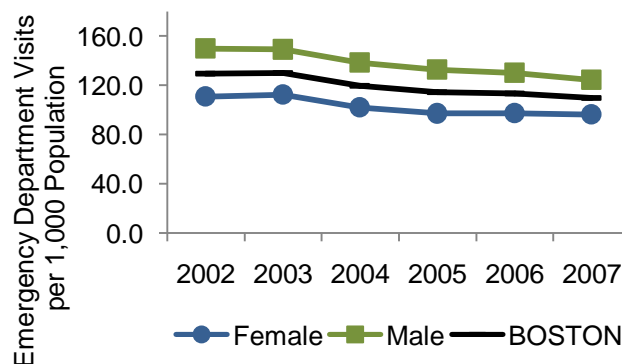
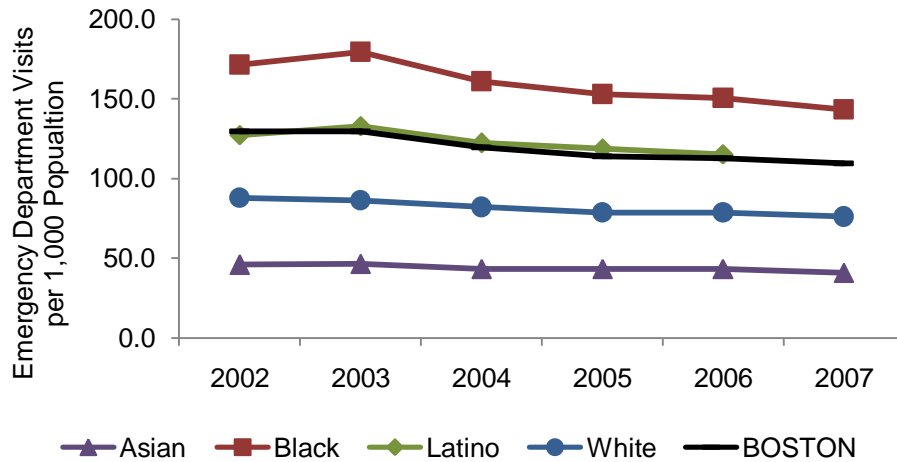


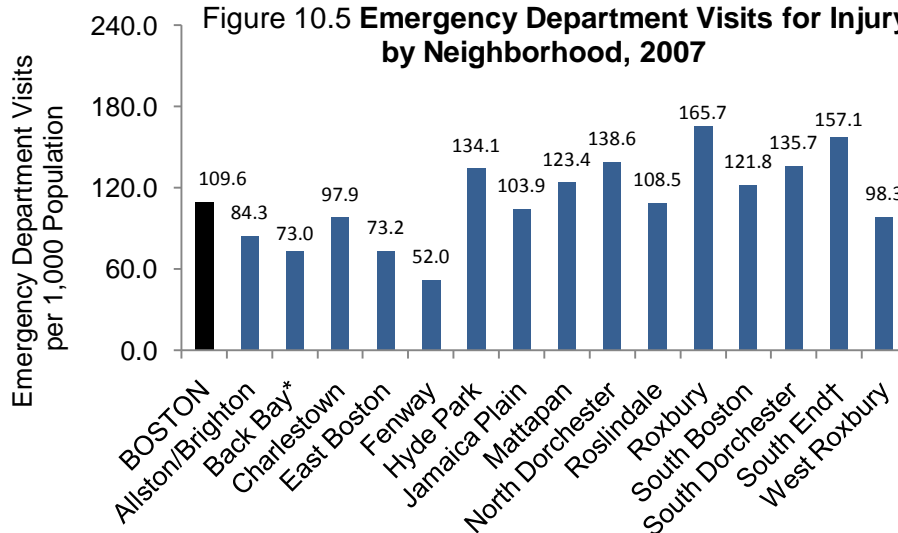
Figure 10.4 Emergency Department Vists for Injury by Race/Ethnicity, 2002-2007



During each year of 2002-2006, Black and Latino residents had Boston’s highest emergency department (ED) visit rates for injury, and Asian residents the lowest. In 2007, the rate for Black residents was 1.6 times that of Whites and more than 3 times the rate for Asian residents.

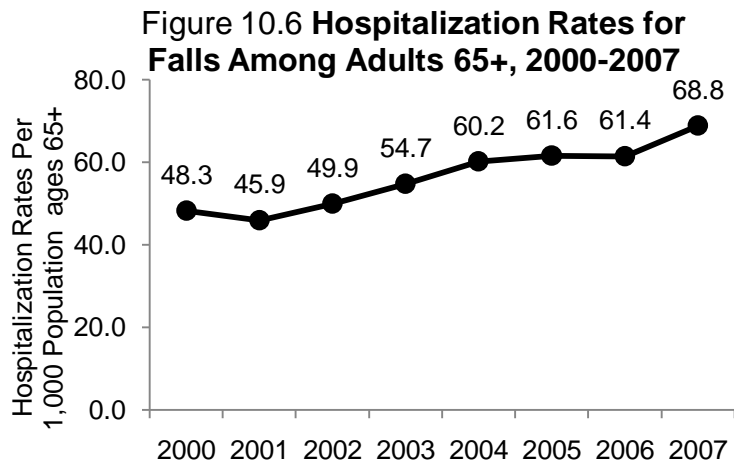
In 2007, Roxbury and South End residents experienced the highest rate of emergency department injury visits. The rate for Roxbury was 51% higher than the overall Boston rate and the rate for the South End was 43% higher.

Figure 10.5 Emergency Department Visits for Injury by Neighborhood, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

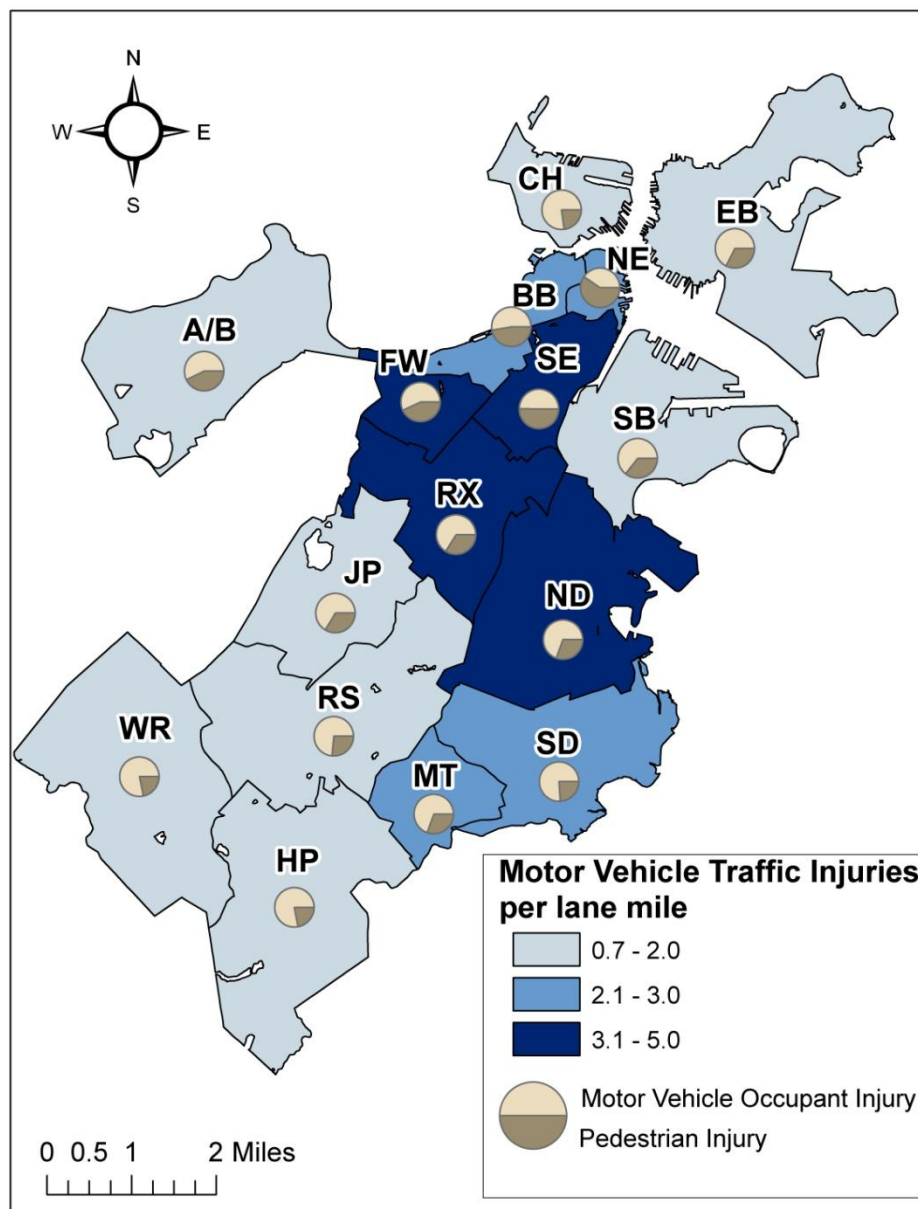
Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.



The hospitalization rate for falls among adults ages 65 and over increased 50% from 2001 to 2007.

The map below presents the total number of motor vehicle crash injuries by lane miles per neighborhood in blue. The term “lane mile” refers to the number of lanes of traffic per mile. For example, one mile of a two lane highway has two lane miles. Pie charts are presented to compare the injuries sustained by pedestrians during a motor vehicle crash (pedestrian injury) and the injuries sustained by those inside the car during a motor vehicle crash (motor vehicle injury) within each neighborhood, per lane mile. Fenway, the South End, Roxbury and North Dorchester present the highest numbers of injuries per lane mile. All of the neighborhoods, except for the North End, have more motor vehicle injuries than pedestrian injuries per lane mile.

Figure 10.7 Motor Vehicle Crash Injuries per Lane Mile by Neighborhood, 2008



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Summary: Injury

Injury is a major public health problem nationally and locally. In 2007, injuries were the third leading cause of death in Boston (see Mortality section). The age-adjusted mortality rate for injuries in Boston was 53.6 per 100,000 population. The age-adjusted mortality rate was highest among Black residents (72.8) and male residents (83.8).

In 2007, Boston residents made 64,595 visits to emergency departments (EDs) for treatment of injuries. In 2007, visits for all injuries accounted for 27% of ED visits – 70% of these for falls, “other unintentional injuries”, and motor vehicle or traffic crashes. Roxbury and South End residents incurred the highest rates of emergency department visits for injury. The rate for Roxbury was 51% higher than the overall Boston rate and the rate for the South End, 43% higher. Compared to other Boston neighborhoods, Roxbury and the South End, along with Dorchester and Fenway, had the highest number of motor vehicle injuries (per mile driven). The North End was the only neighborhood in which the percentage of pedestrian injuries exceeded the percentage of motor vehicle occupant injuries.

Falls among individuals ages 65 and over are of special concern. The hospitalization rate for falls among Boston residents in this age group has shown an almost steady increase from 2001 to 2007. Statewide, falls account for one-third of unintentional injury death among this age group. Many falls that occur among this age group are related to other health issues, such as poor eyesight or mobility problems. Falls among older adults often cause more severe injury than they would in a younger person, often leading to disability and loss of independence (4).

Injuries are not only a leading cause of death and disability, but a major contributor to health care costs. In fiscal year 2005, the average charge for an injury related ED visit that did not result in hospitalization was \$929. The estimated combined hospital charges for injuries in Massachusetts in 2003-2004 were \$1.7 billion (5).



References

1. **National Center for Injury Prevention and Control.** CDC Injury Fact Book. s.l. : Centers for Disease Control and Prevention, 2006.
2. **Bergen G, Chen LH, Warner M, Fingerhut LA.** Injury in the United States: 2007 Chartbook. Hyattsville, MD: National Center for Health Statistics. 2008.
3. **Department of Health and Human Services.** Healthy People 2010 Midcourse Review Focus Area 15 Injury and Violence Prevention. Healthy People 2010 Midcourse Review. [Online] April 9, 2007. [Cited: February 24, 2009.] <http://www.healthypeople.gov/data/midcourse/html/focusareas/FA15TOC.htm>.
4. **Massachusetts Department of Public Health.** Maximizing Our Efforts: The Massachusetts State Injury Prevention Plan. Boston : Commonwealth of Massachusetts, 2006.
5. **Massachusetts Division of Health Care Finance and Policy.** Non-Emergent and Preventable ED Visits, FY05. Boston, MA : Commonwealth of Massachusetts, 2007.

Notes, Data Source, and Data Analysis

Figure 10.1

NOTE: Data are presented as age-adjusted rates. Results that are shown for 2007 are based on preliminary data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 10.2

NOTES: Results that are shown for 2007 are based on preliminary data. "Other unintentional" injuries are those that are the result of accidents and include, for example, those relating to fire, machinery, boating, explosives, electrical current, medical and surgical care, and unspecified accidents. "Other intentional" injuries include those purposely caused, such as assault by corrosive or caustic substance like acid; assault by hanging, strangulation, and suffocation; child abuse; injuries caused by fire; and other unspecified intentional injuries.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 10.3

NOTE: Data are presented as age-adjusted rates. Results that are shown for 2007 are based on preliminary data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 10.4

NOTE: Data are presented as age-adjusted rates. Results that are shown for 2007 are based on preliminary data. A rate cannot be presented for Latinos for 2007 because of enactment of new reporting requirements that resulted in the availability of only 6 months of data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 10.5

NOTE: Data are presented as age-adjusted rates. Results that are shown for 2007 are based on preliminary data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 10.6

NOTE: Data are presented as age-specific rates.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 10.7

ABBREVIATIONS KEY: A/B=Allston/Brighton, BB=Back Bay, CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, NE=North End, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End, and WR=West Roxbury

DATA SOURCE: Boston Emergency Medical Services (EMS), Boston Public Health Commission, 2008

DATA ANALYSIS AND GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Section 11: Mental Health

According to the World Health Organization, mental health is “a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community.” By such definition, mental health encompasses much more than the absence of mental illness or mental disorders (1). Mental health embodies an individual’s psychological capacity to make healthy decisions that promote her or his overall quality of life.

People living with poor mental health can experience mental and/or emotional pain as well as a diminished ability to make healthy decisions. Sometimes the pain is so severe that individuals may try to hurt themselves or others. In the most severe instances, individuals may end their own lives by committing suicide. When this occurs, families and other loved ones experience deep emotional pain as a result of their loss.

Mental illnesses are chronic medical conditions that are identified by a set of specific symptoms. According to the National Alliance on Mental Illness (NAMI), mental illness can “disrupt a person’s thinking, feelings, moods, ability to relate to others, and overall daily functioning” (2). Some forms of mental illness include depression, bipolar disorder, schizophrenia, obsessive compulsive disorder (OCD), panic disorder, post traumatic stress disorder (PTSD), and borderline personality disorder.

Mental health is considered closely related to physical health. The connection between the mind and body is perhaps most keenly observed by the symbiotic relationship mental and physical health share within

the individual whereby the status of one is often thought to influence the status of the other. For example, behaviors that promote good physical health (e.g., maintaining a healthy diet, getting adequate physical exercise and adequate sleep) have been observed to promote good mental health as well. Conversely, factors that contribute to poor mental health (e.g., stress, anxiety) negatively affect physical health.

By accessing appropriate care, people with mental health problems or mental illness can improve their mental health and restore their ability to cope with the everyday stresses of life. Care may involve receiving therapy or counseling that provides emotional support or assistance in developing problem solving skills. Care may also involve hospitalization and/or receiving appropriate medications that address the symptoms of the mental health problems or illness.

This section presents measures related to mental health among Boston residents. These measures are self-reported assessments of stress, anxiety, depression and other markers for mental well-being and overall quality of life. In addition, this section presents data on suicides among Boston residents.

Healthy People 2010 Target (3):

Reduce the suicide rate to 4.8 suicides per 100,000 population, age-adjusted.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

More than one in four Boston public high school students reported feeling sad or hopeless for two weeks straight during the past year.

In 2005 and 2007, the percentage of students reporting these symptoms was similar among racial/ethnic groups.

In 2005 and 2007, a higher percentage of female high school students reported feeling sad or hopeless for two weeks straight during the past year compared to male high school students.

A lower percentage of Boston high school students reported they had seriously considered attempting suicide in 2007 than in 2001.

Figure 11.1 Sad or Hopeless for Two Weeks Straight During Past Year by Race/Ethnicity, 2005 and 2007

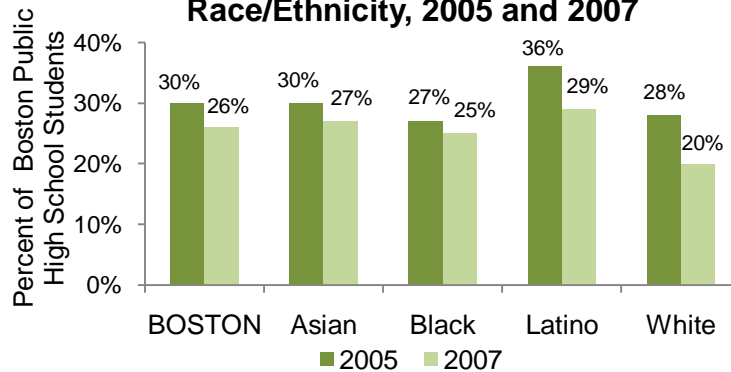


Figure 11.2 Sad or Hopeless for Two Weeks Straight During Past Year by Gender, 2005 and 2007

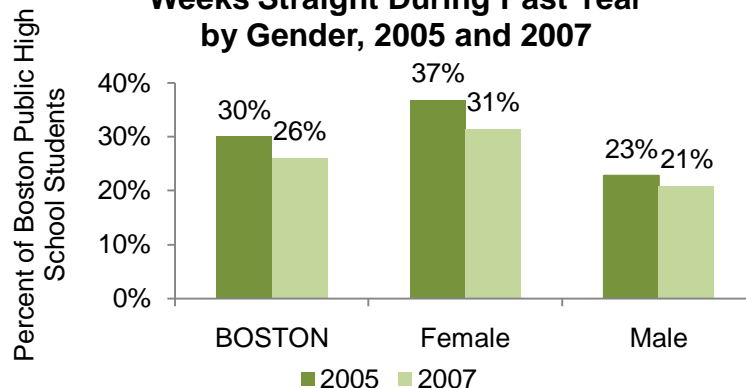


Figure 11.3 Seriously Considered Attempting Suicide, 2001, 2003, 2005 and 2007

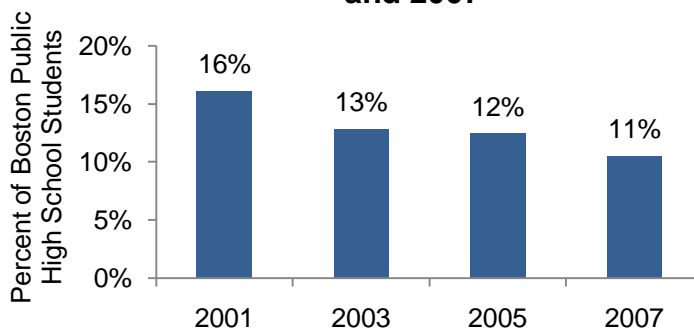
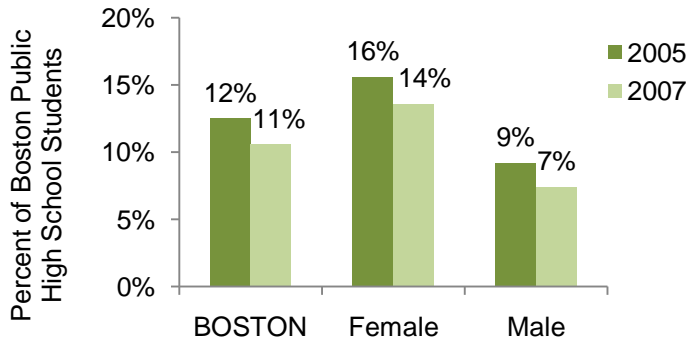


Figure 11.4 Considered Attempting Suicide by Gender, 2005 and 2007

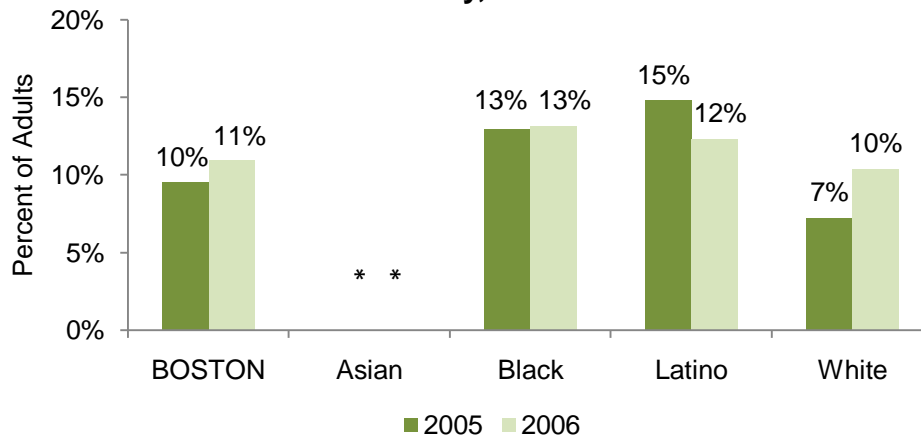


For both 2005 and 2007, a higher percentage of female than male high school students reported they had seriously considered attempting suicide.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 11.5 Poor Physical or Mental Health Limited Activities 15+ Days of Past Month by Race/Ethnicity, 2005 and 2006



In 2005 and 2006, about one in nine adults reported that poor physical or mental health limited their activity for 15 or more days during the past month.

Across racial/ethnic groups, a similar percentage of adults reported that poor physical or mental health limited their activity for 15 or more days during the past month.

In 2005 and 2006, a similar percentage of female and male adults reported that poor physical or mental health limited their activity for 15 or more days during the past month.

Figure 11.6 Poor Physical or Mental Health Limited Activities 15+ Days of Past Month by Gender, 2005 and 2006

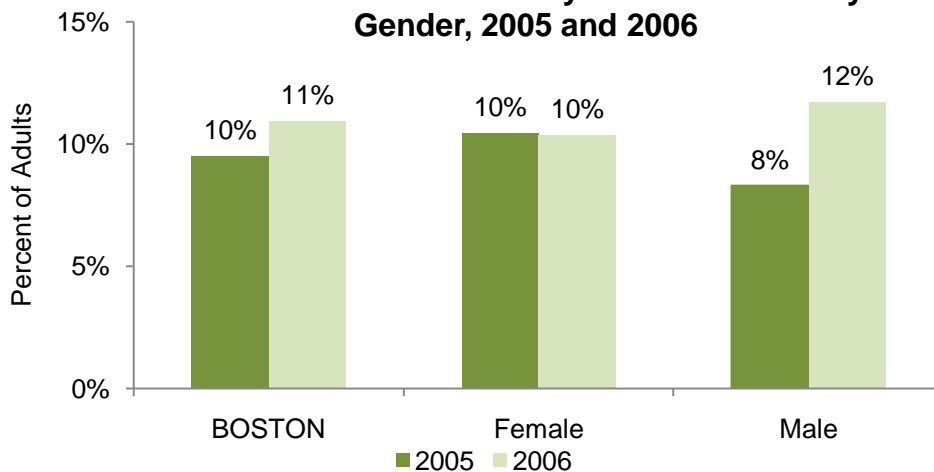
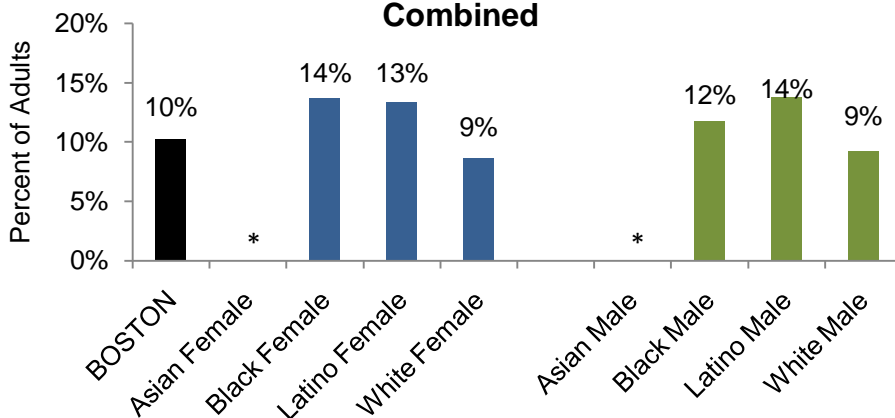


Figure 11.7 Poor Physical or Mental Health Limited Activities 15+ Days of Past Month by Race/Ethnicity and Gender, 2005 and 2006 Combined

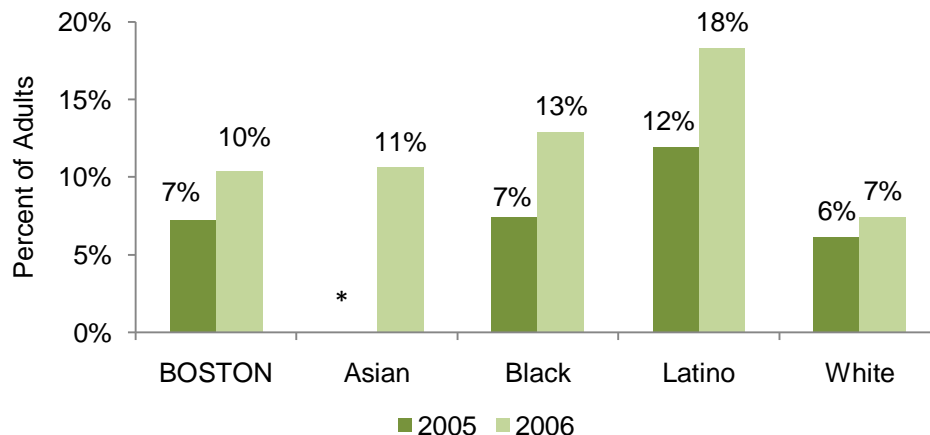


Across racial/ethnic gender groups, a similar percentage of adults reported that poor physical or mental health limited their activity for 15 or more days during the past month.

In 2006, one in ten adults reported feeling sad, blue or depressed 15 or more days during the past month. The percentage of adults who reported feeling sad, blue, or depressed increased from 2005 to 2006.

In 2006, a higher percentage of Latino adults reported feeling sad, blue or depressed 15 or more days during the past month than White adults.

Figure 11.8 Felt Sad, Blue, or Depressed 15+ Days of Past Month by Race/Ethnicity, 2005 and 2006



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Figure 11.9 Felt Sad, Blue, or Depressed 15+ Days of Past Month by Gender, 2005 and 2006



The percentage of female adults who reported feeling sad, blue or depressed 15 or more days during the past month increased from 2005 to 2006.

The percentage of Black and Latino females who reported feeling sad, blue, or depressed 15 or more days during the past month was higher than the percentage of White females who reported these symptoms.

Figure 11.10 Felt Sad, Blue, or Depressed 15+ Days of Past Month by Race/Ethnicity and Gender, 2005 and 2006 combined

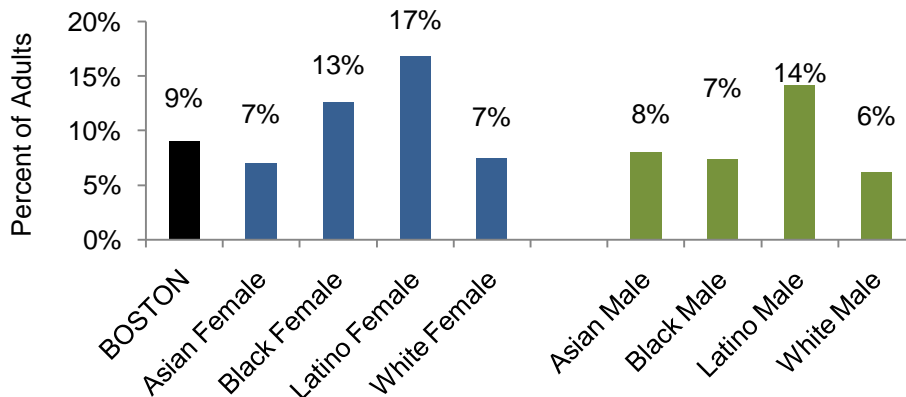
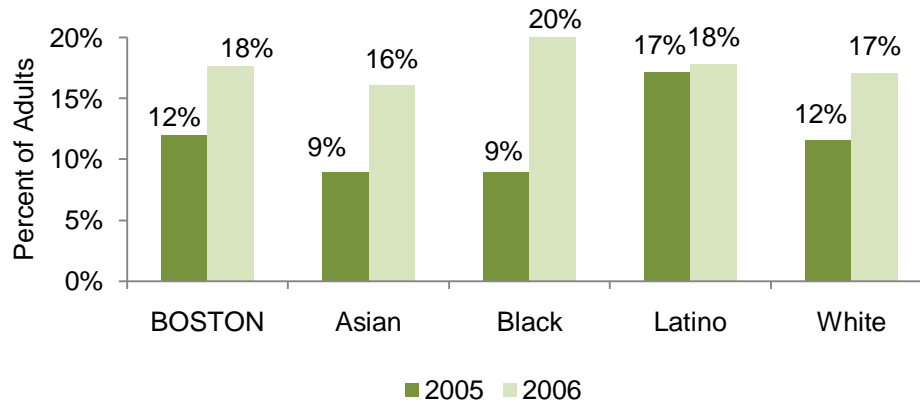


Figure 11.11 Felt Worried, Tense, or Anxious 15+ Days of Past Month by Race/Ethnicity, 2005 and 2006

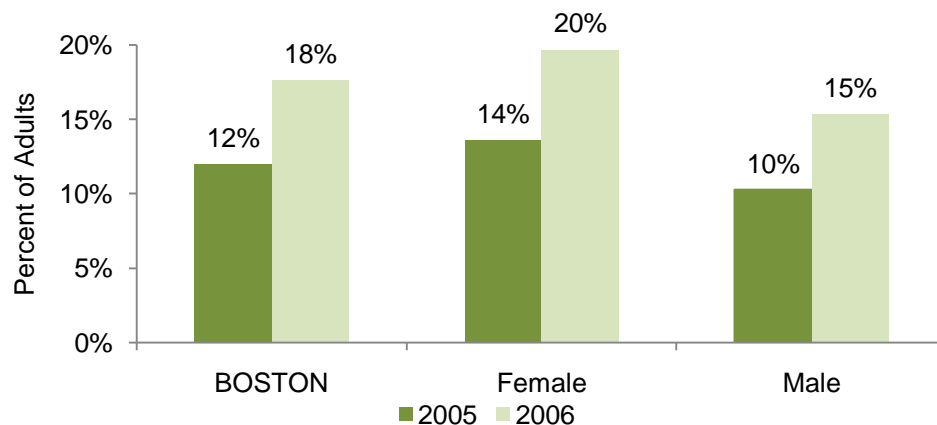


The percentage of adults reporting persistent symptoms of anxiety (feeling worried, tense, or anxious one or more days during the past month) increased from 2005 to 2006.

Higher percentages of Black adults and White adults reported persistent symptoms of anxiety in 2006 compared to 2005.

The percentage of females who reported feeling worried, tense or anxious 15 or more days during the past month increased from 2005 to 2006.

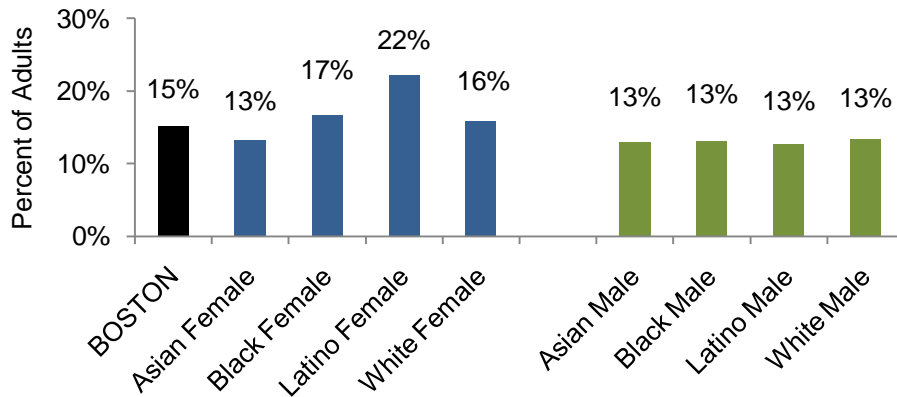
Figure 11.12 Felt Worried, Tense, or Anxious 15+ Days of Past Month by Gender, 2005 and 2006



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

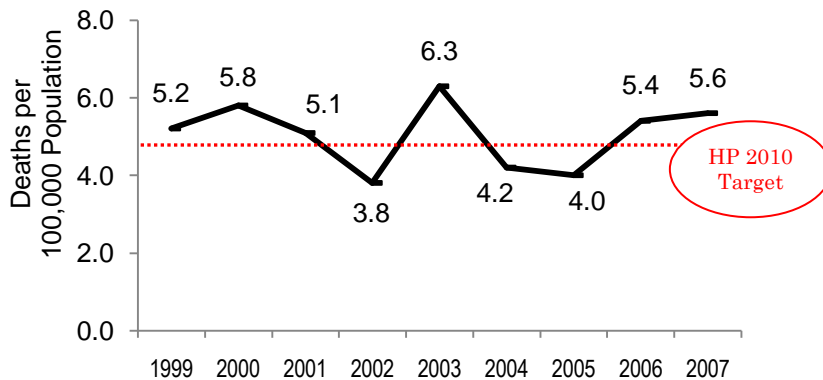
Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 11.13 Felt Worried, Tense, or Anxious 15+ Days of Past Month by Race/Ethnicity and Gender, 2005 and 2006 Combined



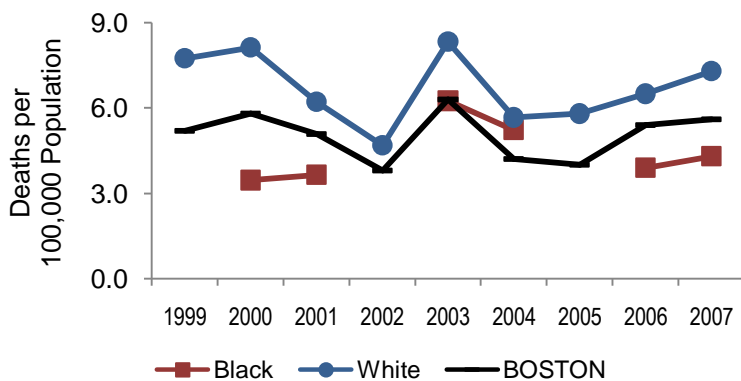
More than one in five Latino females reported feeling worried, tense, or anxious 15 or more days during the past month.

Figure 11.14 Suicide, 1999-2007



Boston's suicide rate increased 40% from 2005 to 2007, after declining 37% during the previous two years from 2003 to 2005.

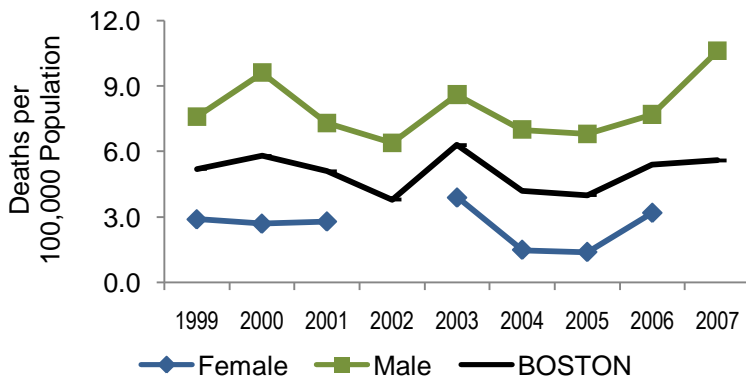
Figure 11.15 Suicide by Race/Ethnicity, 1999-2007



The suicide rate for White Boston residents was consistently higher than the rate for Black residents.

From 2006 to 2007, the rate for White residents increased 12% and for Black residents, 10%.

Figure 11.16 Suicide by Gender, 1999-2007

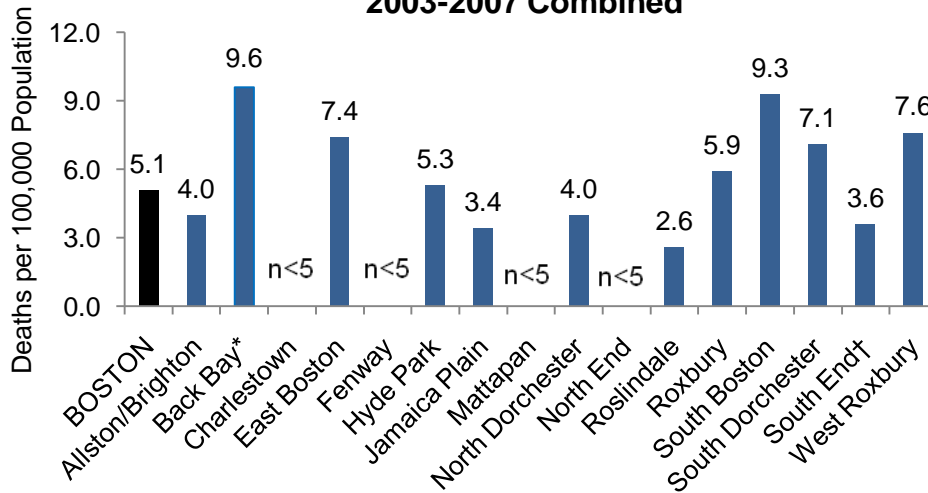


The suicide rate for males was consistently and considerably higher than for females from 1999 to 2007. The 2007 rate for males was the highest for all years shown.

From 2005 to 2007, the suicide rate for males increased 55.8%.

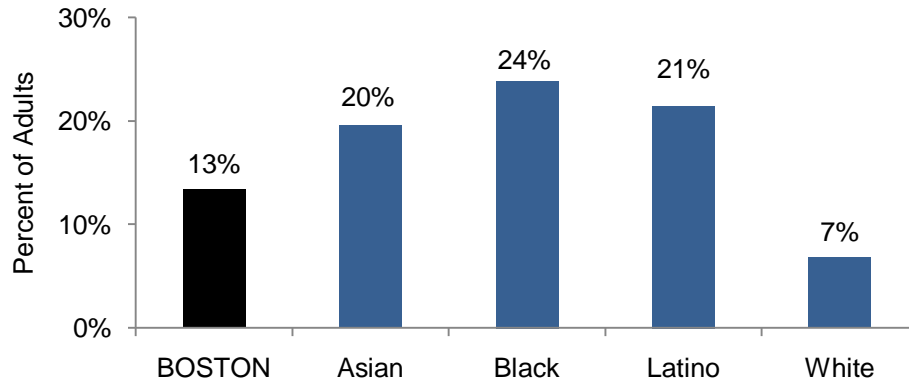
For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Figure 11.17 Suicide by Neighborhood, 2003-2007 Combined



Back Bay had the highest suicide rate among Boston neighborhoods, 88.2% higher than the rate for Boston overall. South Boston had the second highest suicide rate among Boston neighborhoods, 82.4% higher than the rate for Boston overall.

Figure 11.18 Past Month Felt Upset Because of Treatment based on Race by Race/Ethnicity, 2006



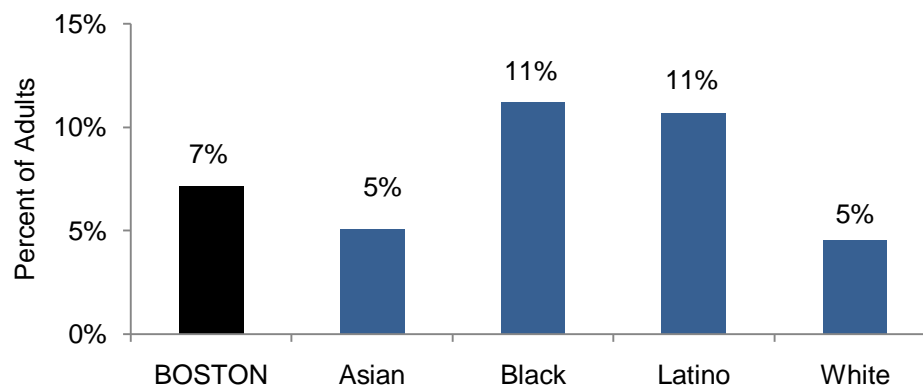
More than one in eight adults reported feeling emotionally upset within the past month as a result of how they were treated based on their race.

Compared with White adults, a higher percentage of Black and Latino adults reported feeling emotionally upset as a result of how they were treated based on their race.

One in fourteen adults reported experiencing physical symptoms during the past month as a result of how they were treated based on their race.

A higher percentage of Black and Latino adults compared to White adults reported experiencing physical symptoms for example a headache, an upset stomach, tensing of muscles, or a pounding heart as a result of how they were treated based on their race.

Figure 11.19 Past Month Had Physical Symptoms Resulting From Treatment Based on Race by Race/Ethnicity, 2006



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Summary: Mental Health

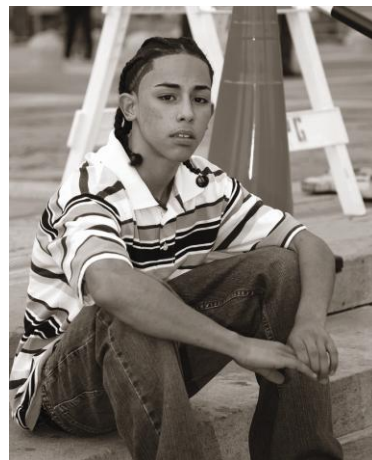
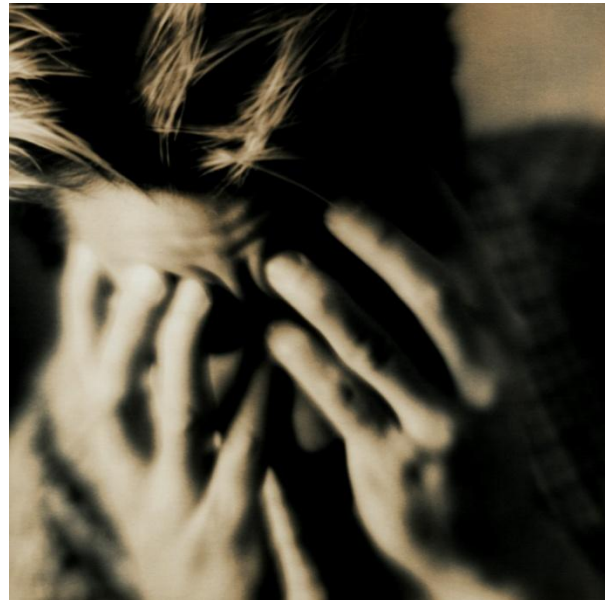
Although most Boston residents report good mental health, the survey data cited in this section reveal that persistent symptoms of depression and anxiety are experienced by many adults and youths. Ten percent of adults reported depressive symptoms (feeling sad, blue, or depressed) 15 or more days during the past month in 2006. About one in four high school students reported experiencing a depressive episode (depressive symptoms for two weeks straight) during the past year.

Just as disparities in physical health exist, mental health disparities exist too. Consistent with national data (not shown), Boston data reveal higher suicide rates among Boston White residents compared to non-White residents and higher suicide rates among males compared to females. But survey data reveal higher rates of self-reported depressive symptoms among non-Whites, especially among non-White females. Compared with Whites, a higher percentage of Latinos reported depressive symptoms 15 or more days during the past month. Compared with White females, a higher percentage of Black and Latino females reported depressive symptoms 15 or more days during the past month.

There are likely many causes and explanations for the observed differences in depressive symptoms among racial/ethnic groups. One contributing factor could be the experience of racism. When compared with White adults, a higher percentage of Black and Latino adults reported that they experienced stress and physical symptoms resulting from treatment they believed was based on their race.

This section provided a description of the mental health experiences of various groups including adolescents and adults, males and females, and racial/ethnic groups. The

diversity of experiences among the groups underscores the complex nature of mental health.



References

1. **World Health Organization.** What is Mental Health? *World Health Organization*. [Online] September 3, 2007. [Cited: February 24, 2009.] <http://www.who.int/features/qa/62/en/index.html>.
2. **National Alliance on Mental Illness.** What is Mental Illness: Mental Illness Facts. *About Mental Illness*. [Online] [Cited: February 24, 2009.] http://www.nami.org/Content/NavigationMenu/Inform_Yourself/About_Mental_Illness/About_Mental_Illness.htm.
3. **Department of Health and Human Services.** Healthy People 2010 Midcourse Review Focus Area 18 Mental Health and Mental Disorders. *Healthy People 2010 Midcourse Review*. [Online] April 9, 2007. [Cited: February 24, 2009.] <http://www.healthypeople.gov/data/midcourse/html/focusareas/FA18TOC.htm>.

Notes, Data Source, and Data Analysis

Figure 11.1

NOTE: Survey question reads, “During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?”

DATA SOURCE: Youth Risk Behavior Survey 2005 and 2007, Youth Risk Behavior Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.2

NOTE: Survey question reads, “During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?”

DATA SOURCE: Youth Risk Behavior Survey 2005 and 2007, Youth Risk Behavior Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.3

NOTE: Survey question reads, “During the past 12 months, did you ever seriously consider attempting suicide?”

DATA SOURCE: Youth Risk Behavior Survey 2001, 2003, 2005 and 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.4

NOTE: Survey question reads, “During the past 12 months, did you ever seriously consider attempting suicide?”

DATA SOURCE: Youth Risk Behavior Survey 2005 and 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.5

**Insufficient sample size for Asians in 2005 and 2006.

NOTE: Survey question reads, “During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.6

NOTE: Survey question reads, “During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.7

*Insufficient sample size for Asian Females and Asian Males.

NOTE: Survey question reads, "During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.8

*Insufficient sample size for Asians in 2005

NOTE: Survey question reads, "During the past 30 days, for about how many days have you felt sad, blue, or depressed?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.9

NOTE: Survey question reads, "During the past 30 days, for about how many days have you felt sad, blue, or depressed?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.10

NOTE: Survey question reads, "During the past 30 days, for about how many days have you felt sad, blue, or depressed?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.11

NOTE: Survey question reads, "During the past 30 days, for about how many days have you felt worried, tense, or anxious?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.12

NOTE: Survey question reads, "During the past 30 days, for about how many days have you felt worried, tense, or anxious?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.13

NOTES: Survey question reads, "During the past 30 days, for about how many days have you felt worried, tense, or anxious?"; Discrepancies in the heights of bars are due to rounding of percentages to whole numbers.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.14

NOTE: Data are shown as age-adjusted rates.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.15

NOTES: Data are shown as age-adjusted rates. Rates are not presented for Asians and Latinos due to the small number of suicides they incurred in each of the years shown. Rate for Blacks in 1999, 2002, and 2005 not shown due to small number of suicides in each of those years.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.16

NOTES: Data are shown as age-adjusted rates. Rates are not presented for females in 2002 and 2007 due to the small number of suicides they incurred in these years.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.17

NOTE: Data are shown as average annual age-adjusted rates.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.18

NOTES: Survey question reads, "Within the past 30 days, have you felt emotionally upset, for example angry, sad, or frustrated, as a result of how you were treated based on your race

DATA SOURCE: Boston Behavioral Risk Factor Survey 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 11.19

NOTES: Survey question reads, "Within the past 30 days, have you experienced any physical symptoms, for example a headache, an upset stomach, tensing of your muscles, or a pounding heart, as a result of how you were treated based on your race?"; Discrepancies in the heights of bars are due to rounding of percentages to whole numbers.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Section 12: Substance Abuse

Substance abuse involves the excessive use of alcohol or use of drugs in a non-prescribed manner to achieve an altered physiological state. People who choose to use drugs or alcohol in this way do so to experience physical and mental sensations that are considered pleasurable when compared to their normal 'unaltered' state. But because alcohol and drugs directly affect the central nervous system of the body, they can cause severe immediate consequences including cardiac arrest and the loss of life. In addition, abuse of alcohol or other drugs over time can lead to physical and/or psychological dependence on these substances whereby the user continues to use the substance in order to satisfy intense cravings for the substance.

When dependence occurs, an individual often feels agitated in their unaltered state and uses the substance to relieve the agitation. An individual is said to have an addiction to a substance when the nature and intensity of the cravings for the substance contribute to a pattern of unhealthy or self-destructive decisions in order to satisfy the perceived need for the substance. As a result, people with addictions may sacrifice their physical health, personal relationships, jobs, personal morals and values in efforts to maintain access to the substance.

Fortunately, effective treatment for drug and alcohol dependence exists. Treatment providers offer a wide array of services and medications that aim to help the individual break his or her dependence on the substance.

This section considers three types of indicators of substance abuse: admissions to publicly funded substance abuse treatment programs, hospitalizations due to substance abuse, and substance abuse mortality

(deaths in which alcohol or drugs are believed to play a causal role).



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

The number of substance abuse treatment admissions increased 4.7% from 2007 to 2008.

The percentage of treatment admissions for White residents increased 43.3% from 2001 to 2008.

The percentage of Black treatment admissions decreased 36.8% from 2001 to 2008.

In 2008, about three-fourths of all treatment admissions were male and one-fourth were female.

Figure 12.1 Substance Abuse Treatment Admissions, 2001-2008

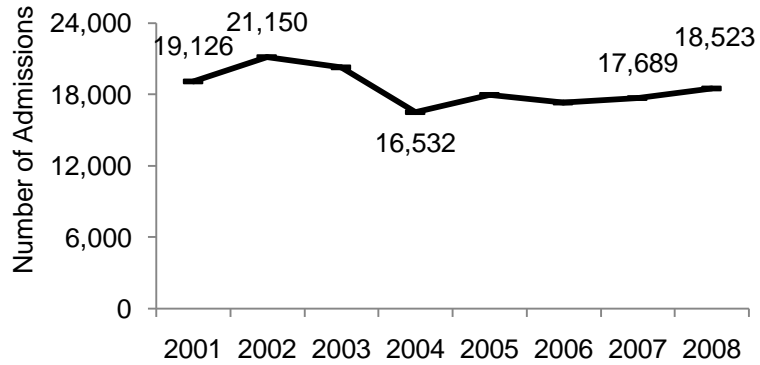


Figure 12.2 Substance Abuse Treatment Admissions by Race/Ethnicity, 2001-2008

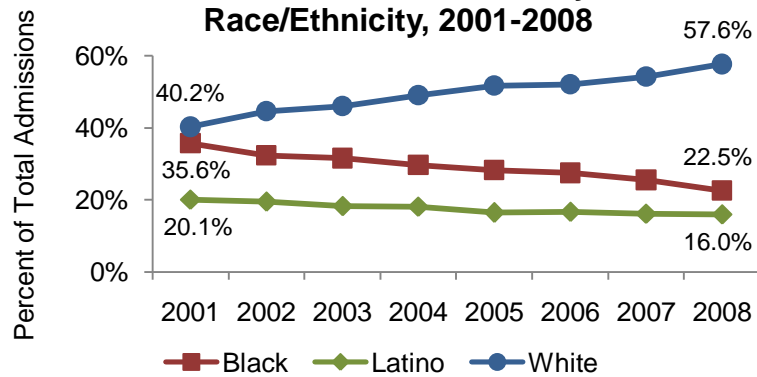


Figure 12.3 Substance Abuse Treatment Admissions by Gender, 2008

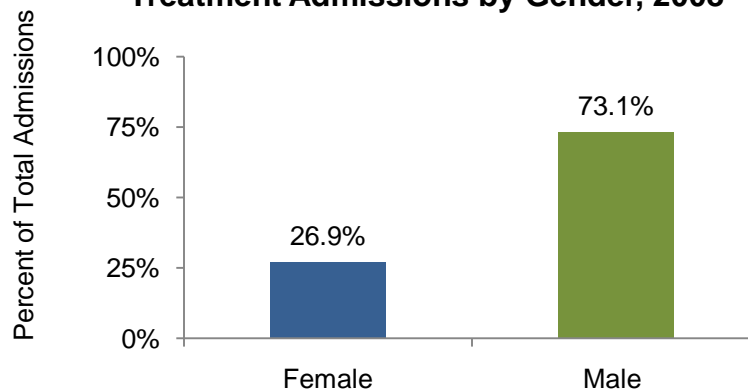
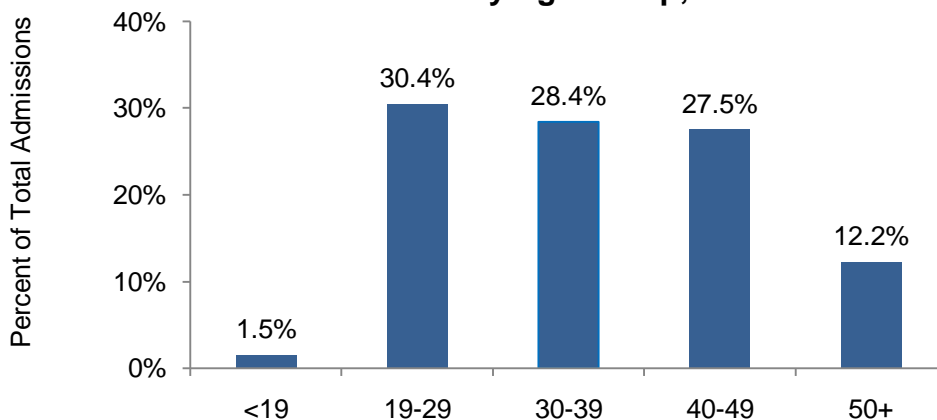


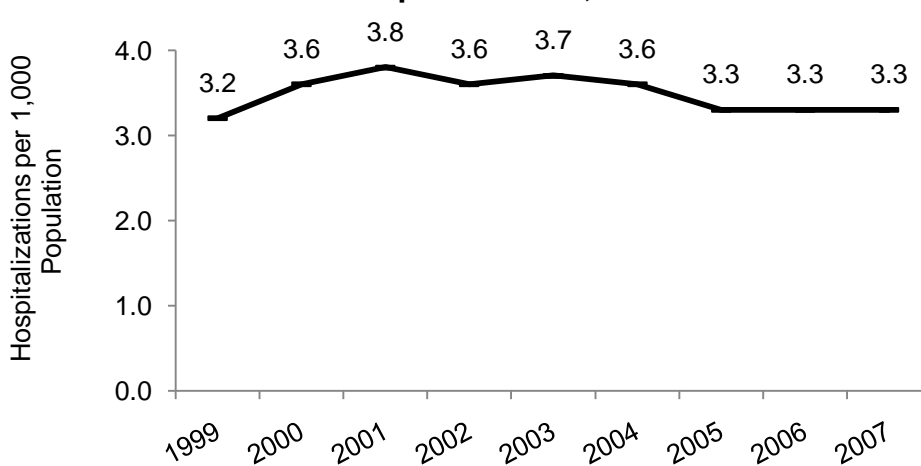
Figure 12.4 Substance Abuse Treatment Admissions by Age Group, 2008



Eighty-six percent of all substance abuse treatment admissions were spread relatively evenly across three age groups: 19-29, 30-39, and 40-49.

The substance abuse hospitalization age-adjusted rate was similar from 1999-2007 among Boston residents.

Figure 12.5 Substance Abuse Hospitalizations, 1999-2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

In 2007, the substance abuse hospitalization rate was highest for Boston residents ages 35-44, 45-54, and 55-64. Teens and young adults ages 15-24 had the lowest rate, along with residents ages 65 and over.

The substance abuse hospitalization age-adjusted rate for Boston males was 3.5 times the rate for females in 2007.

The substance abuse mortality age-adjusted rate decreased 6.9% from 2006 to 2007.

The 2007 rate of 31.2 per 100,000 population is 77.3% higher than the 1999 rate of 17.6.

Figure 12.6 Substance Abuse Hospitalizations by Age Group, 2007

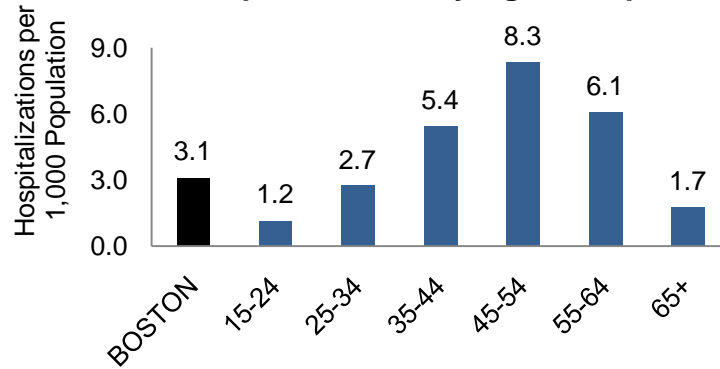


Figure 12.7 Substance Abuse Hospitalization by Gender, 2007

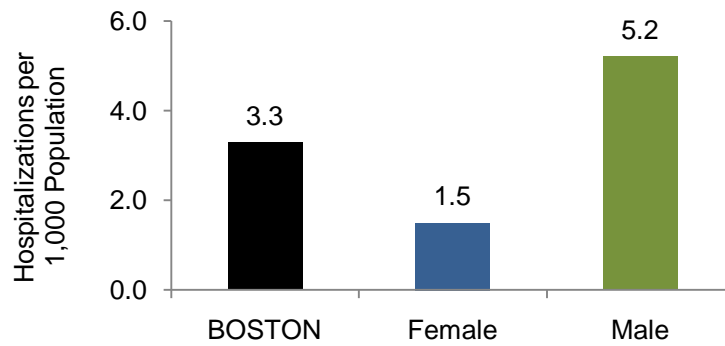


Figure 12.8 Substance Abuse Mortality, 1999-2007

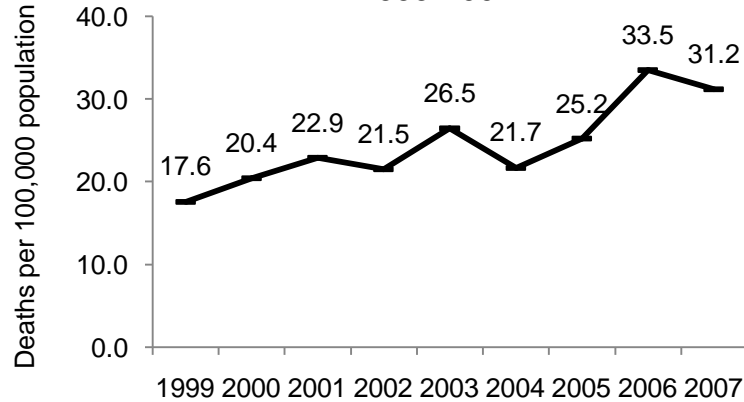
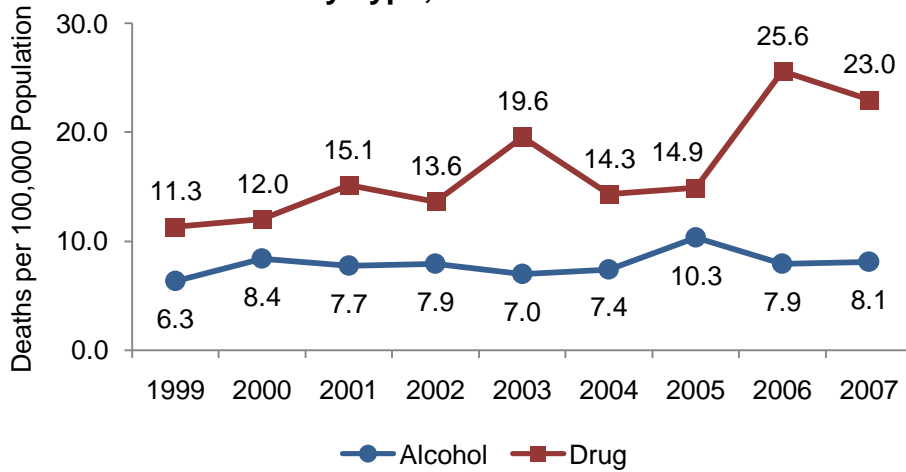


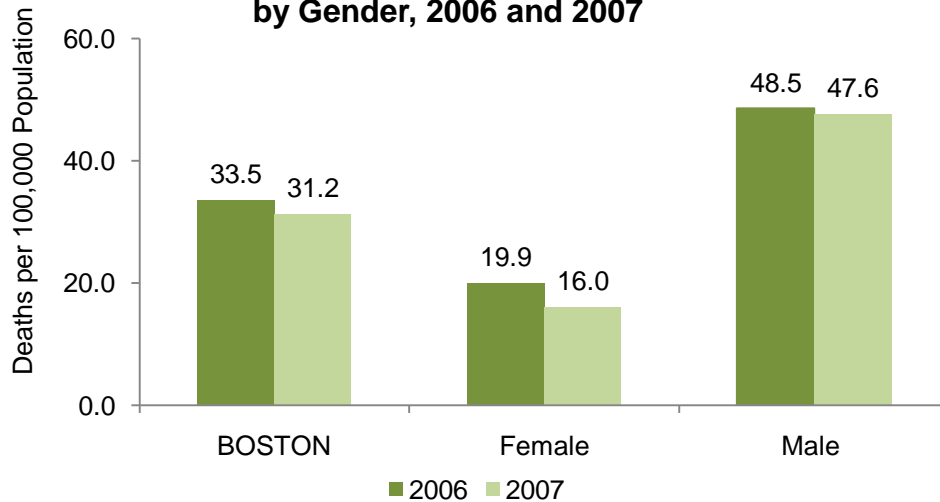
Figure 12.9 Substance Abuse Mortality by Type, 1999-2007



Though the alcohol-related mortality rate has remained fairly stable from 1999 to 2007, the drug-related mortality rate has more than doubled during the same period.

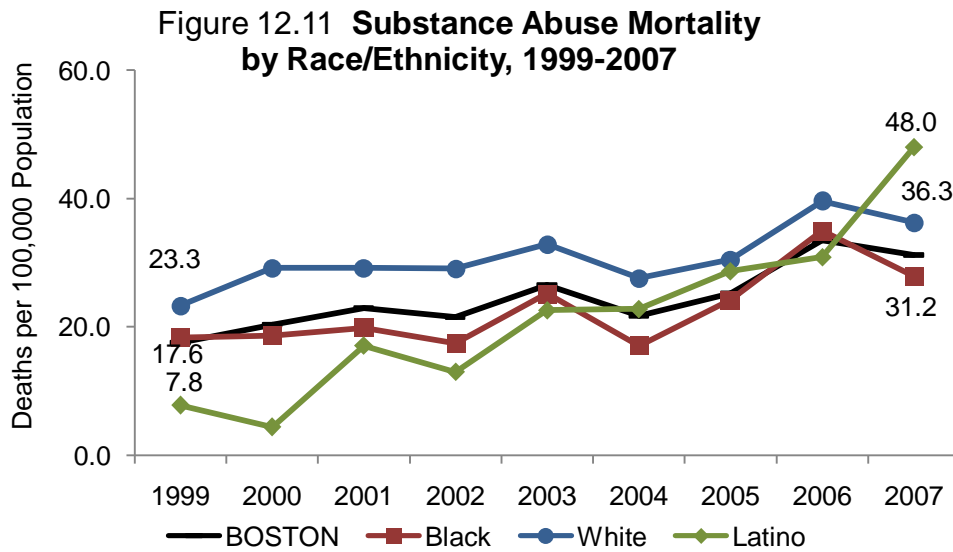
In 2007, the male substance abuse mortality rate was approximately three times the female rate.

Figure 12.10 Substance Abuse Mortality by Gender, 2006 and 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

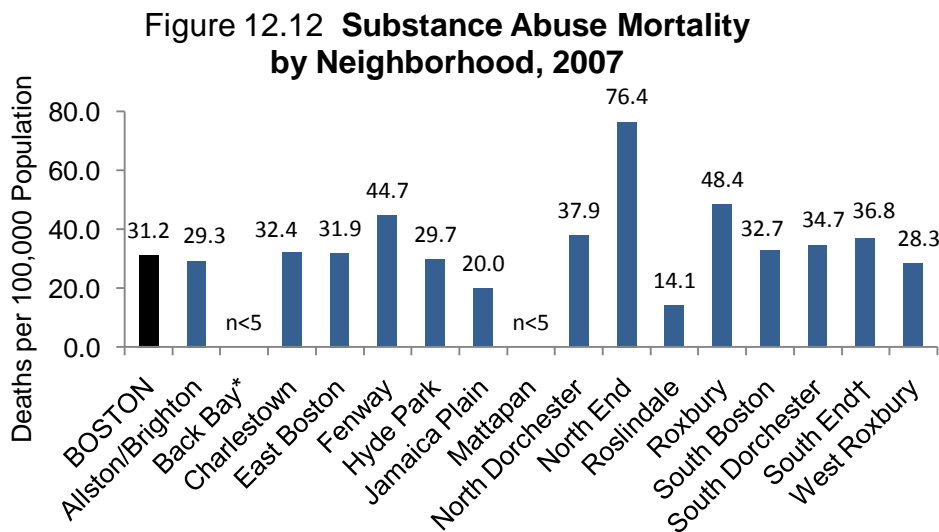
Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.



In 2007, Latino's had the highest substance abuse mortality rate among all the racial/ethnic groups. From 1999 to 2007, the Latino rate increased more than 500%.

The rate for Blacks and Whites decreased 20.3% and 8.3%, respectively, from 2006 to 2007, but remains well above their 1999 levels.

In 2007, the North End experienced the highest substance abuse mortality rate among Boston neighborhoods.



Summary: Substance Abuse

From 2006 to 2007 there was little change in the overall substance abuse treatment, hospitalization and mortality rates. Though the mortality rate decreased 6.9% from 2006 to 2007, the rate remained well above levels for earlier years (e.g., 77.3% higher than the 1999 rate).

Because of its social consequences, substance abuse continues to adversely impact residents of all ages, all racial/ethnic groups and genders. However, the data presented here show differences among various demographic groups within substance abuse indicators. Overall, Boston males accessed the treatment system, were hospitalized due to substance abuse, and died as a consequence of substance abuse at rates approximately three times those for females.

In general, White residents experience high substance abuse rates. The percentage of treatment admissions who were White residents increased steadily from 40% in 2001 to 58% in 2008. From 1999 to 2006, Whites consistently had the highest substance abuse death rate among Boston's racial/ethnic groups.

In 2007, Latinos experienced the highest substance abuse mortality rate (48.0 per 100,000 population) among the racial/ethnic groups. The Latino rate in 2007 was more than ten times the 2000 rate. No similar increase was observed in the Latino treatment admissions data.

Among Boston neighborhoods, Fenway, the North End and Roxbury had the highest substance abuse mortality rates. The North End rate was more than twice the overall Boston substance abuse mortality rate.

The 2007 data summarized in this section demonstrate persistent disparities in

substance abuse treatment admissions, hospitalization rates and mortality among racial/ethnic groups, gender groups, and neighborhoods.



Notes, Data Source, and Data Analysis

Figure 12.1

NOTES: An individual client may have more than one admission per year. The data shown are for fiscal years July 2000 - June 2008.

DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 12.2

NOTES: Data for Asians was unavailable. An individual client may have more than one admission per year. The data shown are for fiscal years July 2000 - June 2008.

DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 12.3

NOTES: An individual client may have more than one admission per year. The data shown are for fiscal year 2008: July, 2007-June, 2008.

DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 12.4

NOTES: An individual client may have more than one admission per year. The data shown are for fiscal year 2008: July, 2007-June, 2008.

DATA SOURCE: Massachusetts Department of Public Health, Bureau of Substance Abuse Services

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 12.5

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Acute Care Hospital Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 12.6

NOTE: Data are presented as age-specific rates.

DATA SOURCE: Acute Care Hospital Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 12.7

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Acute Care Hospital Case Mix Files, Massachusetts Division of Health Care, Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 12.8

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 12.9

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 12.10

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 12.11

NOTES: Data are presented as age-adjusted rates. There were too few substance abuse deaths among Asians to permit the presentation of rates.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 12.12

*Includes Beacon Hill, Downtown, North End, and West End.

† Includes Chinatown

NOTES: Data are presented as age-adjusted rates. There were too few substance abuse deaths among residents of Back Bay* and Mattapan to permit the presentation of rates.

Rates are not presented for Back Bay and Mattapan due to the small number of substance abuse deaths.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Section 13: Violence

During 2007, 1.4 million violent crimes occurred in the U.S. (1). Violent crime can result in fatal or non-fatal outcomes and have a negative impact on a community. The Federal Bureau of Investigation and other law enforcement agencies categorize violent crime as homicide, forcible rape, aggravated assault, and robbery (1).

Violence resulting in physical injuries may involve the use of weapons or no weapons, and can occur in a variety of social contexts such as domestic violence, child and elder abuse, and teen dating violence.

A number of risk factors are associated with violence. Among them are certain socio-demographic characteristics including age, gender, race, education level or poor educational performance if still in school, poverty, and unemployment. Family stress, access to guns, deterioration of neighborhoods, substance abuse, witnessing and experiencing violence, and media depictions of violent behavior are additional important risk factors (2).

Blacks are disproportionately affected by violent crimes, especially homicides. According to the US Census national population estimates for 2007, Blacks make up 12.8% of the US population. However, of the 14,831 murder victims in 2007 nationally, and for whom race was known, 50.1% were Black and 47.6% were White (1). Most victims of homicide were men (3,4). Thirty-one percent were between the ages of 13 and 24 (3). Firearms were used in 68% of all homicides (5).

Nationwide, there continues to be great concern about the high and increasing levels of violence among youth and young

adults, especially those in the 10-24 year old age group (5). According to the CDC, in 2005, this age group accounted for 52% of arrests for murder and 65% of those arrested for robbery in 2006 (5). In 2005, almost 6,000 youth and young adults, ages 10-24 were murdered in the U.S and like the pattern for U.S. homicides in general, most (82%) involved the use of a firearm (6).

A number of prevention strategies for violence have been developed over time including the creation of coalitions of religious and community leaders; efforts to improve communication and relationships between the police and the communities; the creation of neighborhood crime watch programs; establishing after school programs and other places for youth to safely 'hang out'; the incorporation of conflict resolution programs into school curricula; gun buy-back programs; and increased presence of police in high-crime areas. New violence prevention strategies continue to be developed and implemented, especially those that target youth and younger adults.

This section attempts to provide a snapshot of non-fatal and fatal violence data for Boston, as well as Boston residents' attitudes and experiences of violence.

Healthy People 2010 Targets (7)

Reduce the homicide rate to 2.8 deaths per 100,000 population, age-adjusted.

For each of the years shown in the chart, between 16% and 18% of public high school students in Boston reported carrying a weapon at least one or more days during the past 30 days.

The percentage of reported weapon carrying was higher among male than female public high school students in 2007.

In 2005 and 2007, a higher percentage of Black and Latino public high school students than White public high school students reported not going to school because of safety concerns.

Figure 13.1 Carried a Weapon in Past 30 Days, 2001, 2003, 2005, and 2007

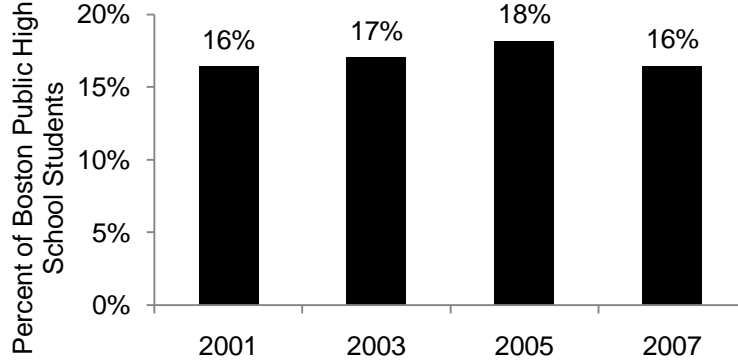


Figure 13.2 Carried a Weapon in Past 30 Days, by Gender, 2005 and 2007

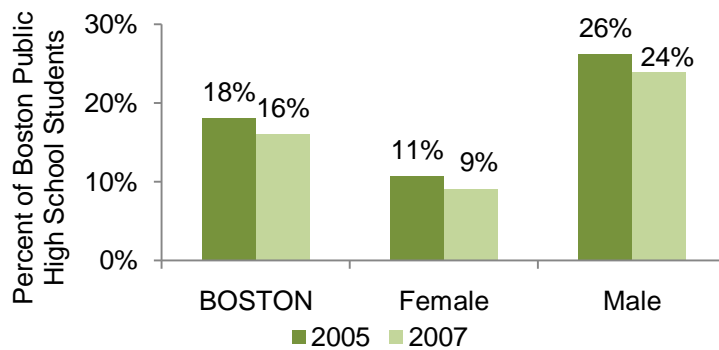


Figure 13.3 Did Not Go to School, Felt Unsafe by Race/Ethnicity 2005 and 2007

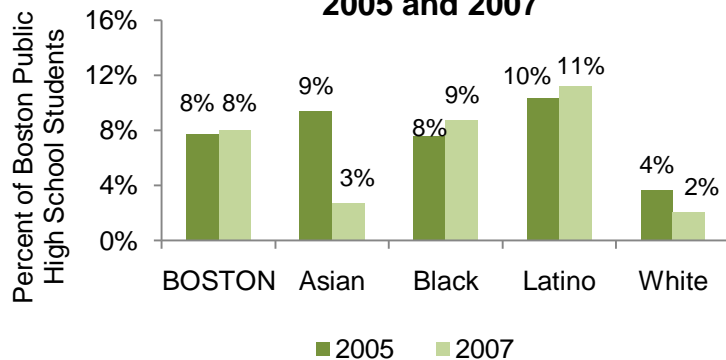


Figure 13.4 Threatened or Injured with Weapon at School 2001, 2003, 2005, and 2007

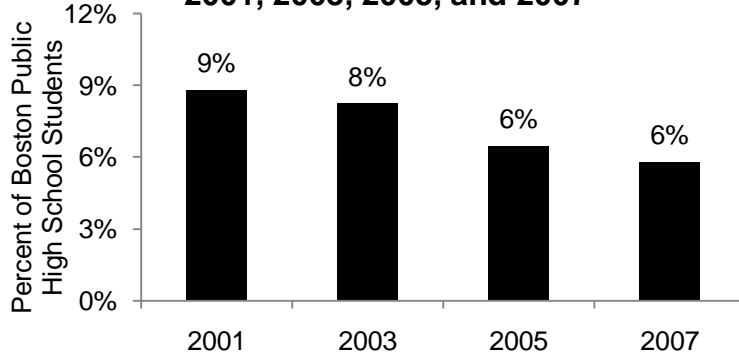


Figure 13.5 Threatened or Injured at School with Weapon by Race/Ethnicity 2005 and 2007

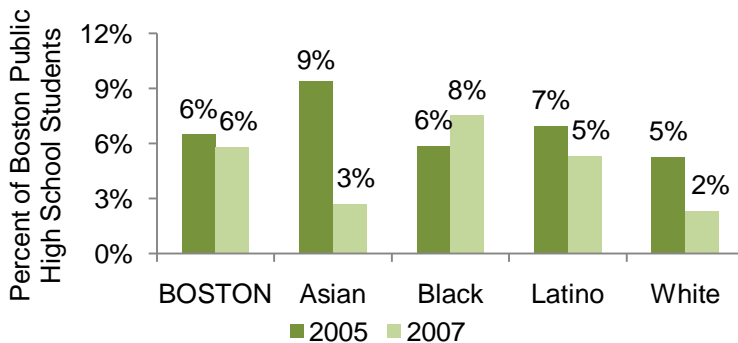
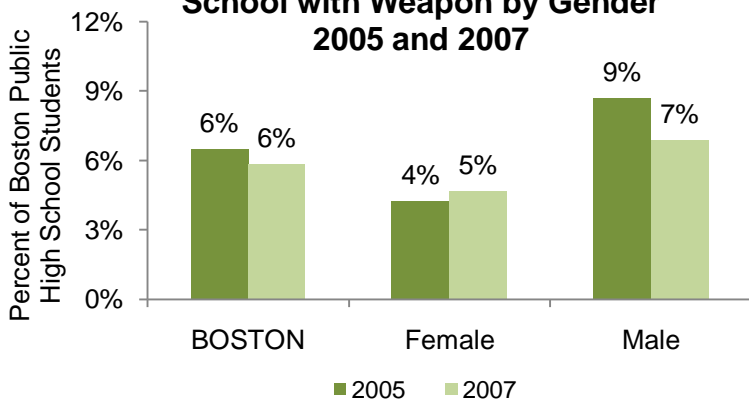


Figure 13.6 Threatened or Injured at School with Weapon by Gender 2005 and 2007



The percentage of high school students who reported being threatened or injured with a weapon at school was lower in 2007 than in 2001.

In 2007, a higher percentage of Black students than White students reported being threatened or injured with a weapon at school.

A higher percentage of male than female public high school students reported being threatened or injured with a weapon at school in 2005 and 2007.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Approximately one in eleven public high school students reported being physically hurt by a date or someone with whom they were going out.

In 2005, 4% of male high school students and 10% of female high school students reported having been physically hurt by a date or someone they were going out with.

A higher percentage of female than male high school students reported in 2007 that they had this experience.

The percentage of adults who reported having experienced physical or sexual violence was lower in 2006 than in any of the other years presented.

Figure 13.7 Hurt Physically by a Date 2001, 2003, 2005 and 2007

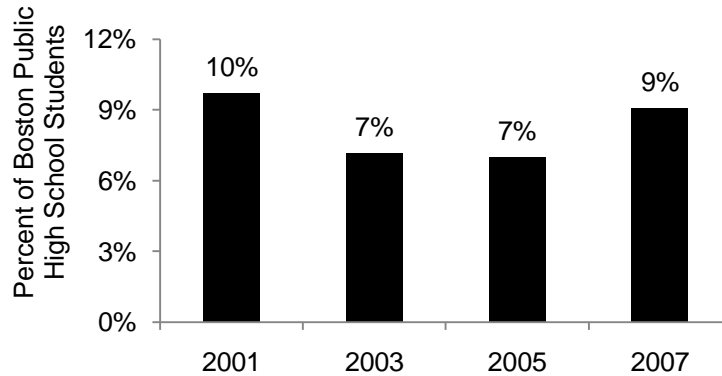


Figure 13.8 Hurt Physically by a Date by Gender, 2005 and 2007

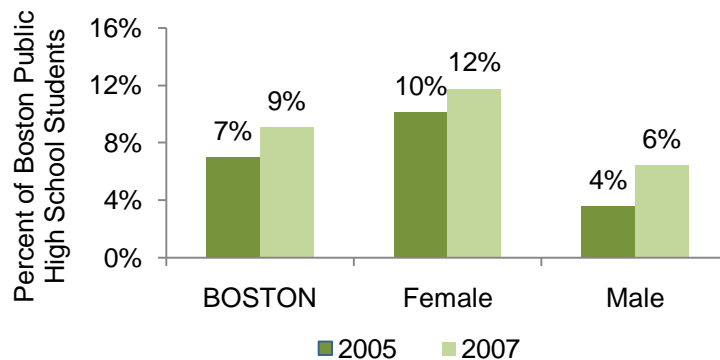


Figure 13.9 Experienced Physical Violence as an Adult 2001, 2003, 2005 and 2006

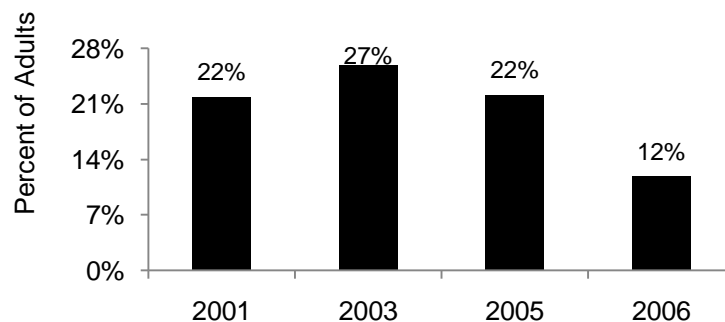
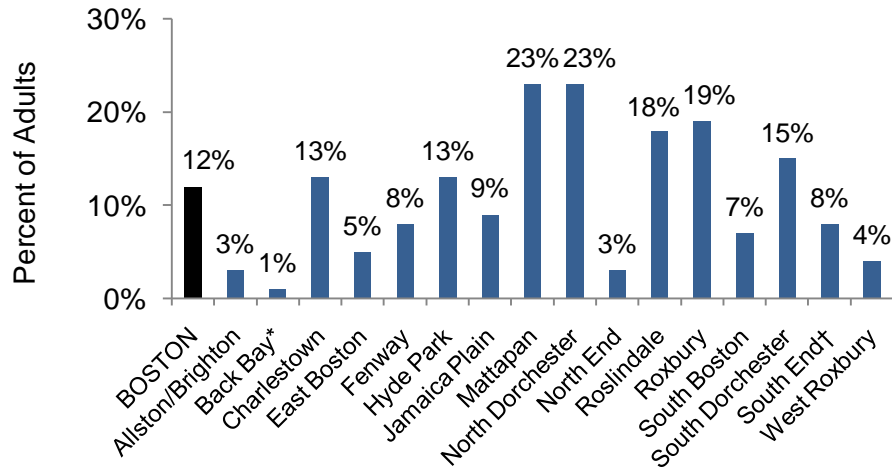


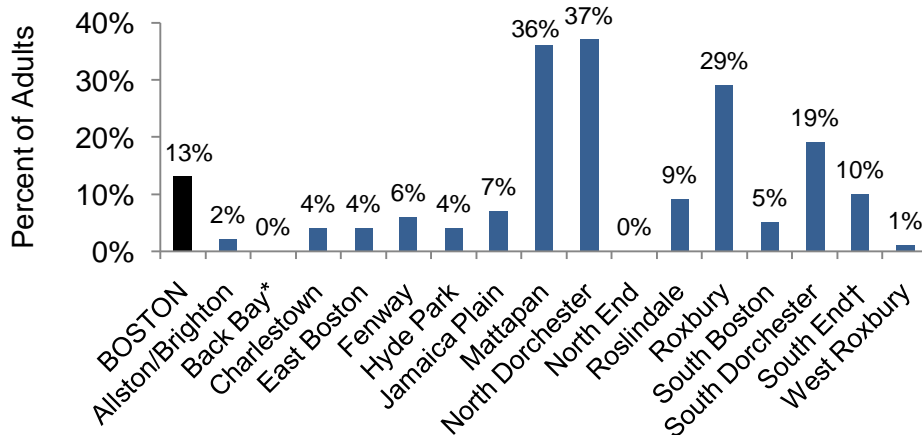
Figure 13.10 Perceived More Guns During Past Year by Neighborhood, 2008



Fewer than 25% of residents in each of Boston neighborhoods reported believing that there were more guns in their neighborhood compared to a year ago. A higher percentage of residents from Mattapan and North Dorchester than for Boston residents overall reported believing there were more guns in their neighborhood compared to a year ago.

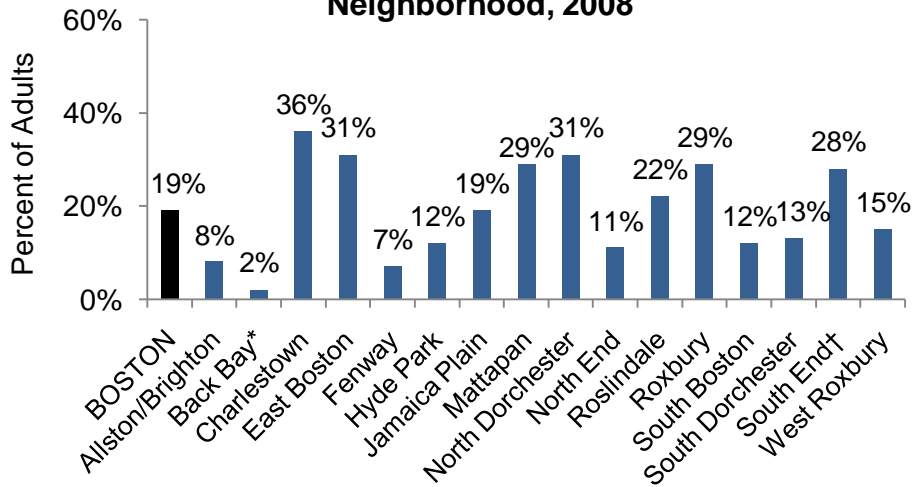
More than a third of Mattapan and North Dorchester residents reported gunshots and shootings as being a big problem in their neighborhoods. A higher percentage of Mattapan, North Dorchester, Roxbury, and South Dorchester residents than residents of Boston overall reported gunshots and shootings as being a big problem.

Figure 13.11 Gunshots and Shootings Considered a Big Problem by Neighborhood, 2008



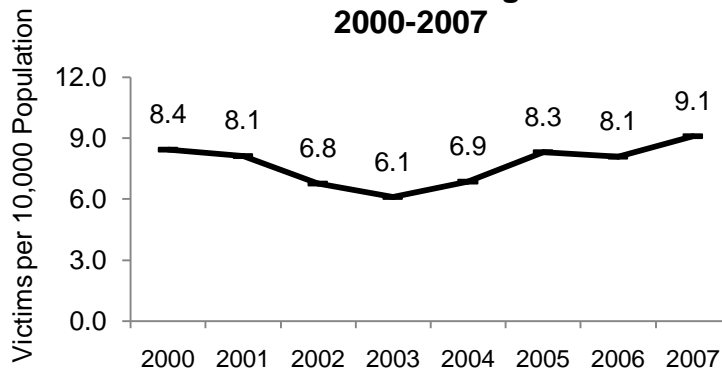
For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

Figure 13.12 Think Gangs are in Neighborhood, 2008



The percent of adults in Boston neighborhoods who reported that they think gangs are operating in their neighborhoods ranged from 2% to 36%. Thirty percent or more of residents in Charlestown, East Boston, and North Dorchester believed this to be the case.

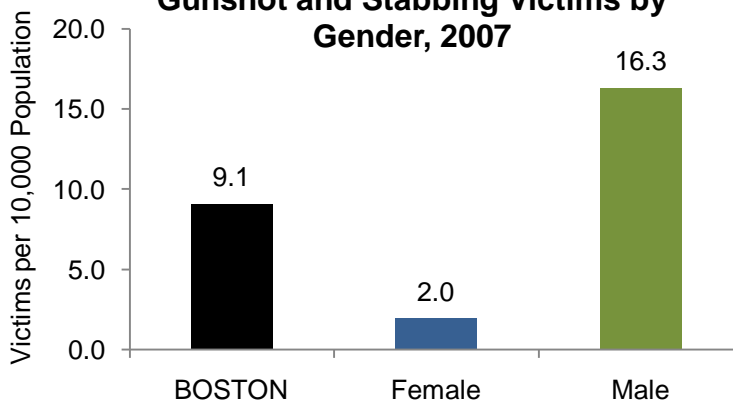
Figure 13.13 Nonfatal Assault-Related Gunshot and Stabbing Victims 2000-2007



In 2007, 536 Boston residents were treated in hospital emergency departments for nonfatal assault-related gunshot and stabbing injuries, an increase of 8.3% from 2000 and 12.3% from 2006 (data not shown).

This rate increased 49% from 2003 to 2007.

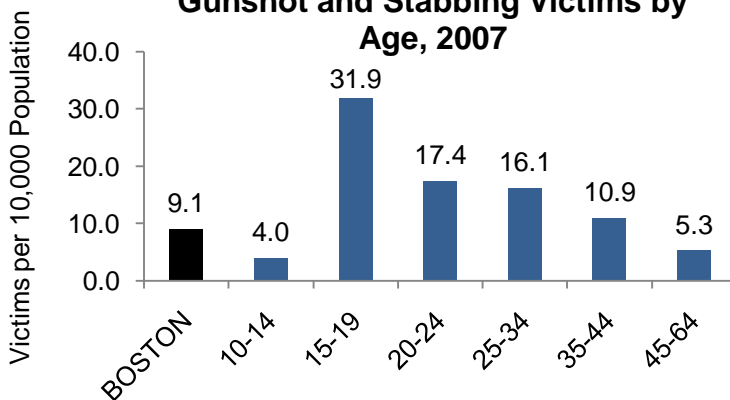
Figure 13.14 Nonfatal Assault-Related Gunshot and Stabbing Victims by Gender, 2007



Among Boston residents in 2007, males accounted for 86.3% of nonfatal assault-related gunshot and stabbing victims (data not shown).

The rate of male victims was more than eight times the rate of female victims.

Figure 13.15 Nonfatal Assault-Related Gunshot and Stabbing Victims by Age, 2007

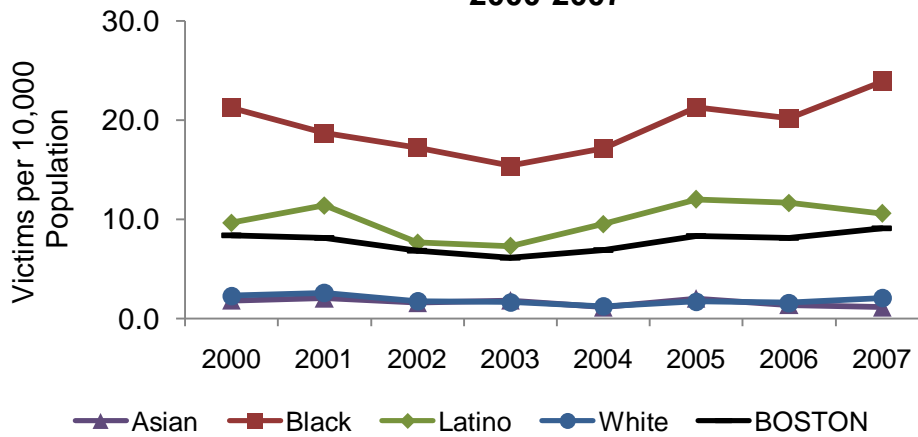


In 2007, the highest rate of nonfatal assault-related gunshot and stabbing injuries occurred among those ages 15-19. The rate for this age group was 3.5 times the rate for Boston overall.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 13.16 Nonfatal Assault-Related Gunshot and Stabbing Victims by Race/Ethnicity 2000-2007



Among the racial/ethnic groups shown, the rate for nonfatal assault-related gunshot and stabbing victims was highest for Boston’s Black residents in each year from 2000-2007. Latino residents had the second highest rate while Asians and Whites had the lowest. The 2007 rate for Black residents was the highest of the 8-year period, 11 times the rate for Whites and 2.6 times the rate for Boston overall.

Residents of North Dorchester and of Roxbury had the highest rates of nonfatal assault-related gunshot and stabbing injuries among all Boston neighborhoods in 2007. Their rates were more than twice the rate for Boston overall.

Figure 13.17 Nonfatal Assault-Related Gunshot and Stabbing Victims by Neighborhood, 2007

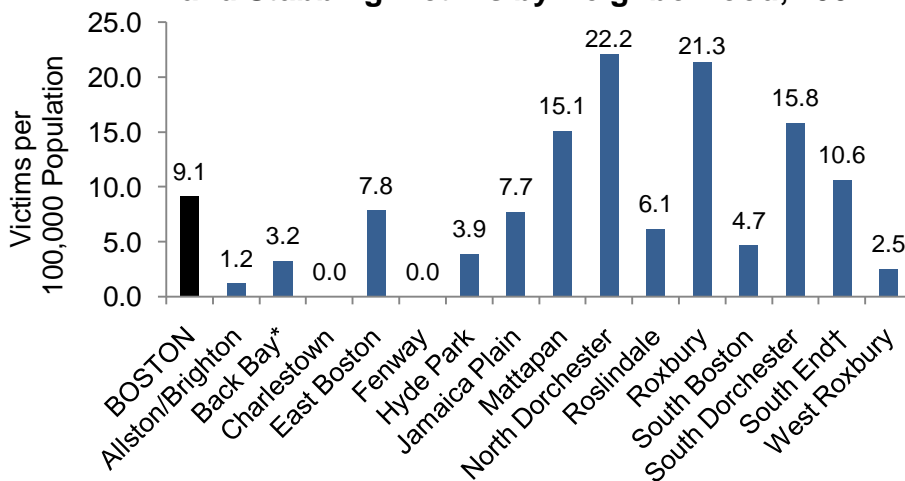
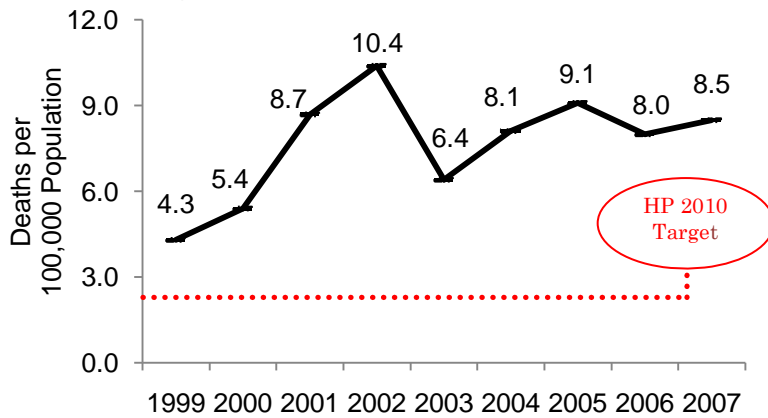


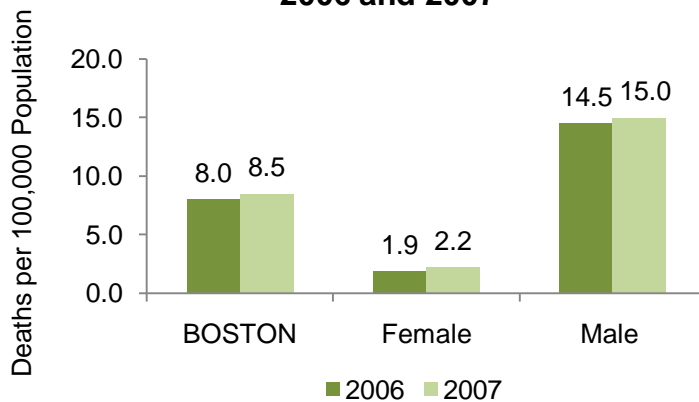
Figure 13.18 Homicide, 1999-2007



From 1999 through 2007, 486 homicides occurred among Boston residents. The number of homicides in 2007 was almost double the number in 1999 (data not shown).

Between 1999 and 2007, the age-adjusted homicide rate increased 98%.

Figure 13.19 Homicide by Gender 2006 and 2007



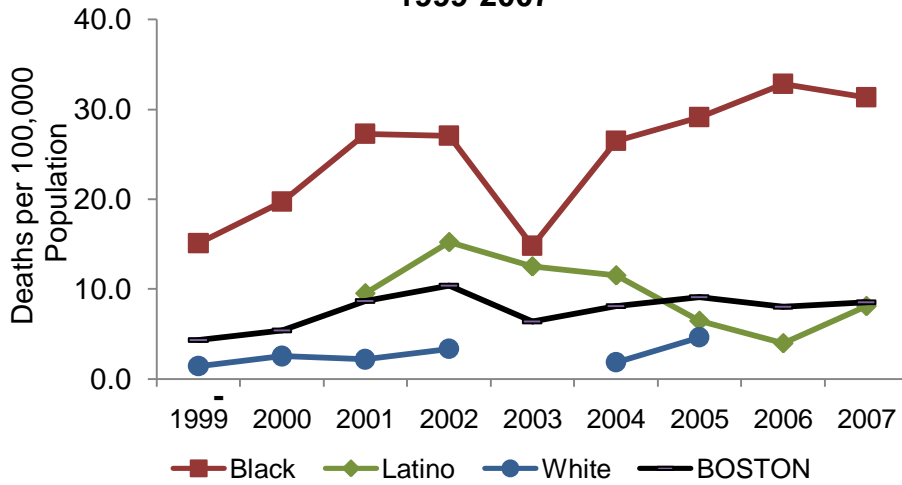
In 2007, 88% of Boston homicide victims were males. The homicide rate for Boston males was about seven times the rate for females.

Both the homicide rate for Boston males and females increased slightly from 2006 to 2007.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 13.20 Homicide by Race/Ethnicity 1999-2007

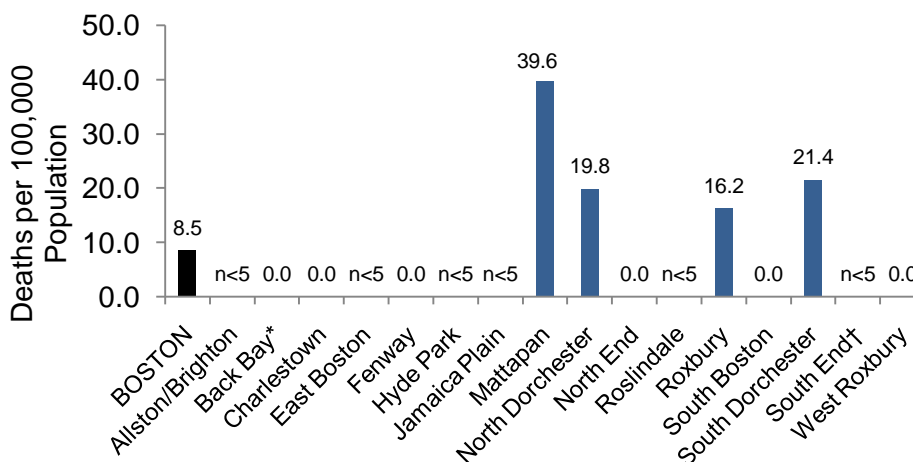


The homicide rate for Black Boston residents exceeded that of other racial/ethnic groups for every year of the nine-year period. Between 1999 and 2007, more than two-thirds of Boston homicides were Black residents.

The 2007 homicide rate for Black residents was almost 4 times the rate for Latinos and the Boston overall rate.

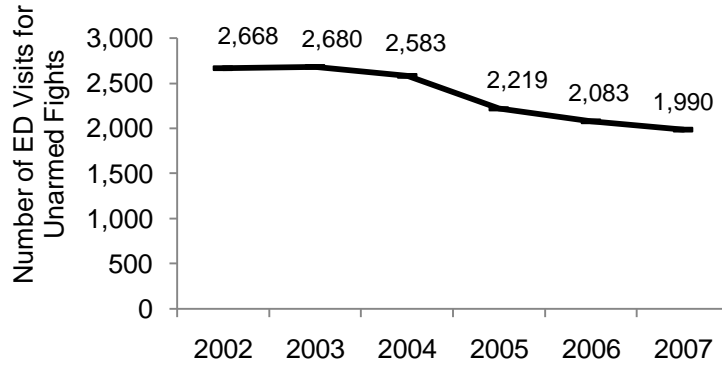
In 2007, four Boston neighborhoods had five or more homicides (permitting the calculation of age-adjusted homicide rates): Mattapan, North Dorchester, Roxbury, and South Dorchester. Mattapan had the highest homicide rate (4.7 times the rate for Boston overall).

Figure 13.21 Homicide by Neighborhood, 2007



202 For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

Figure 13.22 Emergency Department Visits for Unarmed Fights, 2002-2007



From 2003 through 2007, the number of ED visits for unarmed fights declined 25.7%.

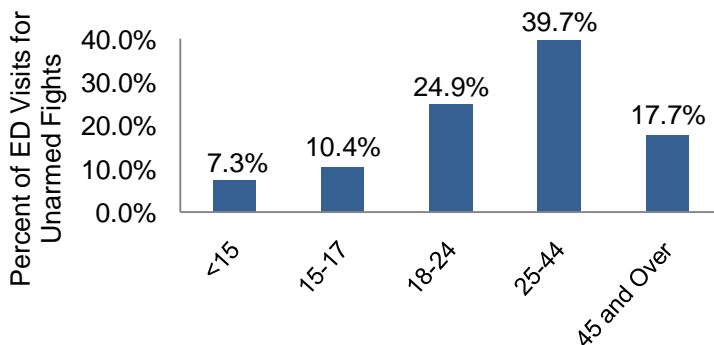
An injury resulting from an unarmed fight is considered intentional (not an accident). In 2007, emergency department (ED) visits for unarmed fights accounted for 41% of all ED visits for intentional injuries (data not shown).

Figure 13.23 Emergency Department Visits for Unarmed Fights by Gender, 2007



In 2007, the percentage of emergency department visits for unarmed fights made by males was 1.7 times higher than for females.

Figure 13.24 Emergency Department Visits for Unarmed Fights by Age, 2007

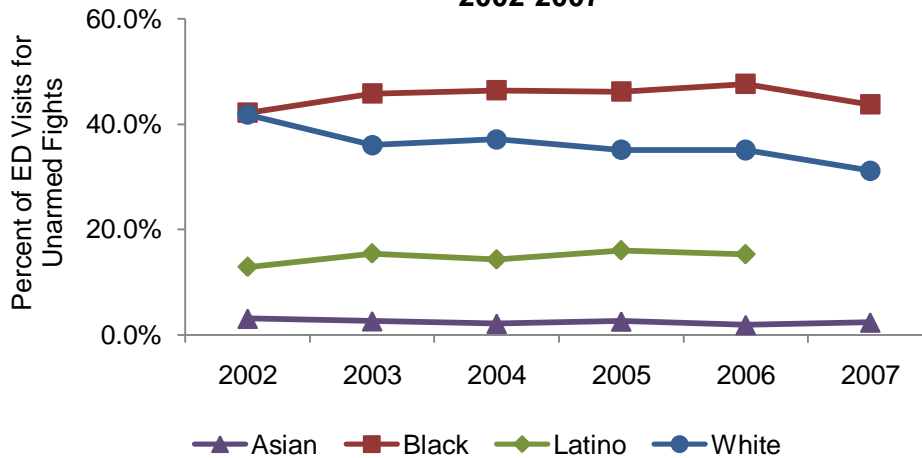


In 2007, Boston residents between the ages of 25 and 44 had the greatest percentage of emergency visits for unarmed fights, followed by those between the ages of 18 and 24.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see Notes, Data Source, and Data Analysis at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 13.25 Emergency Department Visits for Unarmed Fights by Race/Ethnicity 2002-2007



From 2002 through 2007, Blacks made more visits to the emergency department (ED) as a result of injuries from unarmed fights than other races/ethnicities. In 2007, almost half of such visits were made by Black residents.

From 2006 to 2007, the percentage of ED visits decreased slightly for both Blacks and Whites.

Summary: Violence

Violence indicators for Boston reveal patterns very similar to the national experience and experiences of other large urban cities. These patterns reflect the complexity of addressing a public health problem such as violence. Overall, Boston's violence data show with few exceptions, little evidence of improved rates or sustained declines during the past decade. Violence in Boston continues to disproportionately impact males, certain age and racial/ethnic groups, and neighborhoods.

In 2007, more than 86% of Boston nonfatal assault-related gunshot and stabbing victims were male as well as 88% of homicide victims. In 2005 and 2007, about 25% of male Boston public high school students reported weapon-carrying during the past month, and a higher percentage of male than female students reported being threatened or injured with a weapon at school.

Boston residents ages 15-24 accounted for almost 50% of the nonfatal assault-related gunshot and stabbing victims in 2007 and 53% of homicides in 2007 (slightly higher than in 2006).

In 2007, the nonfatal assault-related gunshot and stabbing victim rate for Black residents was 11 times the rate for White residents and more than two and a half times the rate for Boston overall. Black residents continue to represent the overwhelming majority of homicides. In 2007, Black residents accounted for 80% of all resident homicides. Additionally, a higher percentage of Black students than White students reported being threatened or injured with weapons at school.

In 2007, North Dorchester and Roxbury residents had the highest rates of nonfatal

gunshot and stabbing injuries (twice the rate for Boston overall). The rates for Mattapan, South Dorchester, and the South End were also higher than for Boston overall. Except for the South End, these same neighborhoods also had the highest homicide rates.

Neighborhoods with higher rates of nonfatal assault-related victims and homicides, also expressed greater concern about the violence in their neighborhoods. In 2008, although 12% of adult residents in Boston reported believing there were more guns in their neighborhoods than a year prior, the percentage was significantly higher in Mattapan (23%) and North Dorchester (23%). In addition, more than a third of Mattapan and North Dorchester residents reported gunshots and shootings as being a big problem in their neighborhoods, as did almost a third of Roxbury residents.

Violence is a public health issue that continues to affect the health and well-being of Boston residents. Residents, communities, organizations, and local agencies must work together to devise a comprehensive violence prevention strategy that tackles this complex issue from all conceivable angles.



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Notes, Data Source, and Data Analysis

Figure 13.1

NOTE: Survey question reads, “During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club?”

DATA SOURCE: Youth Risk Behavior Survey 2001, 2003, 2005, and 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.2

NOTE: Survey question reads, “During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club?”

DATA SOURCE: Youth Risk Behavior Survey 2005 and 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.3

NOTE: Survey question reads, “During the past 30 days, on how many days did you not go to school because you felt you would be unsafe at school or on your way to or from school?”

DATA SOURCE: Youth Risk Behavior Survey 2005 and 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.4

NOTE: Survey question reads, “During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?”

DATA SOURCE: Youth Risk Behavior Survey 2001, 2003, 2005, and 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.5

NOTE: Survey question reads, “During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?”

DATA SOURCE: Youth Risk Behavior Survey 2005 and 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.6

NOTE: Survey question reads, “During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?”

DATA SOURCE: Youth Risk Behavior Survey 2005 and 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.7

NOTE: Survey question reads, “Have you ever been hurt physically by a date or someone you were going out with?”

DATA SOURCE: Youth Risk Behavior Survey 2001, 2003, 2005 and 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.8

NOTE: Survey question reads, "Have you ever been hurt physically by a date or someone you were going out with?"

DATA SOURCE: Youth Risk Behavior Survey 2005 and 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.9

NOTE: Survey question reads, "During your life time as an adult, since turning 18 years old, have you experienced any physical violence?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2001, 2003, 2005, and 2007 Boston Behavioral Risk Factor Surveillance Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.10

*includes Beacon Hill, Downtown, and the West End

†Includes Chinatown

NOTE: Survey question reads, "Compared to 1 year ago, do you think there are more guns in your neighborhood now?"

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 13.11

*includes Beacon Hill, Downtown, and the West End

†Includes Chinatown

NOTE: Survey question reads, "In your neighborhood, how much of a problem is gunshots and shootings?"

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 13.12

*includes Beacon Hill, Downtown, and the West End

†Includes Chinatown

NOTE: Survey question reads, "As far as you know, are there any gangs operating in your neighborhood?"

DATA SOURCE: Boston Neighborhood Survey, 2008; Harvard Youth Violence Prevention Center through a cooperative agreement with the Centers for Disease Control and Prevention

DATA ANALYSIS: Harvard Youth Violence Prevention Center

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 13.13

NOTE: Data are presented as crude rates.

DATA SOURCE: Weapon-related injuries, Massachusetts Department of Public Health, Weapon-Related Injury Surveillance System

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation

Figure 13.14

NOTES: Data are presented as crude rates. These data do not include persons whose gender was not reported, except in the Boston overall rate.

DATA SOURCE: Weapon-related injuries, Massachusetts Department of Public Health, Weapon-Related Injury Surveillance System

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation

Figure 13.15

NOTES: Data are presented as crude rates. These data do not include persons whose age was not reported, except in the Boston overall rate.

DATA SOURCE: Weapon-related injuries, Massachusetts Department of Public Health, Weapon-Related Injury Surveillance System

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation

Figure 13.16

NOTES: Data are presented as age-specific rates. These data do not include persons whose race/ethnicity was not reported or was "Other", except in the Boston overall rate.

DATA SOURCE: Weapon-related injuries, Massachusetts Department of Public Health, Weapon-Related Injury Surveillance System

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation

Figure 13.17

* Includes Beacon Hill, Downtown, the North End, and the West End

† Includes Chinatown

NOTES: Data are presented as crude rates. These data do not include homeless persons or individuals whose neighborhood of residence was not reported, except in the Boston overall rate.

DATA SOURCE: Weapon-related injuries, Massachusetts Department of Public Health, Weapon-Related Injury Surveillance System

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation

Figure 13.18

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.19

NOTES: Data are presented as age-adjusted rates. These data do not include persons whose gender was not reported, except in the Boston overall rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.20

NOTES: Data are shown as age-adjusted rates. These data do not include persons whose race/ethnicity was not reported or was "Other", except in the Boston overall rate. Rates are not presented for Asians due to their small number of homicides. Rates are not presented for Latinos in 1999 and 2000 and for Whites in 2003, 2006, and 2007 due to their small number of homicides.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.21

* Includes Beacon Hill, Downtown, and the West End †Includes Chinatown

NOTES: Data are presented as age-adjusted rates. These data do not include homeless persons or individuals whose neighborhood of residence was not reported, except in the Boston overall rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation

Figure 13.22

NOTE: Results that are shown for 2007 are based on preliminary data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.23

NOTE: Results that are shown are based on preliminary data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.24

NOTE: Results that are shown are based on preliminary data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 13.25

NOTE: Results that are shown for 2007 are based on preliminary data. A rate cannot be presented for Latinos in 2007 because of enactment of new reporting requirements that resulted in the availability of only 6 months of data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Section 14: Chronic Diseases

Asthma, high blood pressure, cardiovascular disease, and diabetes are common chronic diseases that affect the lives of many Boston residents. Cancer, heart disease, and stroke are among the leading causes of death among Boston residents. In addition to their impact on the overall physical health of an individual, chronic diseases can impact every aspect of an individual's life including relationships with family and friends, education and employment, level of physical activity, emotional health, and financial well-being. Through their impact on these and other aspects of life, chronic diseases can lead to significant disability, a reduction in the quality of life, and ultimately, death.

Chronic diseases are among the most common and most costly health conditions, but they are also amongst the most preventable (1). Individuals, communities, health care providers, and local agencies must work together to enhance prevention efforts and better integrate the medical and psychosocial management of chronic diseases. It is well known that certain behaviors such as eating healthy and nutritious foods, exercising regularly, avoiding tobacco, and limiting alcohol consumption, can help to prevent the onset of certain chronic diseases. Access to affordable fresh fruits and vegetables and safe outdoor spaces, such as parks and playgrounds, makes it possible for individuals to engage in health-promoting behaviors. Visiting a health care provider regularly for routine screening and early detection of disease also aids in prevention. Communities and local agencies must work to support these healthy behaviors, ensure healthy environments, and facilitate positive choices. For instance, promoting farmers markets and community gardens improves access to fresh fruits and vegetables. Local agencies and health

providers must work with communities to provide health education and raise awareness about prevention and risk factors, increase disease screening within the community, and provide integrated chronic disease care. Prevention and appropriate disease management are critical to successfully combating these debilitating and sometimes deadly diseases.

This section provides information on poor physical health and the prevalence and hospitalization rates for asthma, diabetes, and heart disease. Information on the prevalence of overweight and obesity is also included as these are major risk factors for many chronic diseases.

Healthy People 2010 Targets (2, 3, 4) :

Reduce asthma hospitalization for children under age 5 to 2.5 per 1000 population.

Reduce asthma hospitalization for individuals age 5-64 to 5.0 per 1000 population.

Reduce hospital emergency department visits for asthma for children under age 5 to 8.0 per 1000.

Reduce the proportion of adults with high blood pressure to 16%.

Reduce the proportion of children and adolescents (aged 6 to 19 years) who are overweight or obese to 5%.

Reduce the proportion of adults who are obese to 15%.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

About one in thirteen Boston adults reported poor physical health (physical health not good 15 or more days during the past month) in 2005 and 2006.

In reporting poor physical health, there were no significant differences among racial/ethnic groups.

A similar percentage of adult females and males reported poor physical health (physical health not good 15 or more days during the past month).

A lower percentage of Asian females reported poor physical health (physical health not good 15 or more days during the past month) than White females and Latino females.

Figure 14.1 Physical Health Not Good 15+ Days of Past Month by Race/Ethnicity, 2005 and 2006



Figure 14.2 Physical Health Not Good 15+ Days of Past Month by Gender, 2005 and 2006

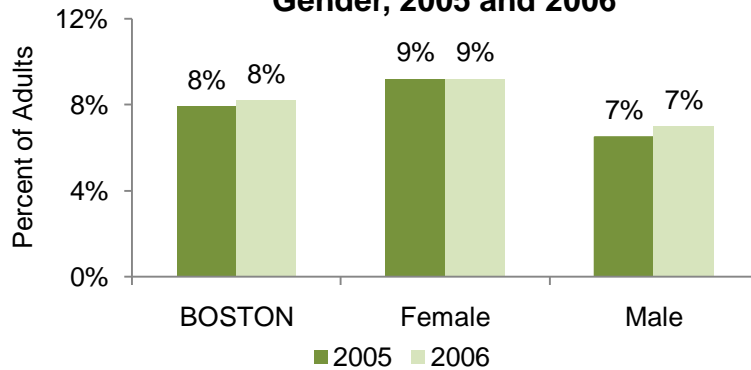
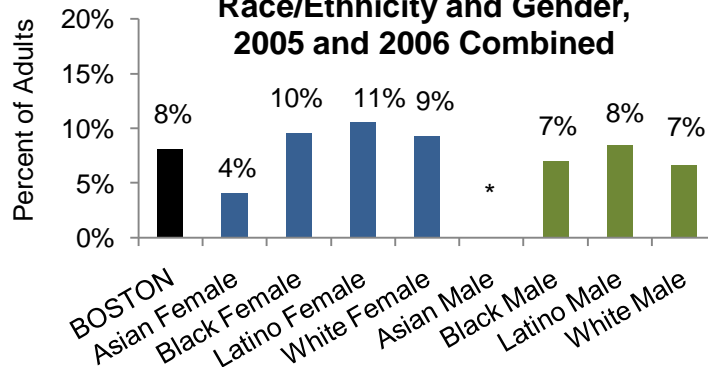


Figure 14.3 Physical Health Not Good 15+ Days of Past Month by Race/Ethnicity and Gender, 2005 and 2006 Combined



What is Asthma?

Asthma is a chronic respiratory disease characterized by episodes of coughing, wheezing, difficulty breathing, and chest tightness. The symptoms of asthma result from inflammation and narrowing of small airways in response to environmental triggers (5). An asthma attack can be triggered by many factors including allergens (mold, pet dander, dust mites, and cockroaches), certain chemicals, exposure to tobacco smoke, and infections. Asthma can be well controlled by avoiding triggers, adhering to maintenance medication, identifying and treating attacks early, and developing an asthma action plan with a health care provider (5).

Population at greatest risk

Young children are at risk for developing asthma. Obesity, a family history of asthma, allergies, and exposure to allergens such as dust mites and second-hand smoke can increase an individual's risk of developing asthma (5). Among racial/ethnic groups in the United States, Puerto Ricans have the highest prevalence of lifetime asthma followed by Blacks and American Indians (6).

Prevention

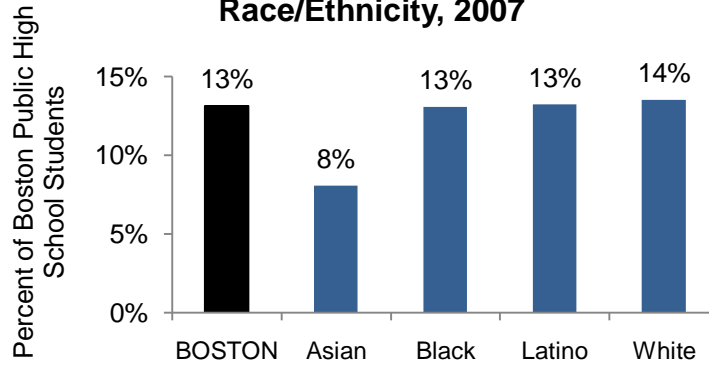
Though asthma cannot be cured, it can be controlled by avoiding contact with the asthma “triggers” mentioned above. Continuous monitoring of the disease, patient education, and having a medical management plan is recommended (5). Creating healthy environments in homes and neighborhoods that reduce exposure to known triggers is an essential component of effective asthma management plan and

requires the full participation of city departments, community-based organizations, and families. Workplace tobacco control regulations that limit exposure to second hand smoke are effective in reducing exposure in work environments.



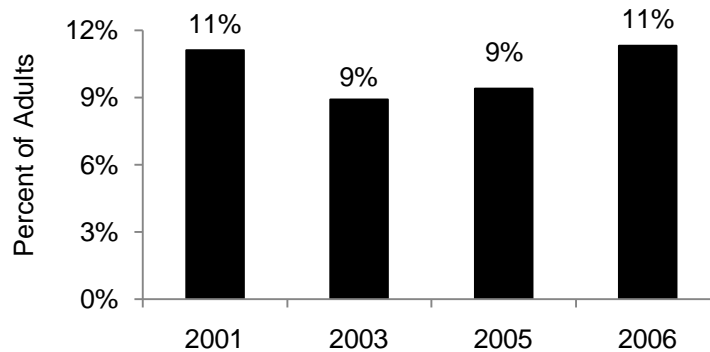
The percentage of Boston high school students who reported that they currently have asthma was similar across racial/ethnic groups.

Figure 14.4 Asthma Among High School Students by Race/Ethnicity, 2007



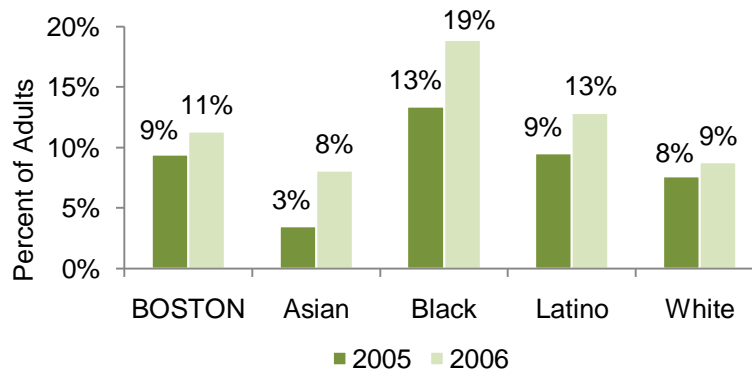
The percentage of adults who reported that they have asthma was similar in 2001, 2003, 2005 and 2006, and ranged from 9% to 11%.

Figure 14.5 Asthma in Adults 2001, 2003, 2005, and 2006



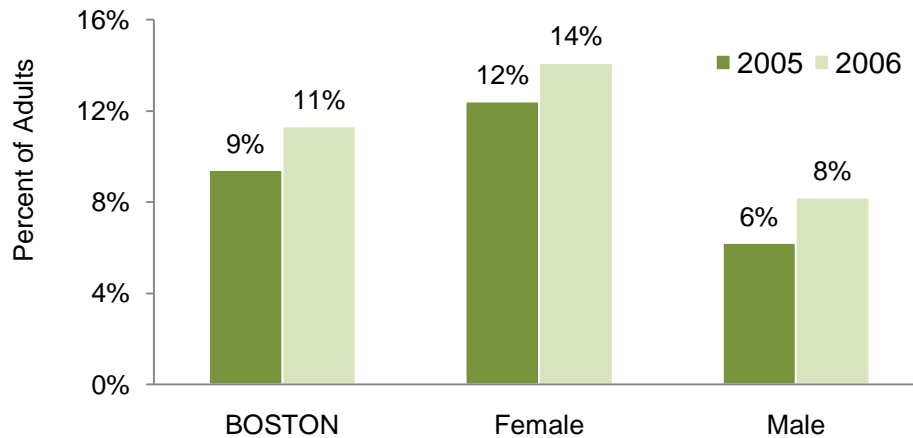
A higher percentage of Black adults reported having asthma than White adults in 2005 and 2006.

Figure 14.6 Asthma in Adults by Race/Ethnicity, 2005 and 2006



In 2006, almost one in five Black adults (19%) reported having asthma.

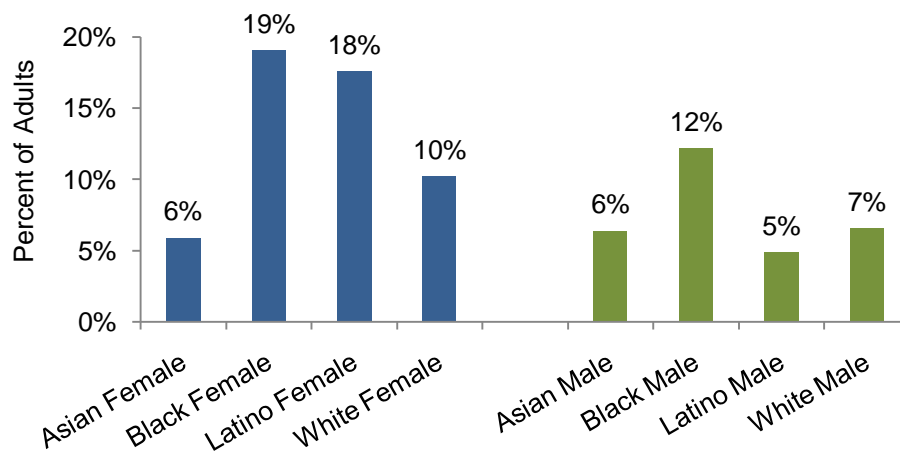
Figure 14.7 Asthma in Adults by Gender, 2005 and 2006



A higher percentage of women than men reported having asthma in 2005 and 2006.

Approximately one in five Black women and one in eight Black men reported having asthma. Higher percentages of Black and Latino women reported having asthma than White and Asian women. Self-reported asthma was statistically similar among Asian, Black, Latino and White men.

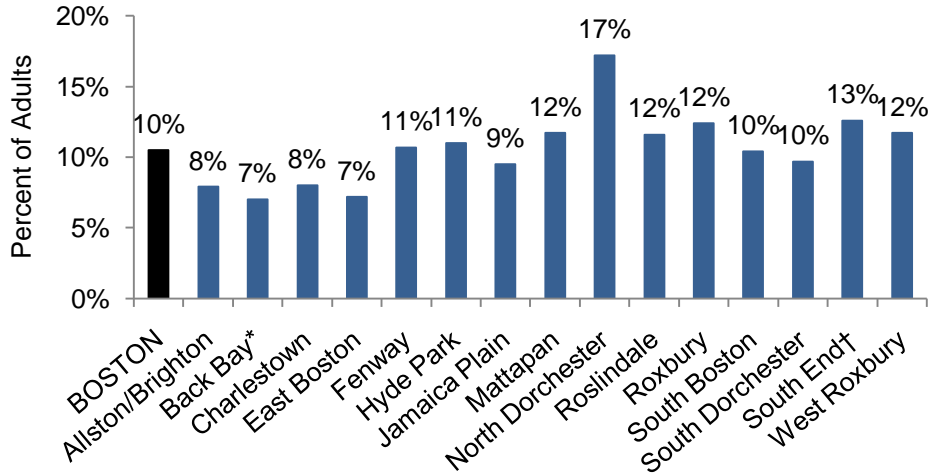
Figure 14.8 Asthma in Adults by Race/Ethnicity and Gender, 2005 and 2006 Combined



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 14.9 Asthma in Adults by Neighborhood, 2005 and 2006 Combined



Across Boston neighborhoods, 7% to 17% of adults reported having asthma.

For all neighborhoods, the percentage of adults with asthma was statistically similar to Boston overall.

The heaviest burden of asthma hospitalization is borne by children under age five. In 2007, the asthma hospitalization rate for the youngest Boston children was four times the rate for Boston overall.

Adults between the ages of 18 and 44 had the city’s lowest asthma hospitalization rate.

Figure 14.10 Asthma Hospitalizations by Age Group, 2007

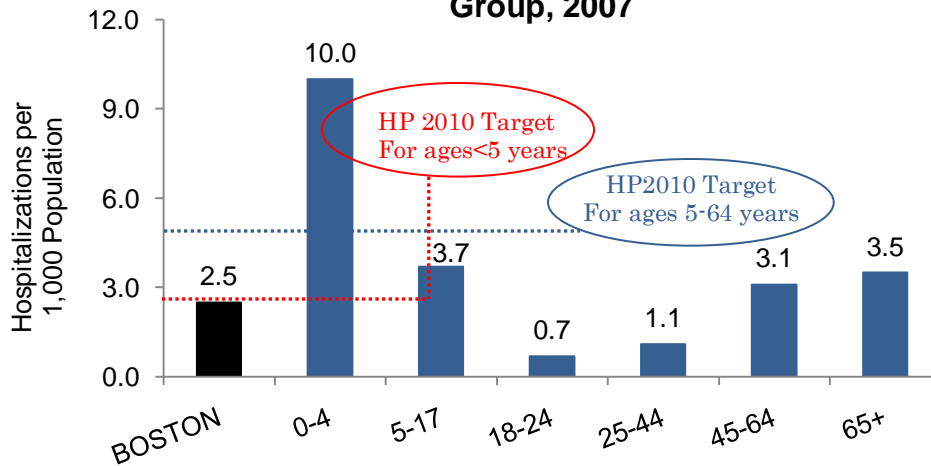
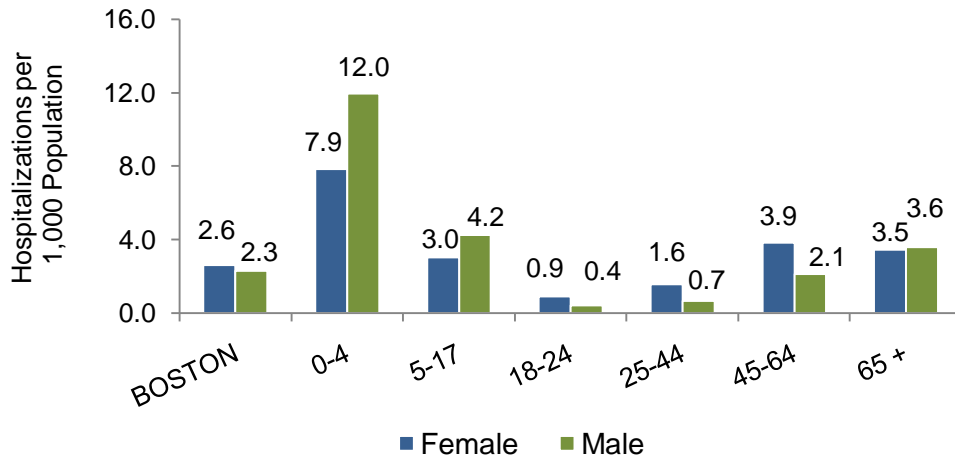


Figure 14.11 Asthma Hospitalizations by Age Group and Gender, 2007

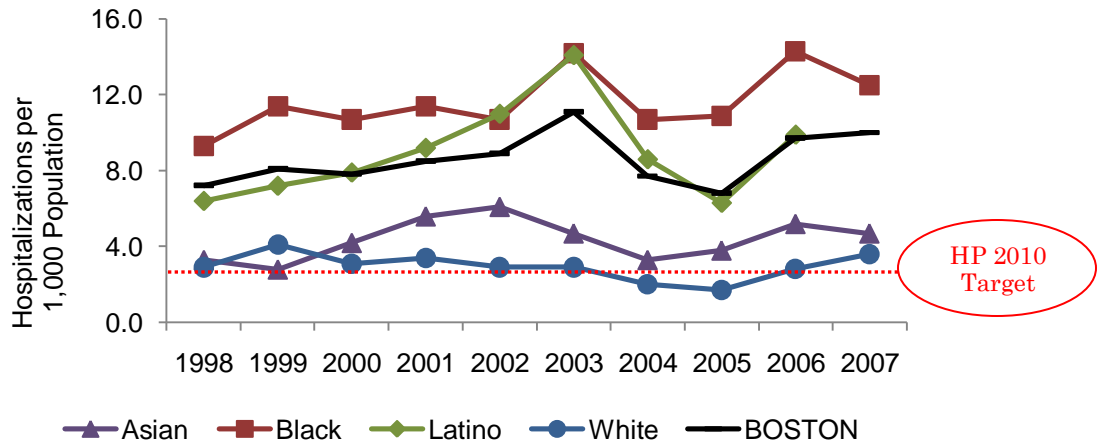


Among age groups, children under the age of five had the highest burden of asthma hospitalization. Within this age group, male children had a higher rate than female children. Males in the age group of 18 to 24 had the lowest asthma hospitalization rate.

In 2007, the asthma hospitalization rate for Boston’s Black children under age five was almost three times the rate for Asian children and three and a half times the rate for White children (Latino data unavailable for 2007).

With the exception of 2002, Black children consistently had the highest asthma hospitalization rate from 1998 through 2007. Over the nine-year period 1998-2006, Asian and White children had lower asthma hospitalization rates than Latino and Black children.

Figure 14.12 Asthma Hospitalizations of Children Under Age 5 by Race/Ethnicity, 1998-2007



HP 2010 Target

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

For combined years 2005-2007, the average asthma hospitalization rate for children under the age of five was highest in Roxbury, followed by North Dorchester and Mattapan. The rate for these neighborhoods, as well as two other Boston neighborhoods, exceeded the citywide average rate of 8.8 asthma hospitalizations per 1,000 population for 2005-2007 combined.

The rate for Roxbury was approximately 73% higher than the overall Boston rate for children under age five.

From 2002 to 2007, the rate of asthma-related hospital emergency department visits for children under age five varied slightly.

Figure 14.13 Asthma Hospitalizations for Children Under Age 5 by Neighborhood, 2005, 2006 and 2007 Combined

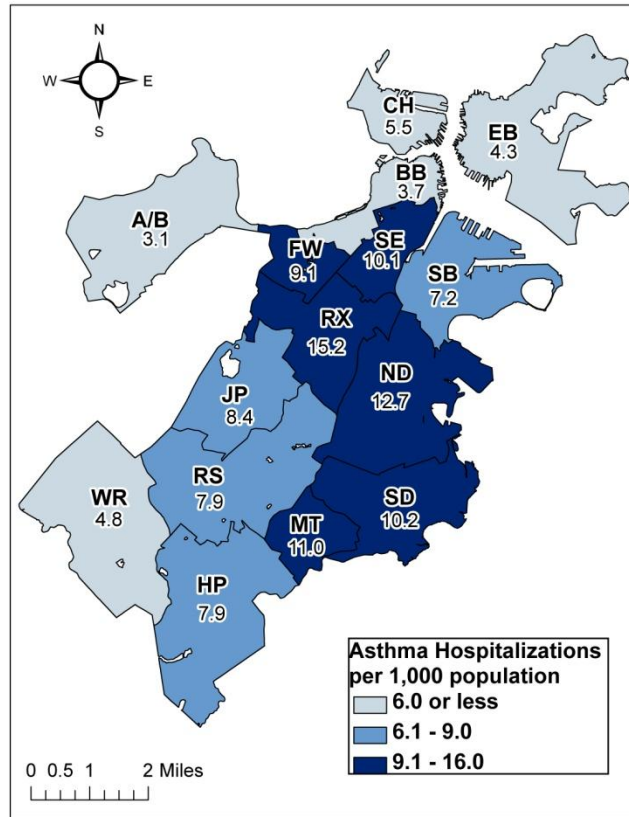
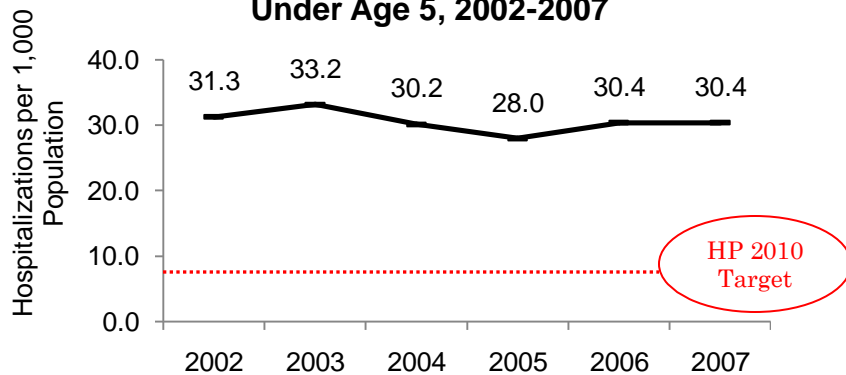


Figure 14.14 Asthma Emergency Department (ED) Visits for Children Under Age 5, 2002-2007



What is Diabetes?

Diabetes Mellitus is a group of diseases in which the body cannot effectively regulate blood glucose (sugar) due to deficiencies in producing or utilizing a hormone called insulin. There are several types of diabetes including type 1 diabetes, type 2 diabetes, and gestational diabetes. Type 2 diabetes is the most common type of diabetes and will be the focus of this section. Type 2 diabetes occurs when the body loses the ability to use the insulin that it produces effectively, leading to higher levels of blood glucose (7). In a diabetic person, the body, which normally uses glucose as the source of energy for all of its functions, cannot use the available glucose. This leads to several initial symptoms such as frequent urination, excessive thirst, weight loss, fatigue and extreme hunger. Poorly controlled diabetes can lead to several debilitating complications including blindness, kidney damage, stroke, peripheral vascular disease, and heart disease including heart attack (7). The risk of complications can be lowered by controlling blood sugar, blood pressure, and blood lipid levels.

Population at greatest risk

Individuals at increased risk are those with a family history of diabetes (having a parent, brother or sister with diabetes), older aged individuals, racial and ethnic minorities (African-American, American Indian, Asian-American, Pacific Islander, or Hispanic-American/Latino heritage), those who are overweight or obese, and those with high blood pressure or high cholesterol (8).

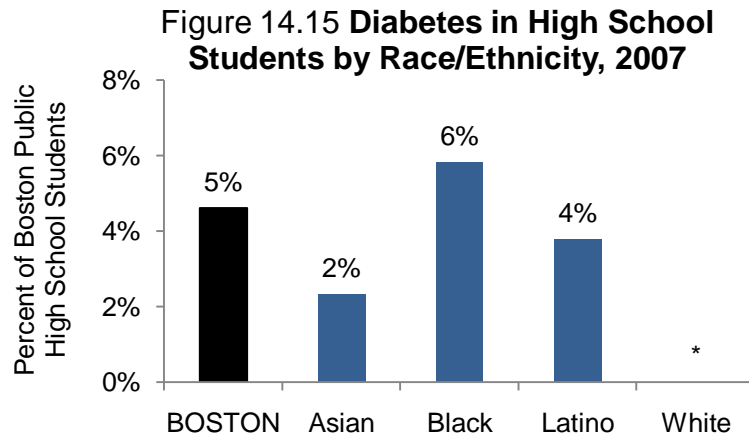
Prevention

Lifestyle changes can delay or prevent the onset of diabetes, and help control diabetes

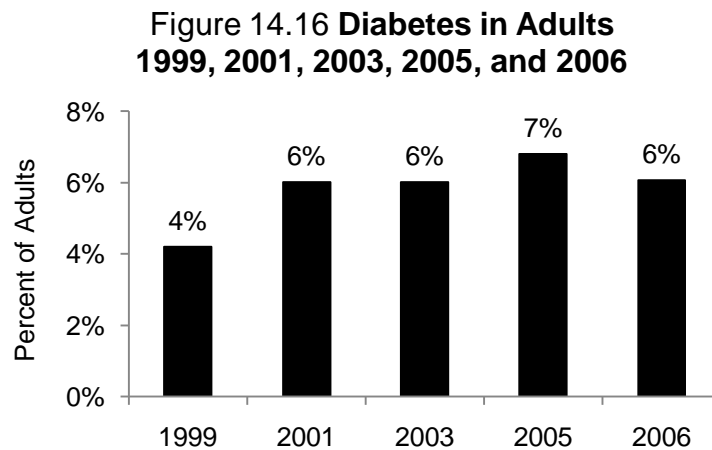
once diagnosed. Eating a healthy diet, maintaining a healthy weight, and exercising regularly can help prevent diabetes. In addition, controlling blood sugar levels, reducing the consumption of alcohol, quitting cigarette smoking, and maintaining normal cholesterol and blood pressure may reduce the risk of complications from diabetes (9).



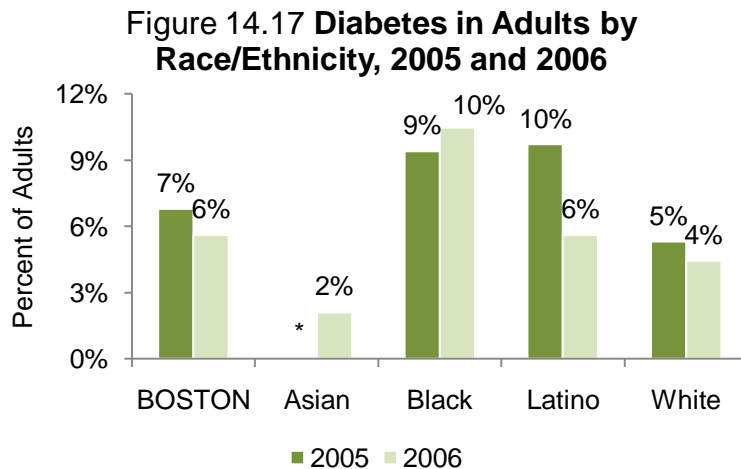
In 2007, the percentage of Boston public high school students who reported ever being told they had diabetes was similar across racial/ethnic groups.



Over several years, approximately one in seventeen Boston adults had been told she/he has diabetes.



Approximately one in ten Black adults reported having diabetes, compared to one in twenty White adults.



A higher percentage of Black adults than Asian, Latino and White adults reported having diabetes in 2006.

Figure 14.18 Diabetes in Adults by Gender, 2005 and 2006

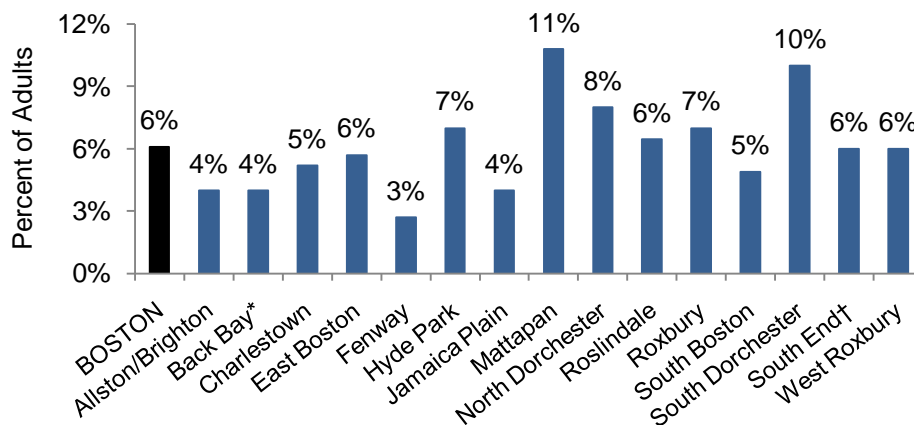


In both 2005 and 2006, the percentage of women and men who reported having diabetes was similar.

A lower percentage of adult residents in Back Bay, Fenway and Jamaica Plain reported having diabetes than Boston adults overall.

A higher percentage of South Dorchester adults reported having diabetes than Boston overall. The percentage of Mattapan adults with diabetes was statistically similar to that of Boston overall.

Figure 14.19 Diabetes in Adults by Neighborhood, 2005 and 2006 Combined



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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Between 1998 and 2007, the hospitalization rate for diabetes increased by 33%.

Adults ages 65 and over experienced the heaviest burden of diabetes hospitalization. In 2007, the diabetes hospitalization rate for this age group was more than three times the overall Boston rate.

Children (under age 18 years) had the city's lowest diabetes hospitalization rate.

In 2007, males had a higher diabetes hospitalization rate than females.

Figure 14.20 Diabetes Hospitalizations, 1998 - 2007

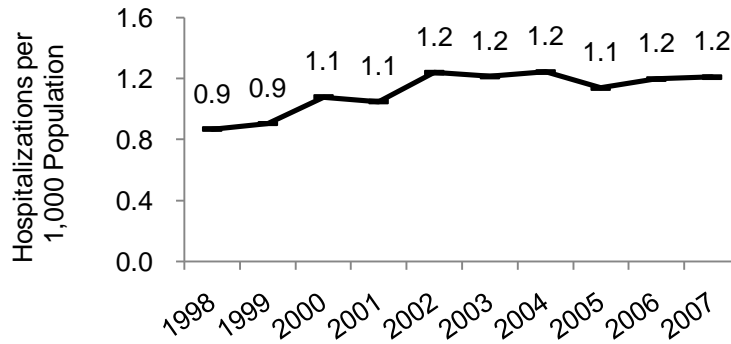


Figure 14.21 Diabetes Hospitalizations by Age Group, 2007

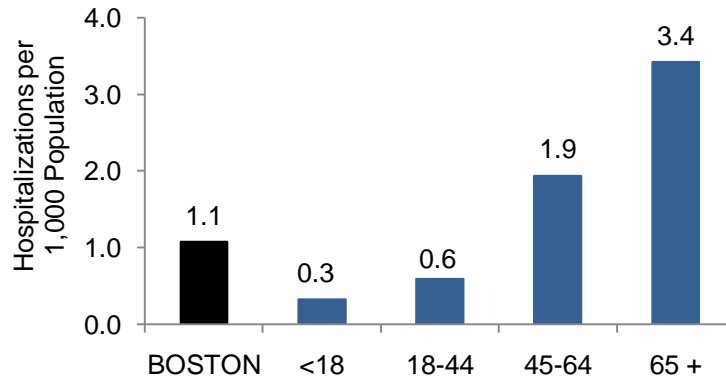
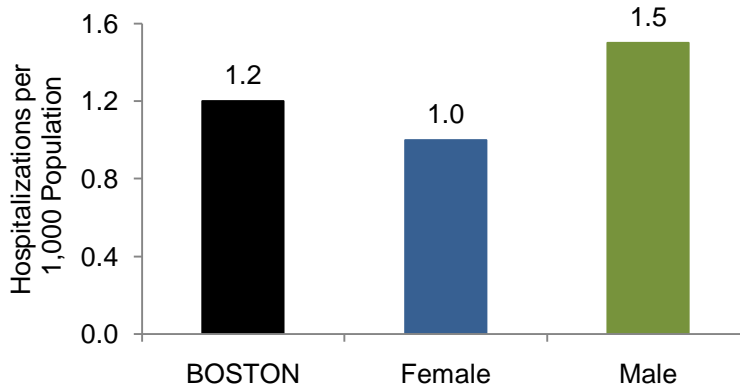
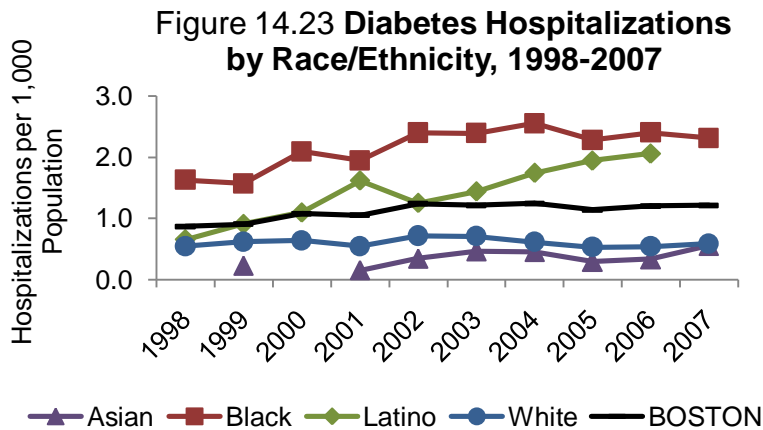


Figure 14.22 Diabetes Hospitalizations by Gender, 2007

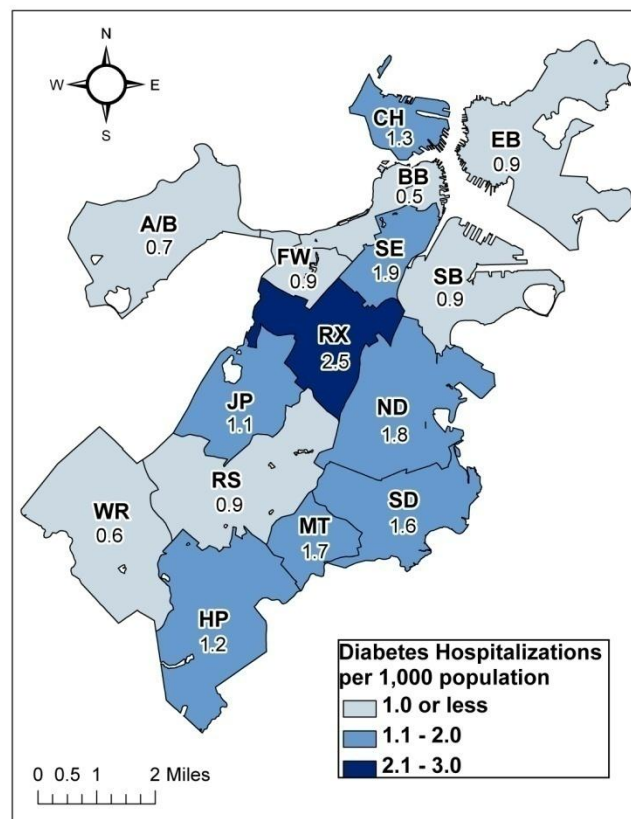




Among racial/ethnic groups, Black Bostonians consistently had the highest diabetes hospitalization rate from 1998 through 2007. However, the rate for Latinos increased 200% from 1998 to 2006 (Latino data are unavailable for 2007).

In 2007, the diabetes hospitalization rate for Blacks was almost four times the rate for Asians and Whites.

Figure 14.24 Diabetes Hospitalizations by Neighborhood, 2005, 2006 and 2007 Combined



During the period from 2005-2007, six Boston neighborhoods had a higher average diabetes hospitalization rate than the overall Boston rate (1.2 per 1,000 population). Roxbury's rate was the highest, followed by the South End.

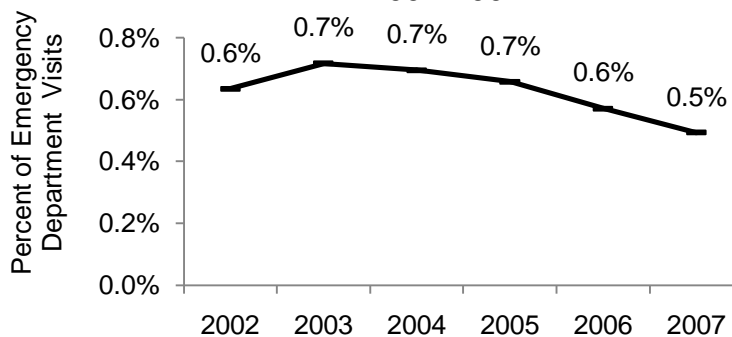
The rate for Roxbury was more than double the overall Boston rate.

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From 2002 to 2007, the percentage of diabetes-related emergency department visits varied slightly.

Figure 14.25 Diabetes Emergency Department Visits for All Ages 2002-2007



What is Heart Disease?

Heart disease is one of the leading causes of death for Boston residents. The term *heart disease* includes several heart conditions, such as coronary artery disease, angina, heart failure, and arrhythmias. The most common type of heart disease in the United States is coronary artery disease (CAD) (10). CAD is a narrowing of the blood vessels which supply the heart and can lead to heart attack. Each type of heart disease can have different symptoms, although some symptoms are common to multiple conditions. Heaviness or pressure in the chest, shortness of breath, dizziness, sweating, and nausea are common symptoms of coronary artery disease. High blood pressure, high blood cholesterol, cigarette smoking, diabetes, and obesity are the most important risk factors for coronary artery disease (10).

Population at greatest risk

Heart disease is the leading cause of death for both men and women in the US and accounts for about 30% of all deaths (11). It is also the leading cause of death for all racial and ethnic groups except for Asians and Pacific Islanders, for whom it is the second leading cause of death (11).

Prevention

Preventing, treating or controlling high blood pressure, high blood cholesterol and diabetes, avoiding tobacco, reducing stress, exercising regularly, maintaining a healthy weight, and eating nutritious food can help prevent heart disease (12). Regulations that eliminate artificial trans-fats from prepared foods support heart healthy choices.

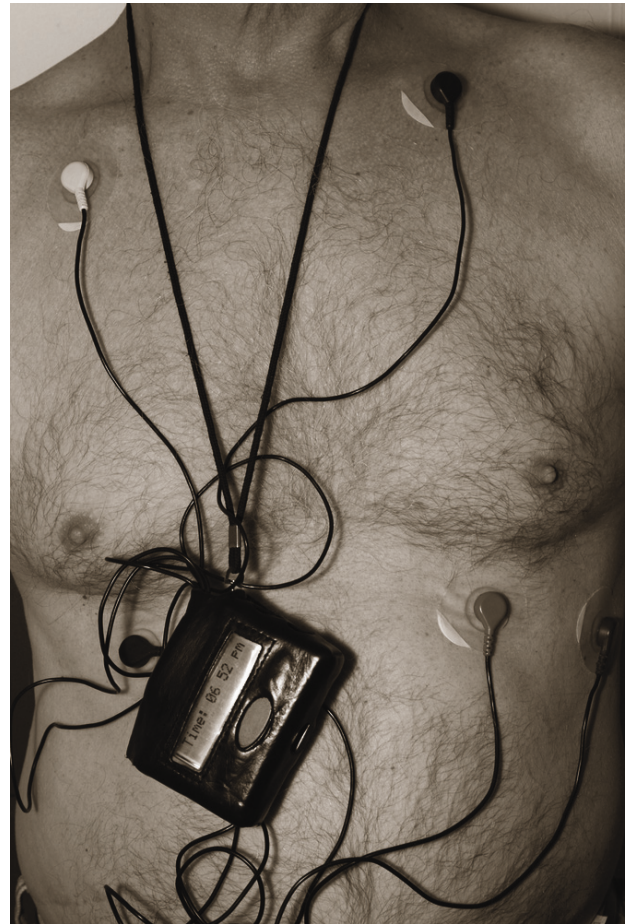


Figure 14.26 Heart Disease Hospitalizations, 1998-2007

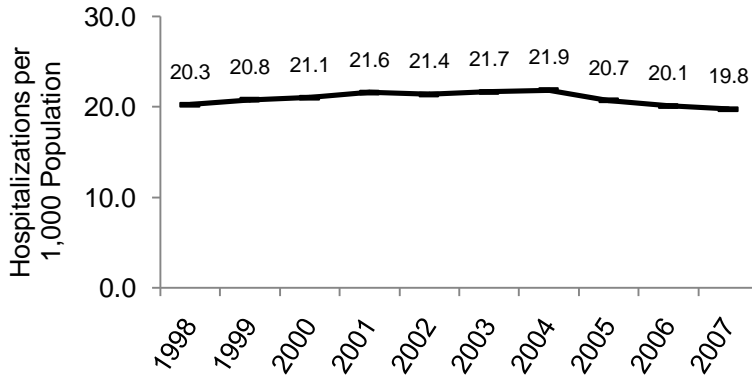


Figure 14.27 Heart Disease Hospitalizations by Race/Ethnicity 1998-2007

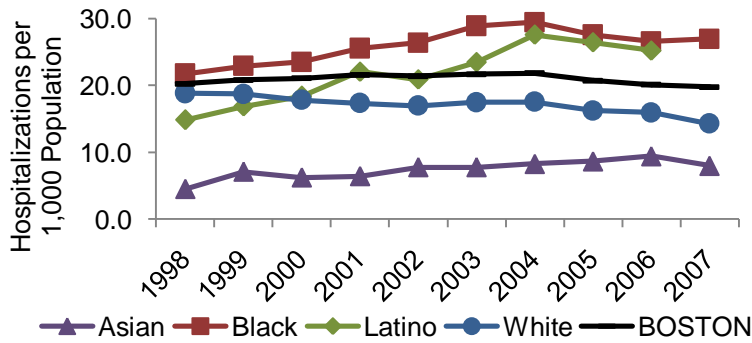
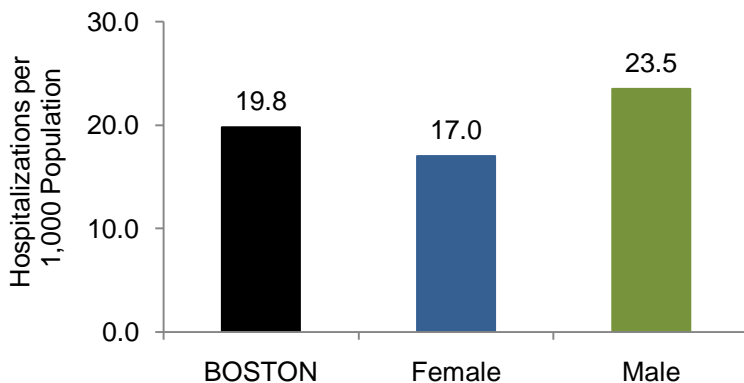


Figure 14.28 Heart Disease Hospitalizations by Gender, 2007



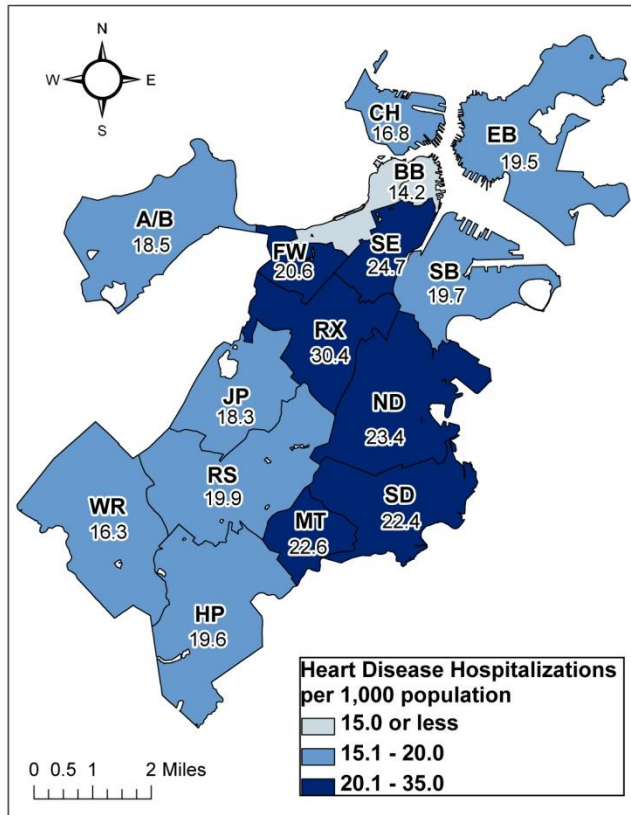
From 1998 to 2007, the heart disease hospitalization rate remained fairly stable.

Black residents have consistently had the highest heart disease hospitalization rate from 1998 through 2007.

From 1998 to 2004, the rate for Latinos increased 87%. From 2004 to 2006, the Latino rate was similar to the higher rate experienced by Black residents (Latino data are unavailable for 2007).

In 2007, Boston's male population had almost a 40% higher rate for heart disease hospitalization than females.

Figure 14.29 Heart Disease Hospitalizations by Neighborhood, 2005, 2006 and 2007 Combined

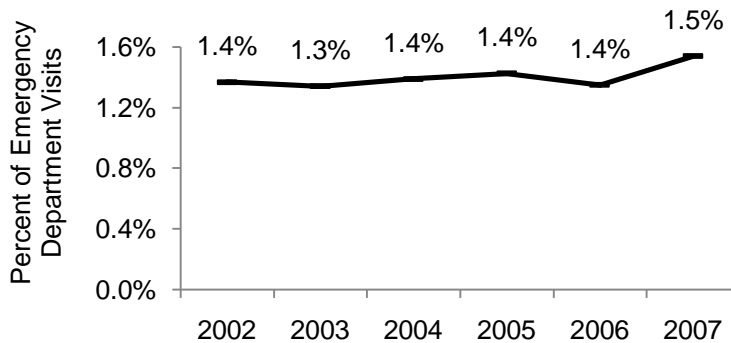


During the combined years 2005-2007, six Boston neighborhoods had a higher average heart disease hospitalization rate than the average overall Boston rate of 20.2 per 1,000 population.

Roxbury's rate was the highest, followed by the South End and North Dorchester.

The rate for Roxbury was 50% higher than the overall Boston rate.

Figure 14.30 Heart Disease Emergency Department Visits for All Ages 2002-2007



From 2002 to 2007, the percentage of annual emergency department visits due to heart disease varied slightly.

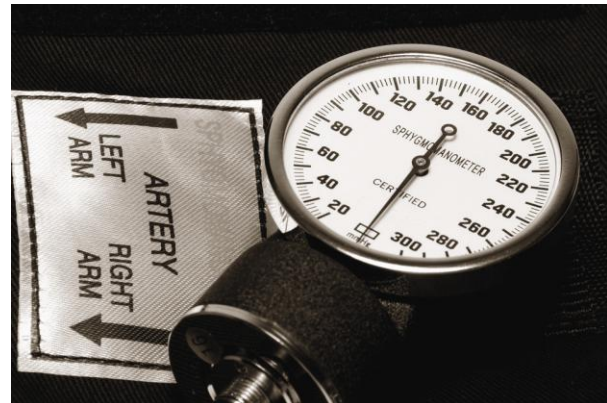
For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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What is Hypertension (high blood pressure)?

As blood is pumped through the arteries by the heart, it generates force against the walls of the arteries. This force creates pressure inside the arteries. This pressure is known as blood pressure (13). Blood pressure is recorded as two numbers: the higher number is called *systolic pressure* and the lower number is called *diastolic pressure*. Normal values are less than 120 mmHg of systolic blood pressure and less than 80 mmHg of diastolic blood pressure (13). The Centers for Disease Control and Prevention defines high blood pressure or hypertension for adults “as a systolic blood pressure of 140 mmHg or higher or a diastolic blood pressure of 90 mmHg or higher.” A person with high blood pressure may not have any symptoms until they develop a serious, often life-threatening, complication. These complications, which include heart disease, heart attacks, stroke, heart failure, kidney disease and peripheral artery disease, can be prevented through early diagnosis and management (13, 14). In Boston, heart disease and stroke are among the top five leading causes of death.

help to maintain a healthy blood pressure (13). In addition, regular check-ups with a health care provider can result in the diagnosis and management of high blood pressure prior to the development of complications.



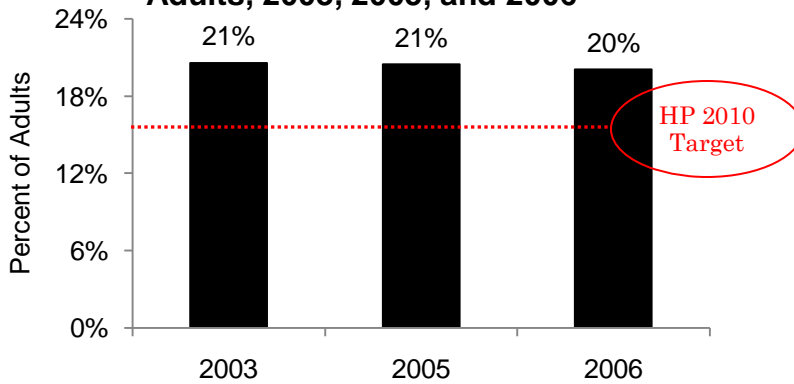
Population at greatest risk

African Americans have a higher prevalence of high blood pressure compared to other racial and ethnic populations (14). Obese individuals, heavy drinkers, and women taking birth control pills are also at increased risk (13).

Prevention

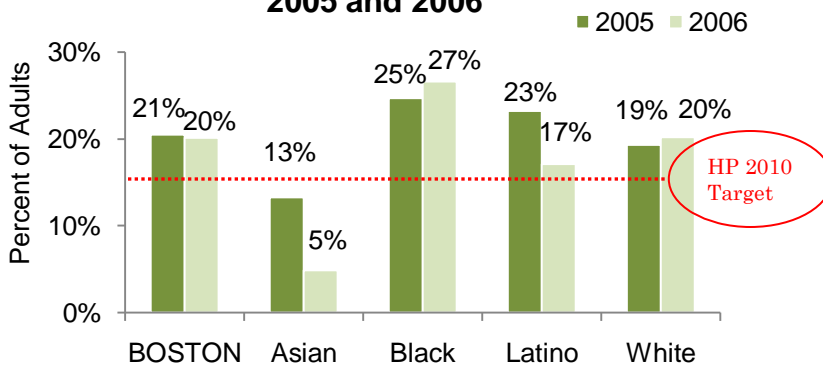
Maintaining a healthy lifestyle is the key to keeping blood pressure normal. Eating a healthy diet, doing regular physical activity, maintaining a healthy weight, avoiding tobacco and excess alcohol consumption, and controlling diabetes can

Figure 14.31 High Blood Pressure in Adults, 2003, 2005, and 2006



Across several years, approximately one in five Boston adults reported having high blood pressure.

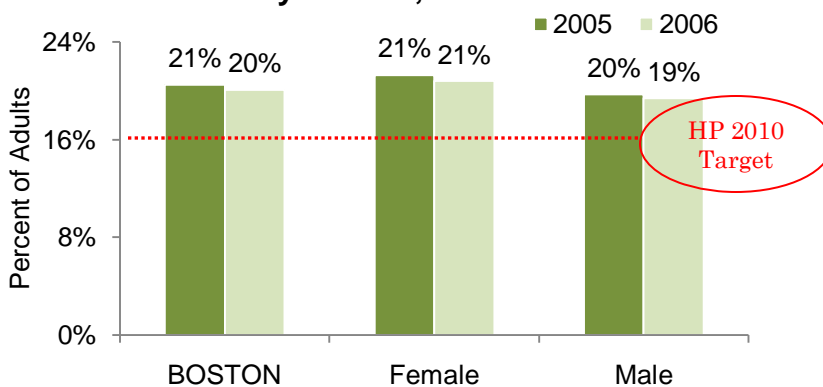
Figure 14.32 High Blood Pressure in Adults by Race/Ethnicity, 2005 and 2006



In 2005, the percentage of adults who had ever been told they had high blood pressure was similar across racial/ethnic groups.

In 2006, a higher percentage of Black adults reported having high blood pressure than Asian adults.

Figure 14.33 High Blood Pressure in Adults by Gender, 2005 and 2006

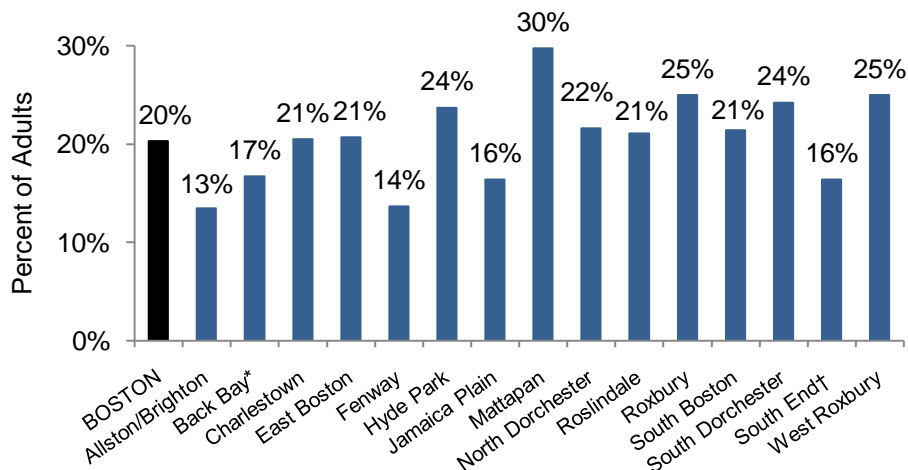


The percentage of women and men reporting high blood pressure was similar in 2005 and 2006.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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Figure 14.34 High Blood Pressure in Adults by Neighborhood, 2005 and 2006 Combined



A lower percentage of Allston/Brighton and Fenway adults reported they had high blood pressure compared to Boston adult residents overall.

Almost one-third of Mattapan adult residents reported having been diagnosed with high blood pressure.

One in four Roxbury and West Roxbury residents reported having been diagnosed with high blood pressure.

What are Overweight and Obesity?

The Centers for Disease Control and Prevention (CDC) define overweight and obesity “as ranges of weight that are greater than what is generally considered healthy for a given height”(15). A measure called the body mass index (BMI) is used to evaluate overweight and obesity. BMI is calculated using an individual’s weight and height, and is a more reliable measure of body fat than weight alone. For adults, overweight is defined as a BMI between 25 and 29.9 and obese is defined as a BMI of 30 or higher (15). For adolescents, a BMI-for-age percentile is determined. Overweight is defined as a BMI at or between the 85th and 95th percentile, and obese is defined as a BMI at or above the 95th percentile for children of the same age and sex (16).

Population at greatest risk

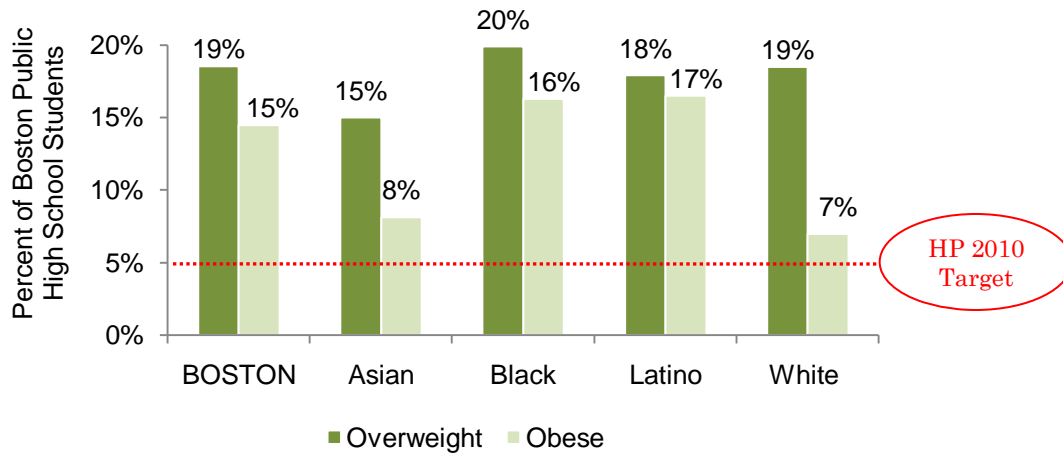
All people are at risk of becoming overweight or obese.

Prevention

Adopting health-promoting behaviors including regular physical activity and maintaining a healthy diet with appropriate caloric consumption may help maintain or reduce an individual’s weight (17). In addition to individual behaviors, communities and local agencies can facilitate maintaining a healthy weight by ensuring the availability of fresh fruits and vegetables in every community and regulating the food industry using tools such as food labeling regulations.



Figure 14.35 High School Students Who Are Overweight or Obese by Race/Ethnicity, 2007



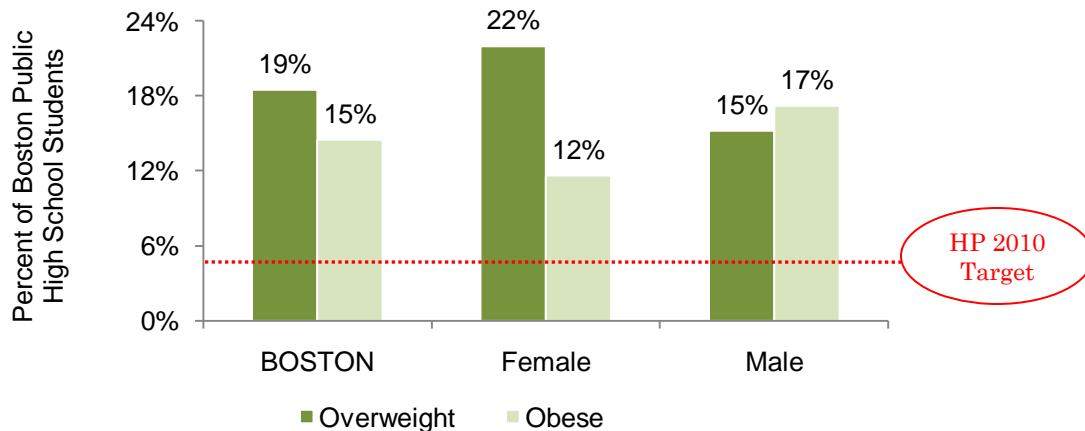
The percentage of overweight students was statistically similar across racial/ethnic groups.

The percentages of obese Latino and Black students were higher than the percentages of obese Asian and White students.

A higher percentage of females students was considered overweight compared to their male counterparts.

However, the percentage of obese male students was higher than obese females.

Figure 14.36 High School Students Who Are Overweight or Obese by Gender, 2007



Based on self-reported height and weight, 21% of female and 16% of male Boston adults were considered obese in 2006 (data not shown).

In both 2005 and 2006, the percentage of obese adults was higher among Black and Latino females than White females.

The percentage of obese Black, Latino and White males was statistically similar.

The percentage of obese adults in three neighborhoods (Back Bay, Fenway, Jamaica Plain) was lower than the citywide percentage of 18%.

Roxbury and South Dorchester had a higher percentage of obese adults compared to Boston overall.

The percentage of obese adults in Allston/Brighton, Charlestown, East Boston, Hyde Park, Mattapan, North Dorchester, Roslindale, South Boston, South End and West Roxbury was statistically similar to that of Boston overall.

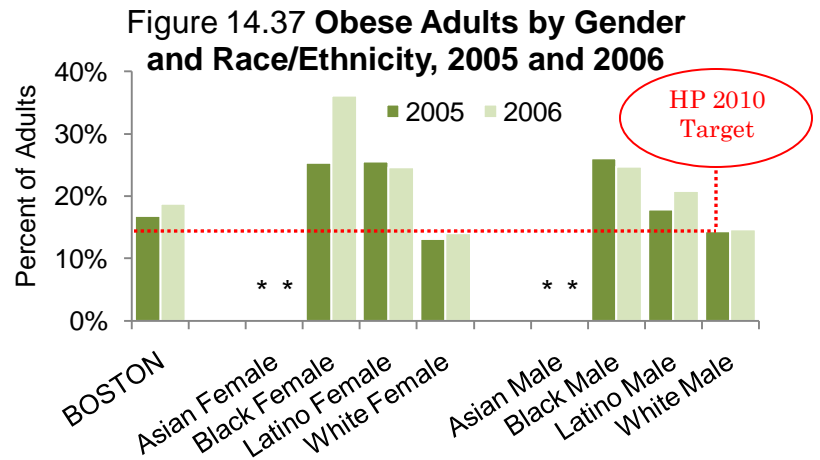
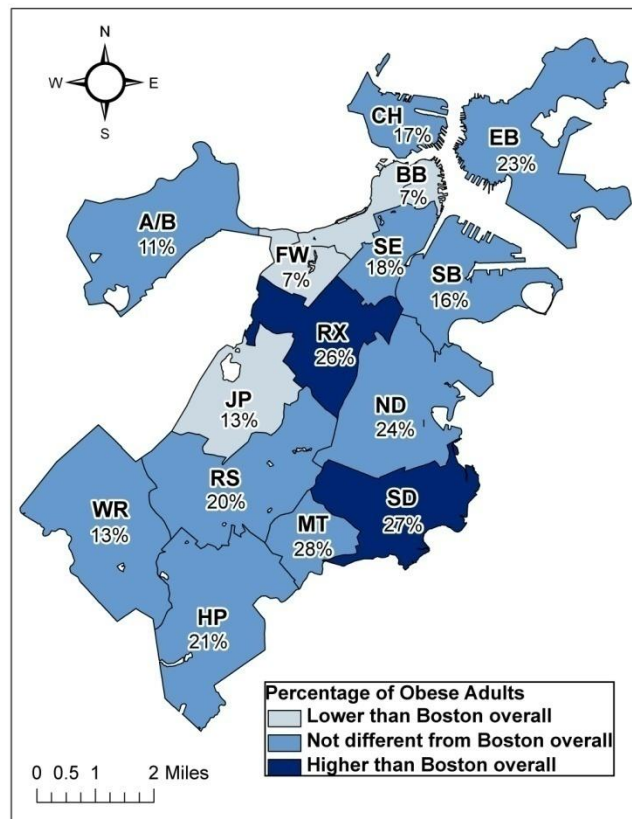


Figure 14.38 Obese Adult Residents by Neighborhood, 2005 and 2006 Combined



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Summary: Chronic Diseases

Most deaths in the U.S. are due to chronic diseases. The leading causes of death in Boston are common chronic diseases including cancer, heart disease and stroke. In addition to causing serious illness and death, chronic disease can severely impair the quality of life by impacting one's ability to perform activities of daily living independently, the ability to earn income, and personal relationships.

Eating healthy and nutritious foods, exercising regularly, avoiding tobacco, and limiting alcohol consumption can help to prevent the onset of certain chronic diseases. Access to affordable health care is vital to receiving recommended health screenings at appropriate time intervals. Health screenings are a critical tool in early disease detection, which for many illnesses can dramatically impact severity and outcome. The onset and severity of many chronic illnesses can be influenced by healthier lifestyle choices and access to necessary medical care.

Communities and local agencies must work to support healthy behaviors, ensure healthy environments, and facilitate positive choices. Guaranteeing the presence of safe and accessible open spaces, ensuring the availability of fresh fruits and vegetables, and enacting regulations that limit exposure to second hand smoke and trans-fats are all examples of measures that create an environment to support healthy choices.

Boston's Black community experiences a disproportionate burden of several chronic diseases, including higher percentages of asthma and diabetes. Additionally, a higher percentage of Black women have height-weight ratios considered obese compared to Asian and White women. Among high school students, a higher

percentage of Black students were considered obese than Asian or White students.

Black residents consistently had the highest heart disease hospitalization rate from 1998 through 2007. In 2007, the heart disease hospitalization rate for Blacks was almost two times the rate for Whites and three times the rate for Asians. The diabetes hospitalization rate was also higher among Black residents, a rate that was four times the rates for Whites and Asians. The city's youngest Black residents, children under the age of 5 years, have the highest asthma hospitalization rate.

Boston's Latinos may not share the same chronic disease burden as Boston's Black community, but do face an unequal burden for several conditions. For several health measures presented here, generally, Boston's Latino community is faring slightly better than Boston's Black residents, but not as well as Boston's Asian and White communities. Latino females have a higher rate of asthma than Asian or White women, and a higher level of obesity than White women. A higher percentage of Latino high school students were obese compared to Asian or White students. After increasing 87% from 1998 to 2004, the heart disease hospitalization rate for Latinos remained at a higher level, similar to that as experienced by Boston's Black community, through 2006 (data for 2007 unavailable).

The rates for several of the chronic diseases discussed here are lower for White Boston residents. A lower percentage of White Bostonians reported having asthma than Black residents. A lower percentage of White women in Boston were obese compared to Black and Latino women, and a lower percentage of White high school

students were obese compared to Black or Latino students. Fewer White adults reported high blood pressure than Black Bostonians, but a higher percentage reported high blood pressure compared to Boston's Asians. While Boston's White residents had the lowest diabetes hospitalization rate, their rate of heart disease hospitalizations was higher than that for Asians. Among White children under age 5 years, the rate of asthma hospitalizations was also low.

Although Boston's Asian community is by no means free from the impact of chronic illnesses, Asians in Boston enjoy a lesser burden of many of the chronic diseases discussed here compared to Black, Latino and White Bostonians. Asian residents have had the lowest percentages of reported asthma, diabetes, and hypertension among adults according to survey data. Boston's Asian residents have had the lowest heart disease hospitalization rate of any racial/ethnic group for the last 10 years (1998-2007). The asthma hospitalization rate for Asian children under age 5 years was also low.

Although health disparities exist among Boston's racial/ethnic groups and need to be addressed, it is also important to look at the health of the Boston's residents as a whole and note areas that fall short of national health standards and goals, such as the Healthy People 2010 (HP2010) targets. Among Boston's youngest and most vulnerable group, children under the age of 5 years, the rate of emergency department visits for asthma falls far short of the HP2010 target. The rate in Boston has averaged about 30 emergency department visits per 1,000 population, and the HP2010 target is 8.0 emergency department visits per 1,000 population. Asthma hospitalizations for the under 5 year old group are on average 8.6 hospitalizations per 1,000 population, a rate which is more

than three times the target of 2.5 hospitalizations per 1,000 population for this age group.

Among Boston's adults, approximately one in five reported having been diagnosed with high blood pressure. This is higher than the HP2010 target of 16% of the population for this measure. High blood pressure is particularly insidious because of its asymptomatic nature; it is often discovered when other severe negative health effects are noticed or diagnosed.

Obesity is a known risk factor for several chronic diseases including diabetes and heart disease. Fifteen percent of Boston's high school students were obese in 2007. This was three times the HP2010 target of five percent among adolescents. When combined with the percentage of students who were overweight, over a third of Boston's high school students were either at overweight or obese. This has implications for the potential development of chronic disease as these adolescents age if their being overweight/obese is not reversed.

Chronic diseases impact the health and well-being of individuals in every layer of society. The data presented here serve to highlight the need for aggressive prevention measures. These measures should increase awareness of prevention strategies, enhance access to comprehensive care, and create an environment that facilitates health-promoting behaviors. To achieve success, prevention will require participation of the individual, the community, and state and local agencies to create an environment to promote healthy behaviors.



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Notes, Data Source and Data Analysis

Figure 14.1

*Insufficient sample size for Asians in 2005

NOTE: Survey question reads, "Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.2

NOTE: Survey question reads, "Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.3

*Insufficient sample size for Asian males.

NOTE: Survey question reads, "Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.4

NOTE: Survey questions read: "Has a doctor or nurse ever told you that you have asthma?" and "Do you still have asthma?" Point estimates vary from those produced by CDC because of differences in calculation of the current asthma variable.

DATA SOURCES: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.5

NOTE: Combination of two survey questions. Respondents asked, "Have you ever been told by a doctor, nurse or other health professional that you had asthma?" If answer was "yes," respondents were then asked, "Do you still have asthma?" Data reflect percent of adults who answered "yes" to both questions.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2001, 2003, 2005, and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.6

NOTES: Combination of two survey questions. Respondents asked, "Have you ever been told by a doctor, nurse or other health professional that you had asthma?" If answer was "yes," respondents were then asked, "Do you still have asthma?" Data reflect percent of adults who answered "yes" to both questions. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.7

NOTES: Combination of two survey questions. Respondents asked, "Have you ever been told by a doctor, nurse or other health professional that you had asthma?" If answer was "yes," respondents were then asked, "Do you still have asthma?" Data reflect percent of adults who answered "yes" to both questions. These data do not include persons of unknown gender.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.8

NOTES: Combination of two survey questions. Respondents asked, "Have you ever been told by a doctor, nurse or other health professional that you had asthma?" If answer was "yes," respondents were then asked, "Do you still have asthma?" Data reflect percent of adults who answered "yes" to both questions. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.9

*Includes Beacon Hill, Downtown, North End and West End

†Includes Chinatown

NOTE: Combination of two survey questions. Respondents asked, "Have you ever been told by a doctor, nurse or other health professional that you had asthma?" If answer was "yes," respondents were then asked, "Do you still have asthma?" Data reflect percent of adults who answered "yes" to both questions.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.10

NOTE: Age-specific rates are presented here. These data do not include persons whose age was not reported, except in the Boston overall rate.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.11

NOTE: Age-specific rates are presented here. These data do not include persons whose gender or age was not reported, except in the Boston overall rate.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.12

NOTES: Age-specific rates are presented. People of Latino ethnicity may be reported in any of the above race/ethnicity categories. A rate cannot be presented for Latinos in 2007 because of enactment of new reporting requirements that resulted in the availability of only 6 months of data. These data do not include persons whose age was not reported, except in the Boston overall rate. See Technical Notes for additional caveats.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.13

ABBREVIATIONS KEY: A/B=Allston/Brighton, BB=Back Bay (includes Beacon Hill, Downtown, North End and the West End), CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

NOTES: Age-specific rates are presented.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Figure 14.14

NOTES: Age-specific rates are presented. Hospital Emergency Department Visit Data Base first became available in 2002. Results that are shown for 2007 are based on preliminary data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.15

*Insufficient sample size for White students.

NOTE: Survey question reads: "Has a doctor or nurse ever told you that you have diabetes?"

DATA SOURCE: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.16

NOTE: Survey question reads "Have you ever been told by a doctor that you have diabetes?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 1999, 2001, 2003, 2005, and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.17

*Insufficient sample size for Asian respondents in 2005.

NOTES: Survey question reads "Have you ever been told by a doctor that you have diabetes?" These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.18

NOTE: Survey question reads "Have you ever been told by a doctor that you have diabetes?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.19

*Includes Beacon Hill, Downtown, North End and the West End

†Includes Chinatown

NOTE: Survey question reads "Have you ever been told by a doctor that you have diabetes?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.20

NOTE: Age-adjusted rates are presented here.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.21

NOTE: Age-specific rates are presented here. These data do not include persons whose age was not reported, except in the Boston overall rate.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.22

NOTES: Age-adjusted rates are presented here. These data do not include persons whose gender was not reported, except in the Boston overall rate.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.23

NOTES: Age-adjusted rates are presented here. These data do not include persons whose race was not reported, except in the Boston overall rate. People of Latino ethnicity may be reported in any of the above race/ethnicity categories. A rate cannot be presented for Latinos in 2007 because of enactment of new reporting requirements that resulted in the availability of only 6 months of data. A rate for Asians in 1998 and 2000 could not be calculated due to the low number of cases. See Technical Notes for additional caveats.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.24

ABBREVIATIONS KEY: A/B=Allston/Brighton, BB=Back Bay (includes Beacon Hill, Downtown, North End and West End), CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes data for Chinatown), and WR=West Roxbury

NOTES: Age-adjusted rates are presented here.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Figure 14.25

NOTE: Hospital Emergency Department Visit Data Base first became available in 2002. Results that are shown for 2007 are based on preliminary data

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.26

NOTE: Age-adjusted rates are presented here.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.27

NOTES: Age-adjusted rates are presented here. These data do not include persons whose race was not reported, except in the Boston overall rate. People of Latino ethnicity may be reported in any of the above race/ethnicity categories. A rate cannot be presented for Latinos in 2007 because of enactment of new reporting requirements that resulted in the availability of only 6 months of data. See Technical Notes for additional caveats.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.28

NOTES: Age-adjusted rates are presented here. These data do not include persons whose gender was not reported, except in the Boston overall rate.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.29

ABBREVIATIONS KEY: A/B=Allston/Brighton (includes Beacon Hill, Downtown, North End and West End), BB=Back Bay, CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

NOTE: Age-adjusted rates are presented here.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Figure 14.30

NOTE: Hospital Emergency Department Visit Data Base first became available in 2002. Results that are shown for 2007 are based on preliminary data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.31

NOTE: Survey question reads "Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2003, 2005, and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.32

NOTES: Survey question reads "Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?" These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.33

NOTE: Survey question reads "Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.34

*Includes Beacon Hill, Downtown, North End and the West End

†Includes Chinatown

NOTE: Survey question reads “Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?”

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.35

NOTE: Survey questions read: “How tall are you without your shoes on? How much do you weigh without your shoes on?” Body Mass Index (BMI) is calculated from self-reported weight and height. For adolescents, a BMI-for-age percentile is used to determine overweight/obese. Overweight in adolescents is defined as a BMI at or between the 85th and 95th percentile, and obese is defined as a BMI at or above the 95th percentile for the same age and sex.

DATA SOURCES: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.36

NOTE: Survey questions read: “How tall are you without your shoes on? How much do you weigh without your shoes on?” Body Mass Index (BMI) is calculated from self-reported weight and height. For adolescents, a BMI-for-age percentile is used to determine overweight/obese. Overweight in adolescents is defined as a BMI at or between the 85th and 95th percentile, and obese is defined as a BMI at or above the 95th percentile for the same age and sex.

DATA SOURCES: Youth Risk Behavior Survey 2007, Youth Risk Behavioral Surveillance System (YRBSS), Centers for Disease Control and Prevention (CDC)

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.37

*Insufficient sample size for Asian female and Asian male respondents.

NOTES: Body Mass Index (BMI) is calculated from self-reported weight and height. An adult who has a BMI of 30 or higher is considered obese. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 14.38

ABBREVIATIONS KEY: A/B=Allston/Brighton (includes Beacon Hill, Downtown, North End and West End), BB=Back Bay, CH=Charlestown, EB=East Boston, FW=Fenway, HP=Hyde Park, JP=Jamaica Plain, MT=Mattapan, ND=North Dorchester, RS=Roslindale, RX=Roxbury, SB=South Boston, SD=South Dorchester, SE=South End (includes Chinatown), and WR=West Roxbury

NOTE: Body Mass Index (BMI) is calculated from self-reported weight and height. An adult who has a BMI of 30 or higher is considered obese.

DATA SOURCE: Boston Behavioral Risk Factor Survey, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

MAP CREATED BY: Boston Public Health Commission Research and Evaluation Office

Section 15: Cancer

Cancer is caused by changes in genes that control cell growth and death. The American Cancer Society describes cancer as follows:

“Cancer occurs when cells in a part of the body begin to grow out of control. Normal cells divide and grow in an orderly fashion, but cancer cells do not. They continue to grow and crowd out normal cells. Although there are many kinds of cancer, they all have in common this out-of-control growth of cells.”

Cancer, including all types of cancer combined, is the leading cause of death in Boston, claiming more lives than heart disease, stroke, or injuries (2). The leading types of cancer mortality in Boston are lung cancer, colorectal cancer, breast cancer, and prostate cancer.

Different types of cancer are caused by different factors, or a combination of factors, not all of which are known. Tobacco use is the leading modifiable risk for cancer. Poor diet, physical inactivity, and overweight/obesity are also leading risk factors that can be modified through lifestyle changes. Environmental exposures (e.g., radiation exposure) and genetic mutations are also factors. Certain viruses, such as human papillomavirus (HPV), hepatitis B, hepatitis C, and human immunodeficiency virus (HIV) can also increase the risk of some types of cancer (3).

While not all cancer can be prevented, there are steps that individuals can take to minimize their risk. These include engaging in positive health behaviors such as not using tobacco, being physically active, eating a healthy diet, and maintaining a healthy weight; understanding personal risk factors such as family history and sharing this information

with your health care provider; and participating in preventive cancer screening when recommended by your provider. Screening is a test or procedure used to look for cancer prior to the development of symptoms. Screening could help detect cancer at an early stage, at which point it may be easier to treat (3). Ensuring that the health care system provides accessible and culturally appropriate services is also an essential component of effective cancer screening.

This section presents data about self-reported cancer screening behaviors, newly diagnosed cases of breast, cervical, colorectal, lung, ovarian, and prostate cancer (i.e., cancer incidence) and leading causes of cancer death (i.e., cancer mortality).

Healthy People 2010 Target

Reduce the overall cancer death rate to 158.6 deaths per 100,000 population (4).



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

What is Breast Cancer?

Breast Cancer is a disease of uncontrolled cell growth in the breast tissue of both women and men (5).

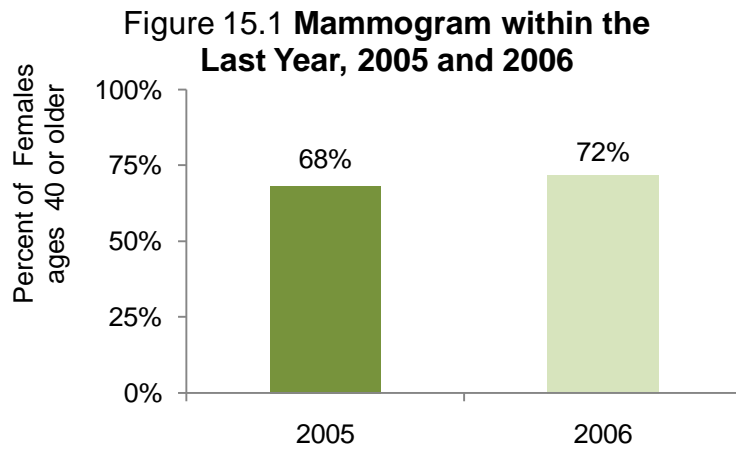
Risk Factors for Breast Cancer:

White women are at increased risk of getting breast cancer. Other risk factors include older age, early age at menarche (first menstruation), older age at first birth or never having given birth, a mother or sister with breast cancer, radiation therapy to the breast/chest, taking hormones such as estrogen and progesterone, obesity, and drinking alcohol (6).

American Cancer Society breast cancer screening recommendations:

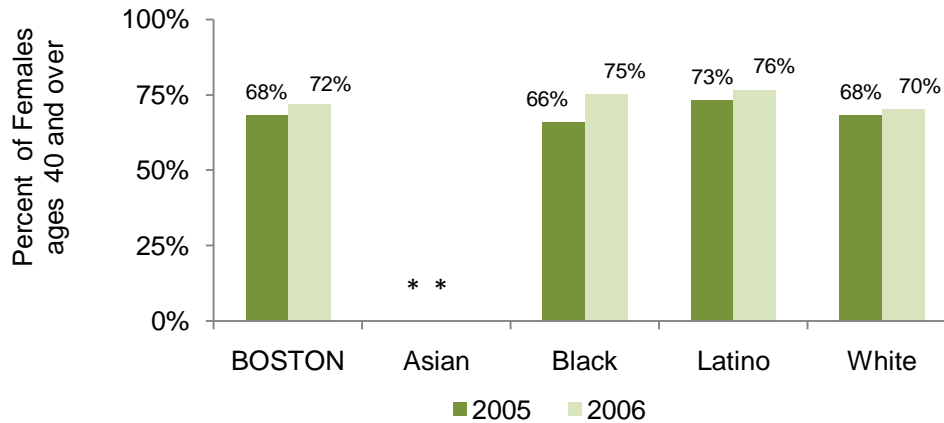
A mammogram is an x-ray of each breast used to look for cancer. Yearly mammograms are recommended for women beginning at age 40. A clinical breast exam (CBE) should be given every 3 years for women in their 20s and 30s and annually for women ages 40 and over (5).





In 2005 and 2006, more than two out of every three women over age 40 in Boston reported having a mammogram in the past year.

Figure 15.2 Mammogram within the Last Year by Race/Ethnicity, 2005 and 2006



In 2005 and in 2006, the percentage of Black, Latino, and White females ages 40 and older who reported mammography screening in the last year was similar. For each racial/ethnic group, two out of three women reported having a mammogram within the past year.

The percentage of Black, Latino, and White females who reported receiving a mammogram in the past year was similar from 2005 to 2006.

For all Boston neighborhoods, the percentage of women ages 40 and over who reported having a mammogram within the past year was similar to Boston overall.

Figure 15.3 Mammogram within the Last Year by Neighborhood, 2005 and 2006 Combined

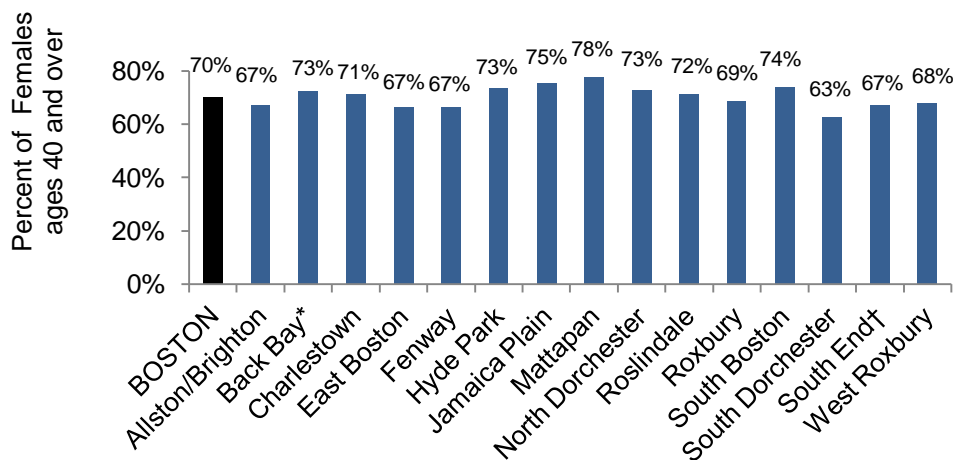
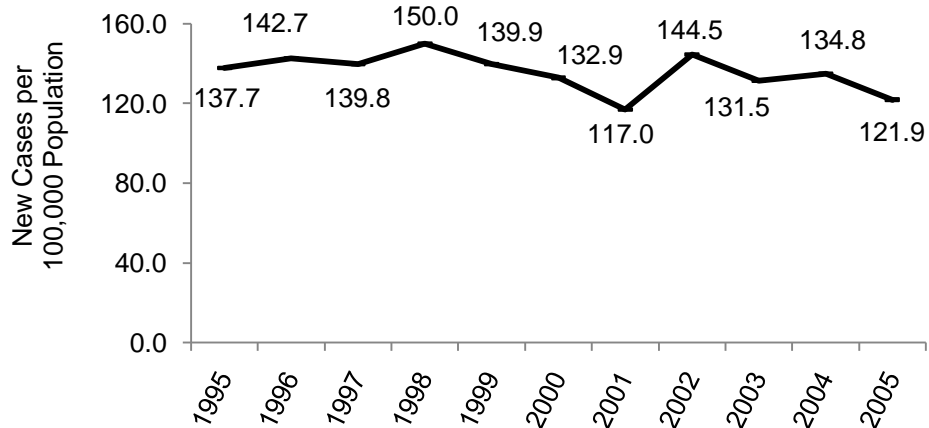


Figure 15.4 Breast Cancer Incidence, 1995-2005

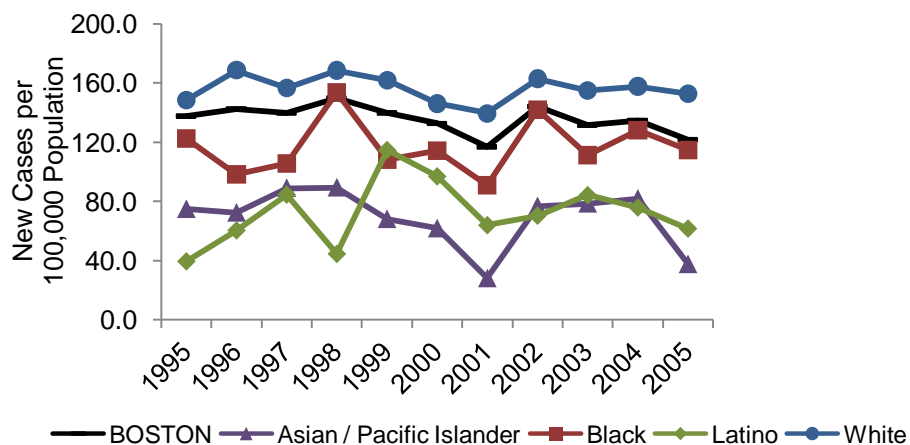


Despite fluctuation over the years, the 2005 age-adjusted incidence rate of 121.9 per 100,000 female population was statistically similar to the 1995 rate of 137.7 per 100,000 population.

The breast cancer incidence rate for each racial/ethnic group was statistically similar from 1995 to 2005.

For the five most recent years from 2001 to 2005, White females had a higher breast cancer incidence rate than Asian and Latino females.

Figure 15.5 Breast Cancer Incidence by Race/Ethnicity and Year, 1995-2005



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

What is Cervical Cancer?

The cervix is the lower end of the uterus and leads to the vagina. Cervical cancer is a disease in which cancer cells develop in the cervix (7).

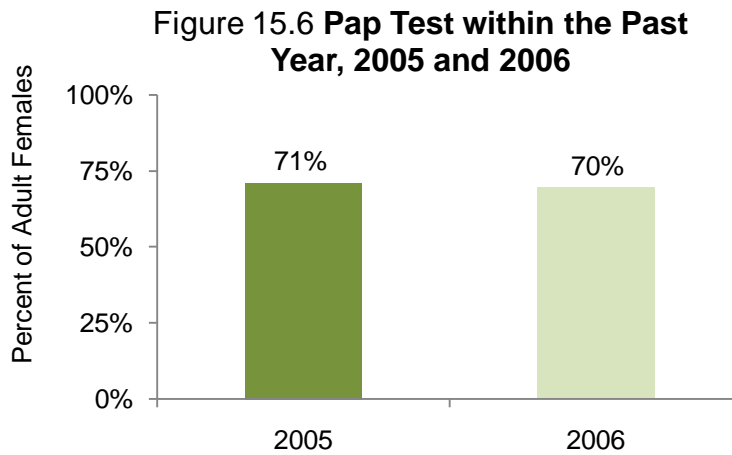
Risk Factors for Cervical Cancer:

Human papillomavirus (HPV) is the major risk factor for the development of cervical cancer. Additional risk factors include having many sexual partners, having one's first sexual intercourse at a young age and smoking cigarettes (7).

American Cancer Society cervical cancer screening recommendations:

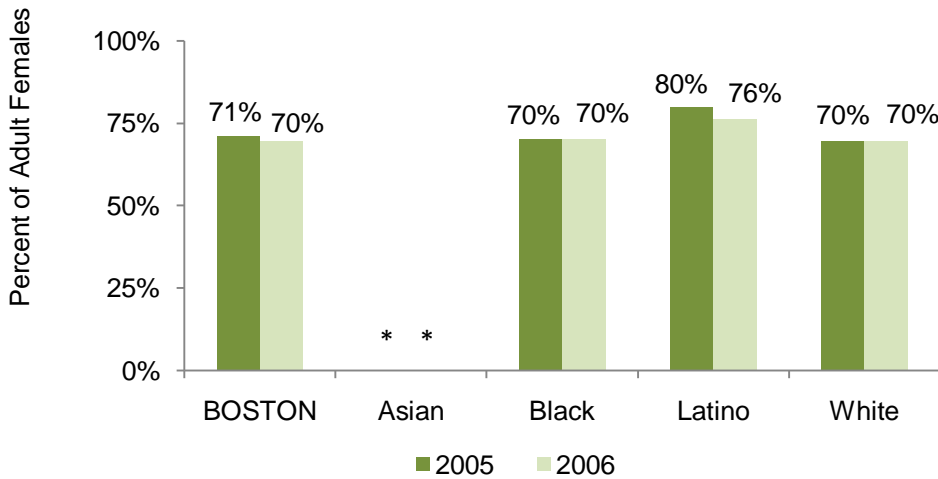
A Papanicolaou test, also called Pap test or Pap smear, is used to screen for cervical cancer. It can detect cervical cancer or changes in the cervix that may lead to cancer. All women should begin cervical cancer screening within 3 years after they begin having vaginal intercourse, but no later than when they are 21 years old. Screening should be done every year with the regular Pap test or every 2 years using the newer liquid-based Pap test. Beginning at age 30, women who have had 3 normal Pap test results in a row may get screened every 2 to 3 years. Another reasonable option for women over 30 is to get screened every 3 years (but not more frequently) with either the conventional or liquid-based Pap test, plus the human papillomavirus (HPV) test (5).





In both 2005 and 2006, more than two-thirds of Boston women ages 18 and older reported having a Pap test within the past year.

Figure 15.7 Pap Test within Past Year by Race/Ethnicity, 2005 and 2006



The percentage of Black, Latino, and White females ages 18 and older who reported having a Pap test within the last year was similar in 2005 and 2006.

From 2005 to 2006, there was little or no change in the percentage of Black, Latino, and White females who reported having a Pap test within the last year.

For all Boston neighborhoods, the percentage of adult females who reported having a Pap test within the last year was similar to Boston overall.

In the majority (13 of 15) of Boston neighborhoods represented in the graph, at least two out of three women ages 18 and over reported having a Pap test in the past year.

Figure 15.8 Pap Test within Past Year by Neighborhood, 2005 and 2006 Combined

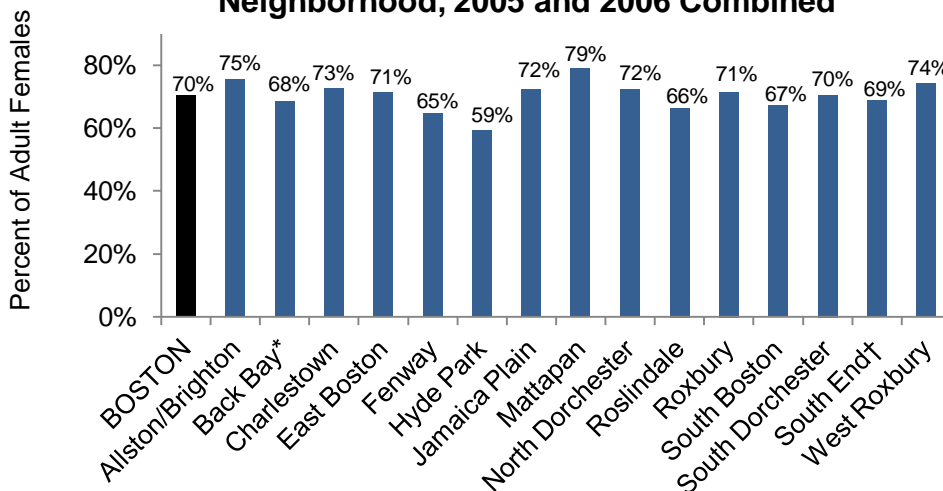
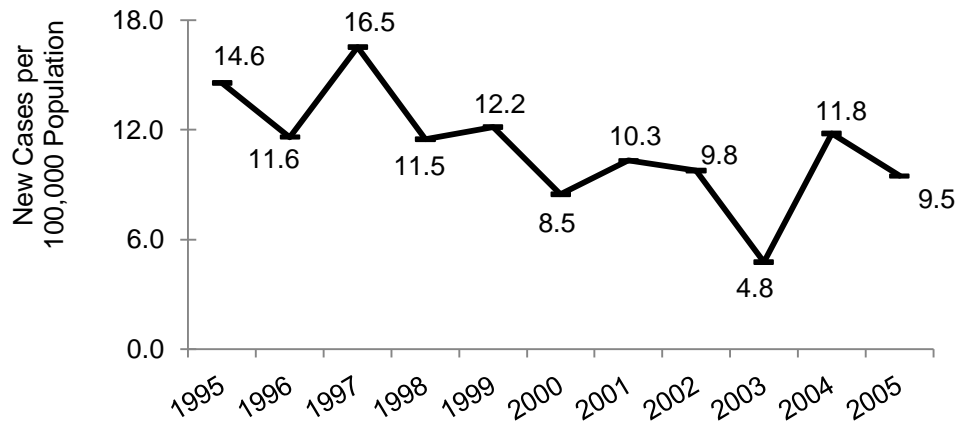


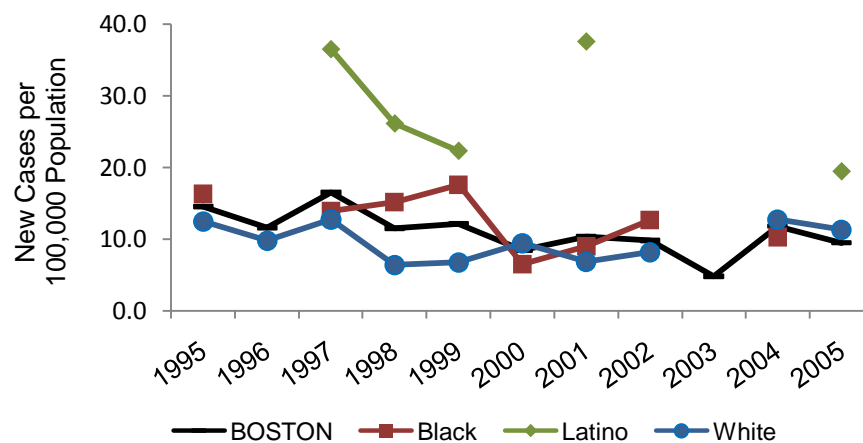
Figure 15.9 Cervical Cancer Incidence
1995-2005



The 2005 age-adjusted rate of cervical cancer incidence for Boston was statistically similar to the 1995 rate.

Between 1995 and 2005, the age-adjusted cervical cancer incidence rate remained relatively stable for both Boston White women and Black women.

Figure 15.10 Cervical Cancer Incidence by
Race/Ethnicity, 1995-2005



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

What is Colorectal Cancer?

The colon, also known as the large intestine, and the rectum are parts of the digestive tract. The colon is the first several feet of the large intestine. The last few inches of the large intestine are the rectum and anus. Colorectal cancer is a disease in which cancer cells form in the colon or rectum (8).

Risk Factors for Colorectal Cancer:

Risk factors for colon cancer are age (specifically being older than age 50) or a personal history of colon cancer or cancer of ovary, breast or uterus, polyps in the colon or rectum, Crohns disease or Ulcerative colitis. Other risk factors include having a parent, sibling or child with colorectal cancer or colonic polyps, or having certain conditions such as familial adenomatous polyposis (FAP) (8).

American Cancer Society colorectal cancer screening recommendations:

There are many tests that check for colon and rectal cancer. It is recommended that men and women ages 50 and older should be screened with one of the following tests in the time interval specified above. Individuals should talk to their doctor to identify the most appropriate test (5).

Tests that Find Polyps and Cancer (Preferred)	Tests that Mainly Find Cancer
Flexible sigmoidoscopy every 5 years	fecal occult blood test (FOBT) every year
Colonoscopy every 10 years	fecal immunochemical test (FIT) every year
Double contrast barium enema every 5 years	stool DNA test (sDNA), interval uncertain
CT colonography (virtual colonoscopy) every 5 years	

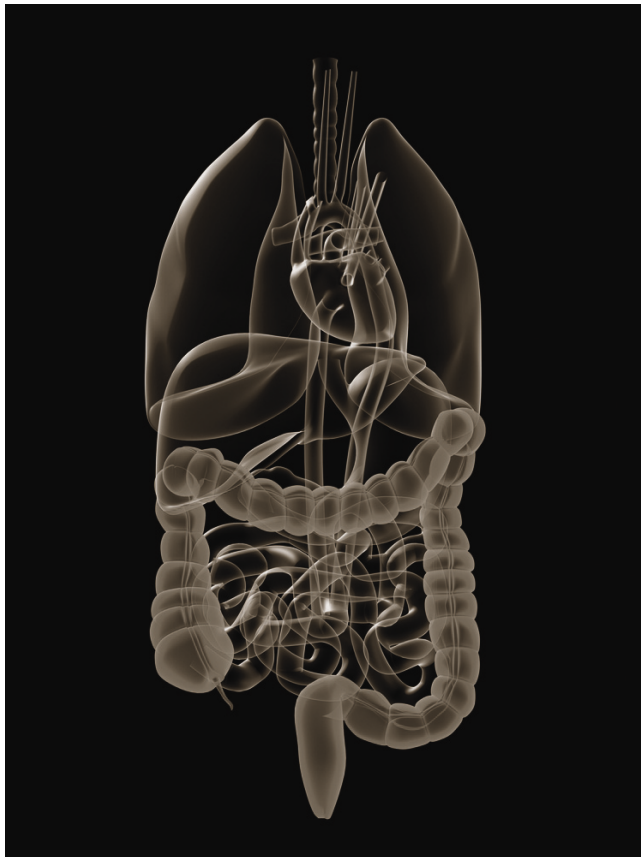


Figure 15.11 Colonoscopy or Sigmoidoscopy within the Past 5 Years by Race/Ethnicity, 2006

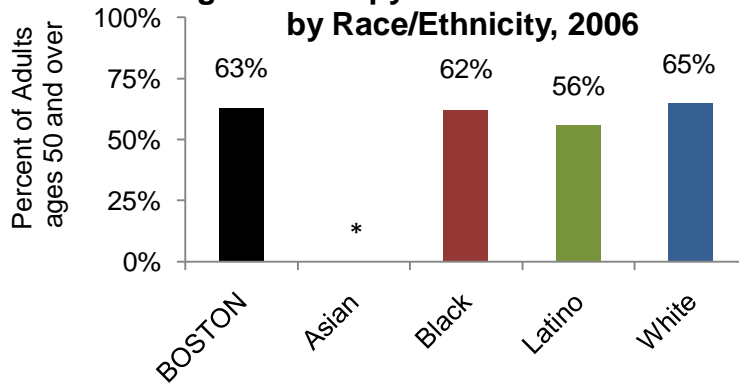
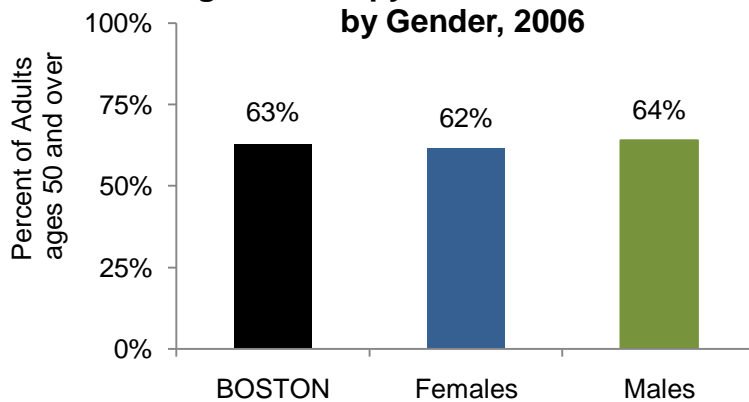


Figure 15.12 Colonoscopy or Sigmoidoscopy within the Past 5 Years by Gender, 2006



In 2006, nearly two-thirds of Boston's adults ages 50 and older reported having a colonoscopy or sigmoidoscopy screening within the past 5 years.

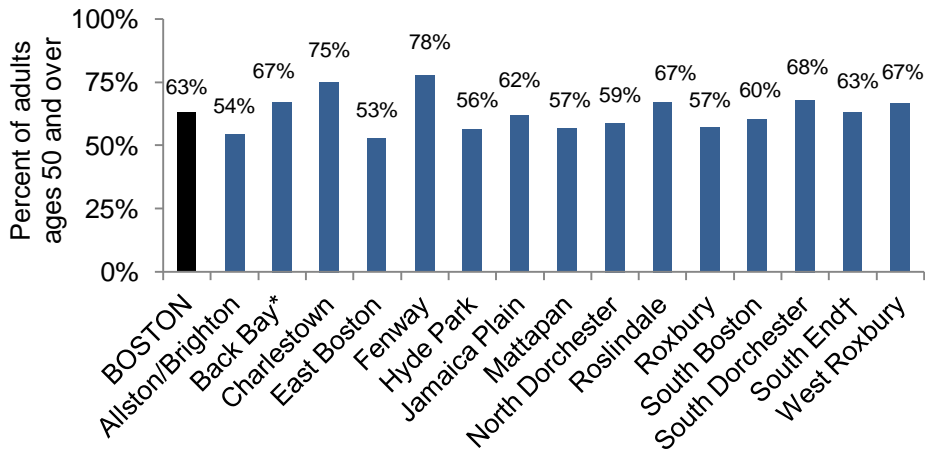
The percentage of Boston Blacks, Latinos, and Whites ages 50 and over who reported having a colonoscopy or sigmoidoscopy in the last 5 years was similar.

A similar percentage of males and females ages 50 and older reported having had a colonoscopy or sigmoidoscopy within the past 5 years.

For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 15.13 Colonoscopy or Sigmoidoscopy within Past 5 Years by Neighborhood, 2006



More than half of the adults ages 50 and over in all Boston neighborhoods reported having a colonoscopy screening in the past 5 years. Among Boston neighborhoods, Fenway had a higher percentage who reported having a colonoscopy than Boston overall.

The age-adjusted colorectal cancer incidence rate in Boston decreased 26.1% from 70.8 cases per 100,000 population in 1995 to 52.3 cases per 100,000 population in 2005.

Figure 15.14 Colorectal Cancer Incidence, 1995-2005

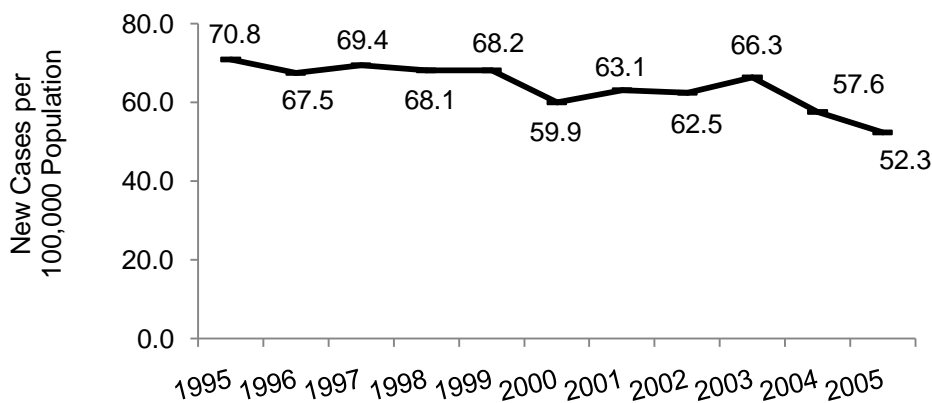
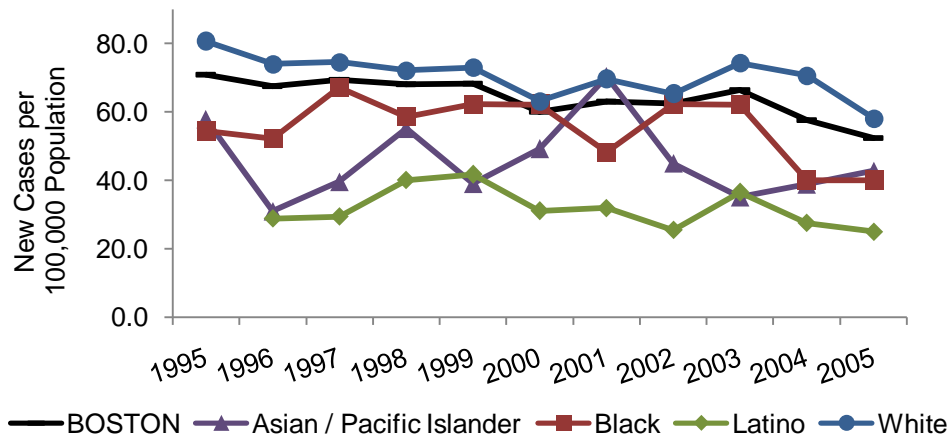


Figure 15.15 Colorectal Cancer Incidence by Race/Ethnicity, 1995-2005

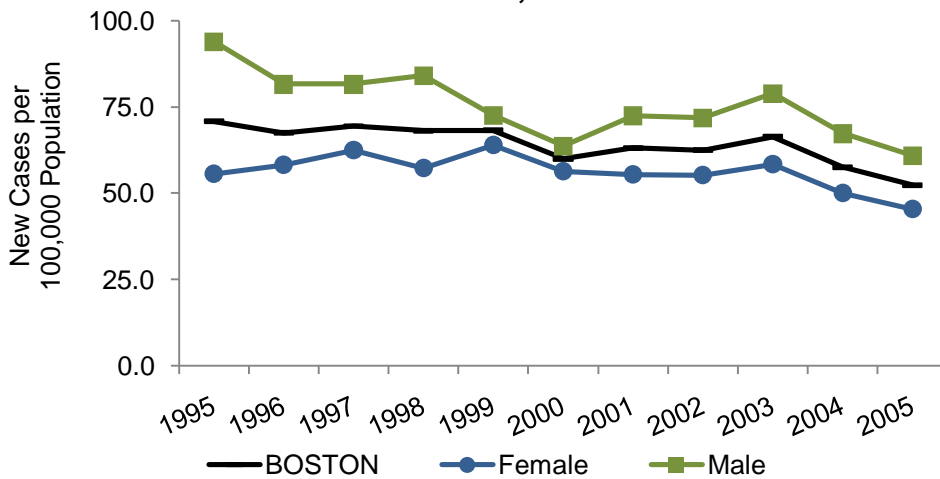


While the age-adjusted rate of colorectal cancer among Boston Asians, Blacks, and Hispanics was similar from 1995 to 2005, the rate for Boston Whites decreased.

In 1995, 1996, and 1998, Boston males had a significantly higher age-adjusted colorectal cancer rate than Boston females.

While the colorectal cancer incidence rate was stable for Boston females from 1995 to 2005, the rate for Boston males decreased 35.1% during the same time period.

Figure 15.16 Colorectal Cancer Incidence by Gender, 1995-2005



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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What is Lung Cancer?

Lung cancer is a disease in which cancer cells develop in the lung tissue (5).

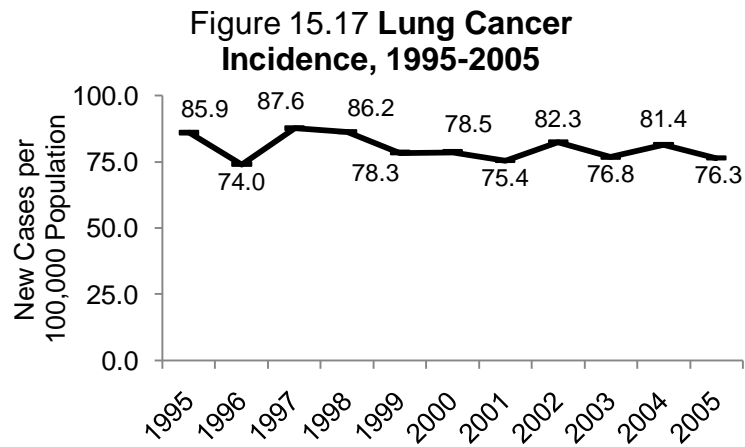
Risk Factors for Lung Cancer:

Tobacco smoking is the most important risk factor for lung cancer. Exposure to second hand smoke, asbestos, arsenic, chromium, nickel or radon are also risks factor for lung cancer (9).

American Cancer Society lung cancer screening recommendations:

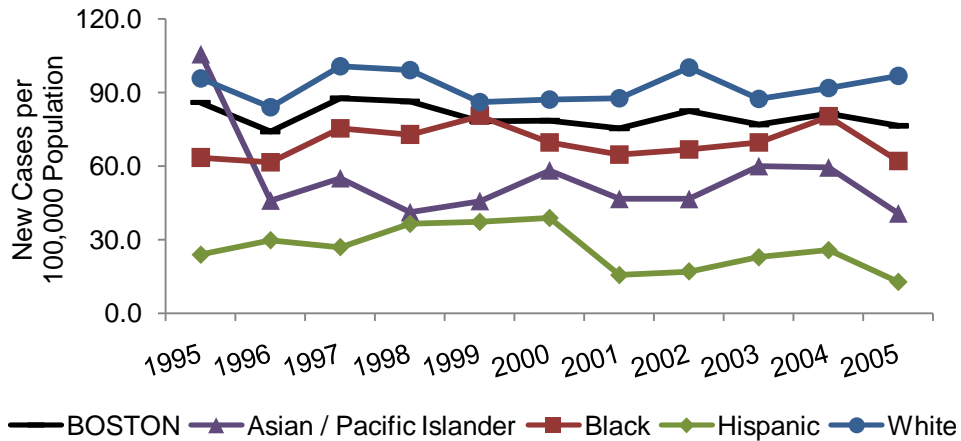
Although chest x-rays and sputum cytology, which is the examination of sputum under a microscope, are sometimes used to screen for lung cancer, neither test decreases the chances of dying from lung cancer and are not routinely used (9).





The age-adjusted lung cancer incidence rate remained stable from 1995-2005.

Figure 15.18 Lung Cancer Incidence by Race/ Ethnicity, 1995-2005



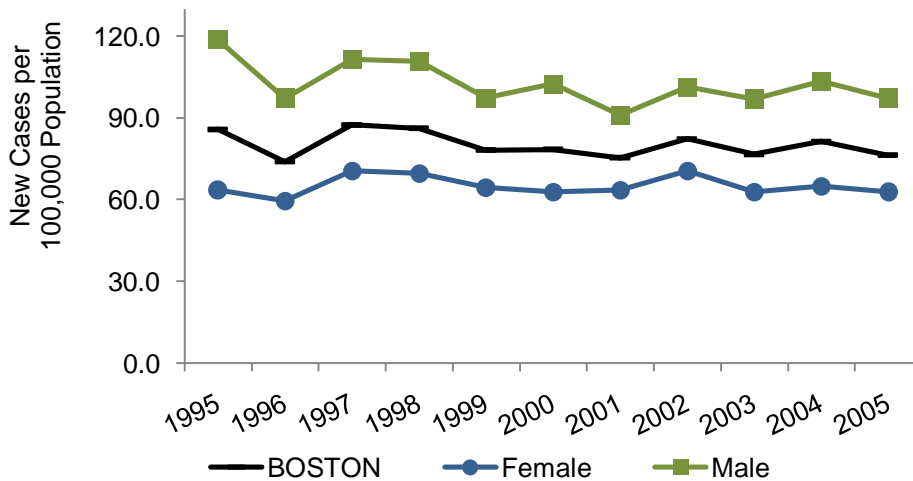
Boston Latinos consistently had the lowest age-adjusted lung cancer rate from 1995 to 2005, while Boston Whites consistently had the highest.

Within each racial or ethnic group, the age-adjusted rate of lung cancer remained relatively consistent from 1995 to 2005.

Both the female and male age-adjusted rate of lung cancer remained fairly stable from 1995 to 2005.

Boston males had a significantly higher age-adjusted rate of lung cancer than Boston females every year from 1995 to 2005.

Figure 15.19 Lung Cancer Incidence by Gender, 1995-2005



What is Ovarian Cancer?

The ovaries are organs in the female reproductive tract. Ovarian cancer is a disease in which malignant cancer cells are formed in the ovary (5).

Risk Factors for Ovarian Cancer:

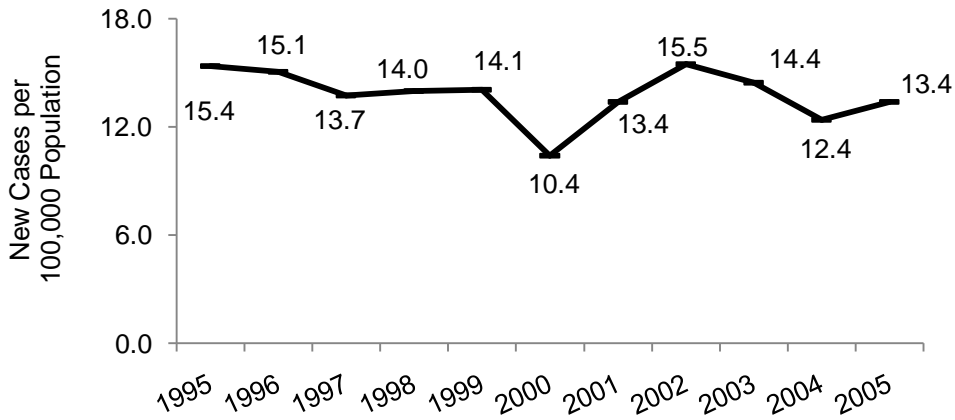
Being older, having a family history of ovarian cancer, taking hormone replacement therapy after menopause, certain fertility drugs, obesity and certain inherited disorders increase the risk of ovarian cancer (10).

American Cancer Society ovarian cancer screening recommendations:

There is no standard or routine screening test for ovarian cancer (10).



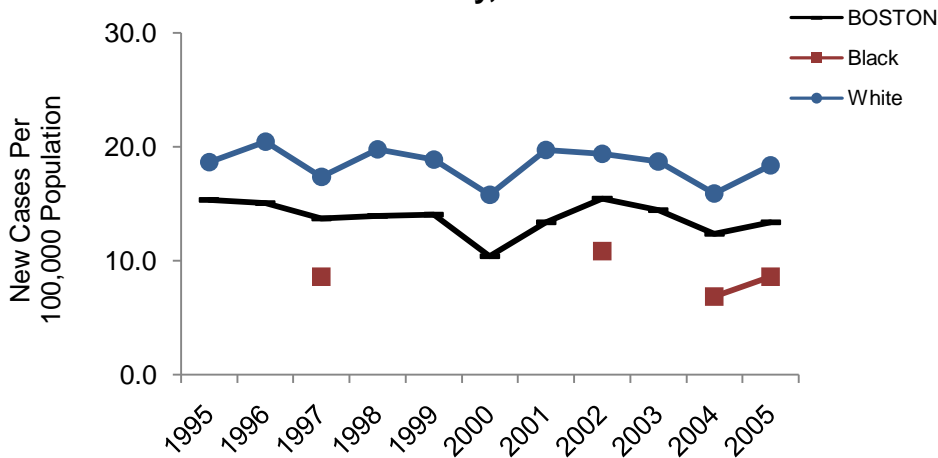
Figure 15.20 Ovarian Cancer Incidence, 1995-2005



The age-adjusted ovarian cancer incidence rate for Boston remained relatively constant from 1995 to 2005. The 2005 rate of 13.4 per 100,000 is statistically similar to the 1995 rate of 15.4 per 100,000.

The age-adjusted ovarian cancer incidence rate remained relatively constant for Boston White women from 1995 to 2005. There were too few cases of ovarian cancer among women of other racial/ethnic groups to permit the calculation of rates.

Figure 15.21 Ovarian Cancer Incidence by Race/Ethnicity, 1995-2005



What is Prostate Cancer?

The prostate is a gland in the male reproductive tract that produces fluid that makes up part of semen. Prostate cancer is a disease in which cancerous cells develop in the prostate (11).

Risk Factors for Prostate Cancer:

Black men are at increased risk for prostate cancer. Additional risk factors for prostate cancer include being 50 years of age or older, having a brother, son or father who had prostate cancer, eating a diet high in fat or drinking alcoholic beverages (11).

American Cancer Society prostate cancer screening recommendations:

The prostate-specific antigen (PSA) blood test and digital rectal examination (DRE) should be given to non-Black men ages 50 and over and Black men ages 45 and over on an annual basis. Men at high risk should begin testing at a younger age (11).



More than half of all men ages 50 and over (ages 45 and over for Black men) reported having a prostate specific antigen test (PSA) within the past year in 2005 and 2006.

Figure 15.22 Prostate-Specific Antigen Test with Past Year, 2005 and 2006

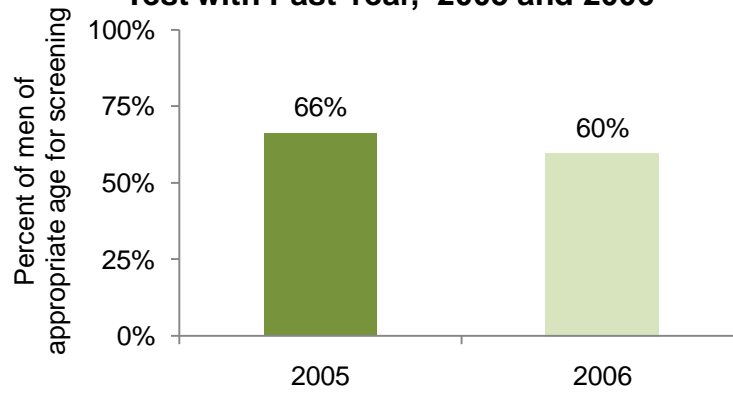
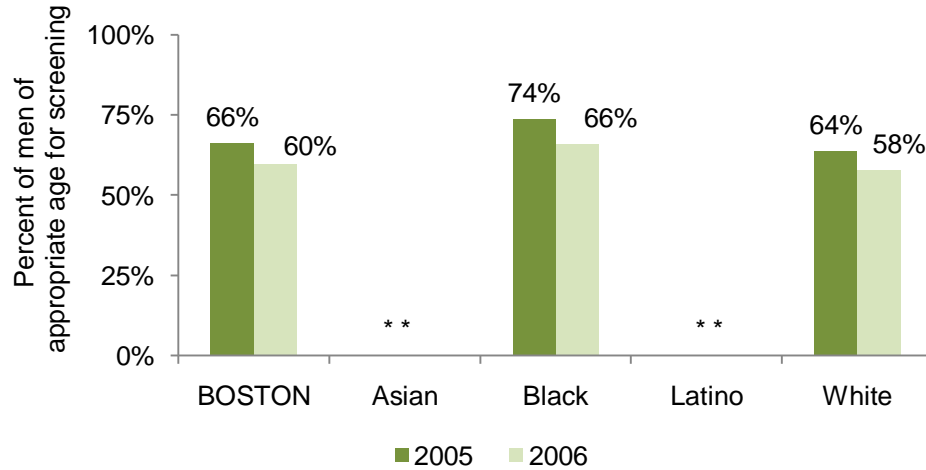


Figure 15.23 Prostate-Specific Antigen Test within Last Year by Race/Ethnicity, 2005 and 2006

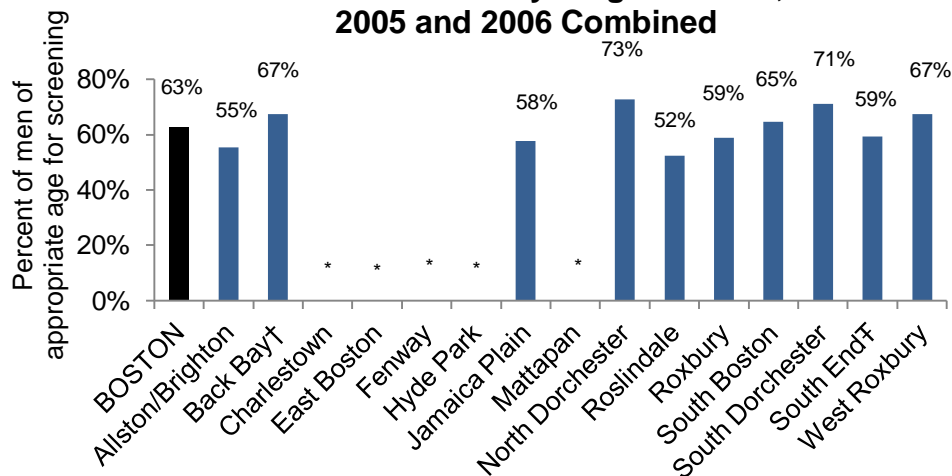


The percentage of Black males ages 45 and over and White males ages 50 and over who reported having a PSA test in the last year was similar from 2005 to 2006. For each racial/ethnic group, more than half of the men reported having a PSA test within the past year.

In 2005 and 2006, a similar percentage of Black males ages 45 and over and White males ages 50 and over reported PSA testing in the past year.

Among Boston neighborhoods, a similar percentage of males ages 50 and over (45 and over for Black men) reported having a PSA test within the past year.

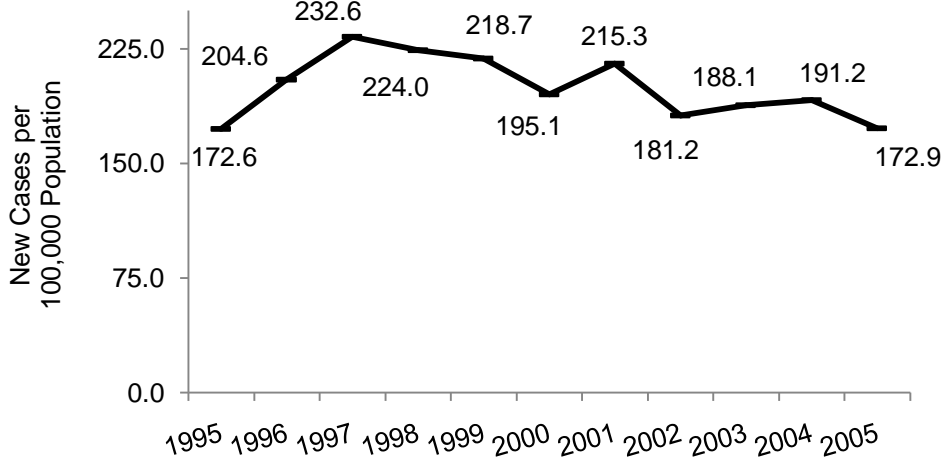
Figure 15.24 Prostate-Specific Antigen Testing within Last Year by Neighborhood, 2005 and 2006 Combined



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

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Figure 15.25 Prostate Cancer Incidence, 1995-2005



The 2005 prostate cancer incidence rate in Boston of 172.9 per 100,000 population was statistically similar to the 1995 rate of 172.6 per 100,000 population.

In 1997, Boston had its highest rate of prostate cancer incidence during the 11-year period, 1995 to 2005.

For each racial/ethnic group, the 2005 prostate cancer rate was statistically similar to the 1995 rate.

For every year shown, Boston Black men had a higher rate of prostate cancer incidence than the other racial/ethnic groups.

Figure 15.26 Prostate Cancer Incidence by Race/Ethnicity, 1995-2005

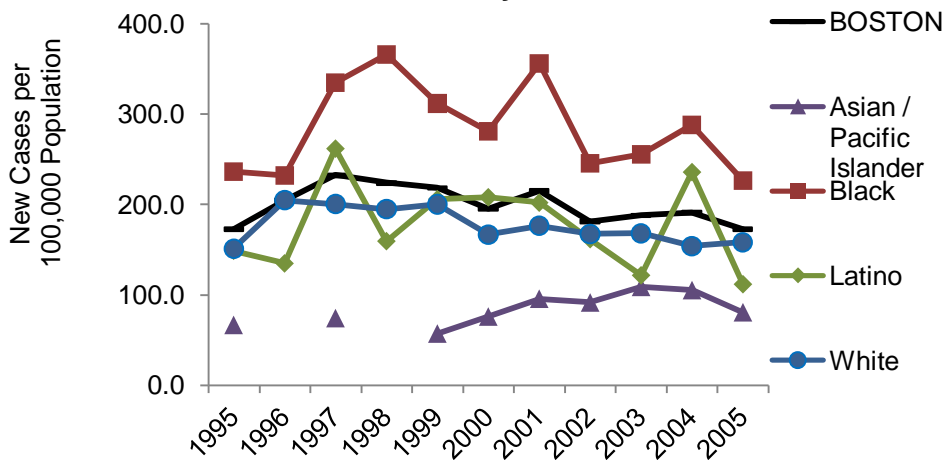


Figure 15.27 **Cancer Mortality by Leading Types of Cancer, 2005-2007**

Cancer	Count	Rate
2005		
Lung	262	54.3
Prostate	48	28.4
Female Breast	72	24.5
Colorectal	103	20.9
Pancreas	66	13.6
Ovary	30	10.4
Liver	43	9.0
Esophagus	30	6.3
Leukemia	30	6.1
Stomach	28	5.6
All cancers	991	202.7
2006		
Lung	255	52.9
Prostate	49	28.0
Female breast	78	27.9
Colorectal	97	19.5
Pancreas	53	10.9
Leukemia	40	8.1
Ovary	22	7.9
Liver	34	7.1
Non-Hodgkin's Lymphoma	34	6.9
Stomach	23	4.6
All cancers	944	192.7
2007		
Lung	229	47.4
Prostate	56	32.2
Female Breast	55	19.2
Colorectal	84	17.1
Pancreas	59	12.0
Liver	42	8.6
Non-Hodgkin's Lymphoma	37	7.3
Esophagus	32	6.6
Leukemia	33	6.4
Stomach	28	5.7
Bladder	24	4.8
All cancers	930	189.5

The ten leading causes of cancer deaths between 2005 and 2007 among Boston residents were similar from year to year. Lung, prostate, female breast, and colorectal cancer had the highest age-adjusted cancer mortality rates during all three years.

Mortality rates for bladder (data not shown for 2006), stomach, esophagus (data not shown for 2006), liver, prostate, non-Hodgkin's lymphoma, and pancreatic cancer increased from 2006 to 2007, while rates for lung, female breast, colorectal, and ovarian cancer (data not shown for 2007) decreased during the same time period.

Cancer is one of the leading causes of death for the race/ethnicities presented here. In 2007, the age-adjusted cancer mortality rate was highest for Blacks and Whites, 276.3 and 183.4 deaths per 100,000 population, respectively.

In 2007, the age-adjusted cancer mortality rate for Blacks was nearly twice as high as the Asian age-adjusted cancer mortality rate, twice the Latino rate, and one and one-half times the White rate.

Figure 15.28 Cancer Mortality by Race/Ethnicity, 2007

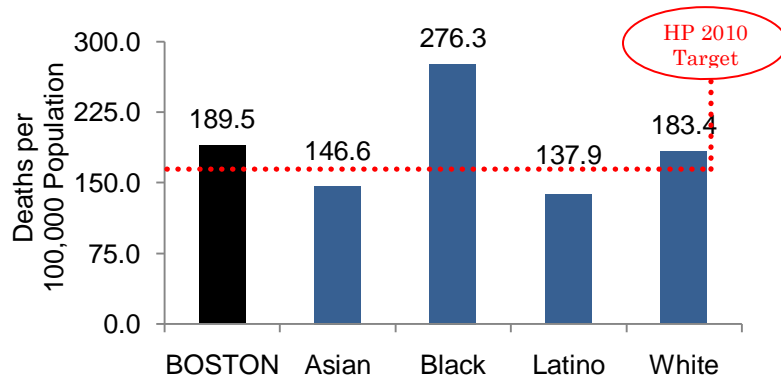


Figure 15.29 **Leading Types of Cancer Mortality by Race/Ethnicity, 2005-2007**

Asian	Count	Rate
2005		
Lung	11	37.5
Liver	10	32.9
Pancreas	6	20.7
All cancer	53	177.5
2006		
Lung	9	30.5
Liver	8	25.1
Colorectal	5	16.3
All cancer	41	135.9
2007		
Lung	10	35.1
Liver	7	24.5
All cancer	43	146.6

Black	Count	Rate
2005		
Lung	63	63.5
Prostate	15	59.4
Female Breast	22	34.3
Colorectal	22	21.7
Pancreas	15	14.4
All cancer	231	236.6
2006		
Lung	56	57.2
Prostate	13	49.2
Female Breast	28	43.2
Colorectal	29	32.0
Ovary	7	11.6
All cancer	246	250.2
2007		
Prostate	20	80.5
Lung	55	57.5
Female Breast	22	33.9
Pancreas	23	24.9
Colorectal	18	20.0
All cancer	259	276.3

Lung cancer has been the leading type of cancer mortality among Boston's Asian residents each year from 2005 to 2007.

The all-cancer age-adjusted mortality rate for Boston's Asian population decreased 17.4% from 2005 to 2007.

From 2005 to 2007, prostate, lung, and breast cancer were the top three leading causes of cancer mortality among Boston's Black residents.

In 2005 and 2006, the highest age-adjusted cancer mortality rate for Black residents was lung cancer. In 2007, prostate cancer was the highest age-adjusted cancer mortality rate.

Lung cancer was the leading type of cancer mortality among Boston Latino residents in 2007, claiming 31.3 lives per 100,000 population. This rate remained relatively unchanged during the three years, 2005 to 2007.

Lung, prostate, female breast, and colorectal were the top four leading types of cancer mortality among Boston White residents from 2005 to 2007. The age-adjusted mortality rate for each cancer type decreased from 2006 to 2007, except for the prostate cancer rate which increased by 9.8%.

Figure 15.29 **Leading Types of Cancer Mortality by Race/Ethnicity, 2005-2007 (continued)**

Latino	Count	Rate
2005		
Female Breast	6	32.1
Lung	9	24.9
All cancer	46	141.4
2006		
Female Breast	5	32.0
Pancreas	7	19.5
Lung	5	14.5
All cancer	47	168.6
2007		
Lung	9	31.3
Colorectal	5	15.6
All cancer	42	137.9

White	Count	Rate
2005		
Lung	177	56.7
Prostate	30	25.1
Colorectal	73	22.4
Female Breast	43	22.0
Ovary	25	14.8
All cancer	656	208.4
2006		
Lung	185	60.7
Prostate	30	24.6
Female Breast	43	24.3
Colorectal	60	18.4
Pancreas	34	10.9
All cancer	607	191.8
2007		
Lung	155	50.5
Prostate	33	27.0
Colorectal	56	17.4
Female Breast	31	16.3
Pancreas	33	10.0
All cancer	582	183.4

Figure 15.30 Cancer Mortality by Leading Types of Cancer by Gender, 2005-2007

BOSTON MALES			BOSTON FEMALES		
Cancer	Count	Rate	Cancer	Count	Rate
2005			2005		
Lung	145	75.7	Lung	117	40.9
Prostate	48	28.4	Breast	72	24.5
Colorectal	48	25.6	Colorectal	55	18.2
Liver	36	18.0	Pancreas	36	12.3
Pancreas	30	15.5	Ovary	30	10.4
All cancers	492	257.5	All cancers	500	171.0
2006			2006		
Lung	138	71.3	Lung	117	41.2
Prostate	49	28.6	Breast	78	27.9
Colorectal	42	21.5	Colorectal	55	17.9
Liver	27	12.9	Pancreas	33	11.2
Leukemia	22	10.9	Ovary	22	7.9
All cancers	454	238.8	All cancers	490	167.3
2007			2007		
Lung	118	60.4	Lung	111	38.4
Prostate	56	32.2	Breast	55	19.2
Colorectal	38	19.5	Colorectal	46	14.7
Liver	29	14.5	Pancreas	39	12.6
Esophagus	23	11.4	Uterine	15	5.1
All cancers	472	248.3	All cancers	458	117.9

For each of the leading types of cancer mortality in 2005, 2006, and 2007 that Boston males and females had in common, the age-adjusted mortality rate was significantly higher for males than for females.

Lung cancer was the leading type of cancer mortality for Boston males and females for each year from 2005 to 2007. The age-adjusted lung cancer mortality rate decreased for both males and females during this time period.

Between 2005 and 2007, the age-adjusted cancer mortality rate decreased 31.1% for Boston females and 3.6% for Boston males.

Summary: Cancer

Cancer is the leading cause of death worldwide. The World Health Organization estimates that cancer was responsible for 7.4 million deaths in 2004 – 13% of all deaths worldwide (1). In 2007, cancer was the leading cause of death among Boston residents with an age-adjusted mortality rate of 189.5 deaths per 100,000 population. The leading causes of cancer deaths between 2005 and 2007 among Boston residents were similar from year to year—lung, prostate, female breast, and colorectal cancer had the highest age-adjusted cancer mortality rates during all three years

Although cancer was the leading cause of death for both genders and for the four racial/ethnic groups presented in this report, its impact varied considerably. In 2007, while the overall age-adjusted cancer mortality rate in Boston was 189.5, the rate among Black residents was 276.3. The rate among Black residents was nearly twice as high as the Asian rate, twice the Latino rate, one and one-half times the White rate. In 2007, the age adjusted rates of the four leading causes of cancer deaths were highest among Black residents. The mortality rate for prostate cancer among Black residents was 150% higher than the mortality rate for all Boston residents. The mortality rate for breast cancer, colorectal cancer and lung cancer was 77%, 67%, and 21% higher than the rate for Boston overall, respectively.

The data on cancer mortality among Black residents is especially alarming when one considers that, with the exception of prostate cancer, the incidence of these types of cancers are higher in White residents. One positive note in these data is there is no significant difference by race/ethnicity in adherence to recommended cancer screenings for breast cancer, prostate

cancer, and colorectal cancer. Recent research suggests that higher rates of mortality from cancer among Blacks may reflect patterns of bias in access to treatment and the chronic stress associated with racism.

Although cancer remains the leading cause of death in Boston, there are steps that individuals can take to minimize their risk of cancer. To combat cancer, individuals, communities, local agencies and health professionals must work together to understand and encourage participation in positive health behaviors and cancer screening.



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Notes, Data Source and Data Analysis

Figure 15.1

NOTES: Survey question reads, “How long has it been since you had your last mammogram?” This question was asked of females ages 40 and over.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.2

* Sample size was insufficient for Asian respondents.

NOTES: Survey question reads, “How long has it been since you had your last mammogram?” This question was asked of females ages 40 and over. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.3

*Includes Beacon Hill, Downtown, North End and the West End

†Includes Chinatown

NOTE: Survey question reads, “How long has it been since you had your last mammogram?” This question was asked of females ages 40 and over. These data do not include homeless persons, individuals whose neighborhood of residence was not reported, inmates of correctional facilities, and clients of drug treatment programs, except in the Boston overall percentage.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.4

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.5

NOTES: Data are presented as age-adjusted rates. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.6

NOTE: Survey question reads, “How long has it been since you had your last Pap test?” This question was asked of women ages 18 and over.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.7

* Sample size was insufficient for Asian respondents.

NOTE: Survey question reads, "How long has it been since you had your last Pap test?" This question was asked of women ages 18 and over. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.8

*Includes Beacon Hill, Downtown, North End, and the West End

†Includes Chinatown

NOTES: BRFSS survey question reads, "How long has it been since you had your last Pap test?" This question was asked of women ages 18 and over. These data do not include homeless persons, individuals whose neighborhood of residence was not reported, inmates of correctional facilities, and clients of drug treatment programs, except in the Boston overall percentage.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.9

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.10

* There were too few cases of cervical cancer among Asians from 1995-2005, among Blacks in 1996, 2003, and 2005, among Hispanics in 1995, 1996, 2000, and 2002-2004 and among Whites in 2003 to permit the presentation of rates.

NOTES: Data are presented as age-adjusted rates. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.11

* Sample size was insufficient for Asian respondents.

NOTE: Survey question reads, "How long has it been since you had your last sigmoidoscopy or colonoscopy?" This question was asked of those ages 50 and older.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.12

NOTE: Survey question reads, "How long has it been since you had your last sigmoidoscopy or colonoscopy?" This question was asked of those ages 50 and over.

These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.13

*Includes Beacon Hill, Downtown, North End, and the West End

†Includes Chinatown

NOTE: Survey question reads, “How long has it been since you had your last sigmoidoscopy or colonoscopy?” This question was asked of those ages 50 and over.

These data do not include homeless persons, individuals whose neighborhood of residence was not reported, inmates of correctional facilities, and clients of drug treatment programs, except in the Boston overall percentage.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.14

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.15

NOTES: Data are presented as age-adjusted rates. These data do not include persons of other or unknown race/ethnicity. There were too few cases of colorectal cancer among Latinos in 1995 to permit the presentation of rates.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.16

NOTES: Data are presented as age-adjusted rates. These data do not include persons whose gender was not reported.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.17

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.18

NOTES: Data are presented as age-adjusted rates. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.19

NOTE: Data are presented as age-adjusted rates. These data do not include persons whose gender was not reported.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.20

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.21

NOTES: Too few cases of ovarian cancer among Asian and Latino women to permit presentation of rates. Too few cases of ovarian cancer among Black women in 1995, 1996, 1998-2001, and 2003 to permit presentation of rates. Data are presented as age-adjusted rates. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Massachusetts Department of Public Health, Massachusetts Cancer Registry

DATA ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.22

NOTE: Survey question reads, "How long has it been since you had your last PSA test?"

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.23

* Sample size was insufficient for Asian and Latino respondents.

NOTES: Survey question reads, "How long has it been since you had your last PSA test?" These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.24

*Sample sizes were insufficient for these neighborhoods.

†Includes Beacon Hill, Downtown, North End and the West End

‡Includes Chinatown

NOTES: Survey question reads, "How long has it been since you had your last PSA test?" These data do not include homeless persons, individuals whose neighborhood of residence was not reported, inmates of correctional facilities, and clients of drug treatment programs, except in the Boston overall percentage.

DATA SOURCE: Boston Behavioral Risk Factor Survey 2005 and 2006, Boston Behavioral Risk Factor Surveillance System (BBRFSS), Boston Public Health Commission

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.25

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE AND ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.26

*There were too few cases of prostate cancer among Asian/Pacific Islanders, in 1996 and 1998 to permit the calculation of an age-adjusted rate.

NOTES: These data are presented as age-adjusted rates. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE AND ANALYSIS: Massachusetts Department of Public Health, Massachusetts Cancer Registry

GRAPHIC: Boston Public Health Commission Research and Evaluation Office

Figure 15.27

NOTES: Data are presented as age-adjusted rates. The rates shown are deaths per 100,000 population.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.28

NOTES: Data are presented as age-adjusted rates. These data do not include persons of other or unknown race/ethnicity.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.29

NOTES: Data are presented as age-adjusted rates. The rates shown are deaths per 100,000 population.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 15.30

NOTES: Data are presented as age-adjusted rates. The rates shown are deaths per 100,000 population.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Section 16: Mortality

Death is a consequence of the human condition – mortality. However, the timing of one's death is most often related to health factors such as disease and injury. Because death often results from disease and injury, mortality data help to describe the impact of disease on society. State and federal guidelines mandate the recording of certain information on death certificates that provide some of the most reliable data available to public health professionals. In aggregate, this information is used to calculate mortality, or death, rates that allow us to determine the leading causes of death and to help identify disparities among populations.

The mortality rate, or death rate, is a common measure of the number of deaths in a given population, and allows populations of different sizes to be standardized and compared. Life expectancy data are generated from death data and provide an additional measure of the general welfare of a population (i.e. populations with shorter life expectancy may not be as healthy as those with longer life expectancy) (1).

Mortality data can serve several important purposes. Mortality data can be used to evaluate the general efficacy of a health care system, specific programs, and new preventive or curative procedures (1). Regular review of mortality data can assist in the identification of high mortality areas and high-risk groups within these areas. This information can be used to direct resources to where they are most needed (1). Additionally, these data can be used to elucidate the natural history of a disease and identify links between risk factors and diseases.

The following section describes Boston's mortality data. It compares overall

mortality rates and leading causes of death for males and females, as well as for different racial/ethnic groups. Mortality rates for each neighborhood are also shown. This section also looks more specifically at deaths from injury, diabetes, and heart disease.

Healthy People 2010 Targets (2)

Reduce diabetes deaths to 46 per 100,000 population.



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Life expectancy is approximately 78.5 years for the Boston population born between 2005 and 2007.

Estimated life expectancy is highest for Boston's Latino residents. Black Boston residents have a lower life expectancy than Boston residents overall.

In 2007, the overall age-adjusted mortality rate for Boston residents was 752.6 deaths per 100,000 population, a one-year change of 1.5%. The 2007 rate was 15.3% lower than the rate in 2000.

In 2007, the age-adjusted mortality rate for Boston males was 60.6% higher than the rate for females.

The mortality rate for females decreased 4.3% from 2006 to 2007, while the mortality rate for males increased 0.8% during the same period.

Figure 16.1 Life Expectancy by Race/Ethnicity and Gender, 2005-2007 Combined

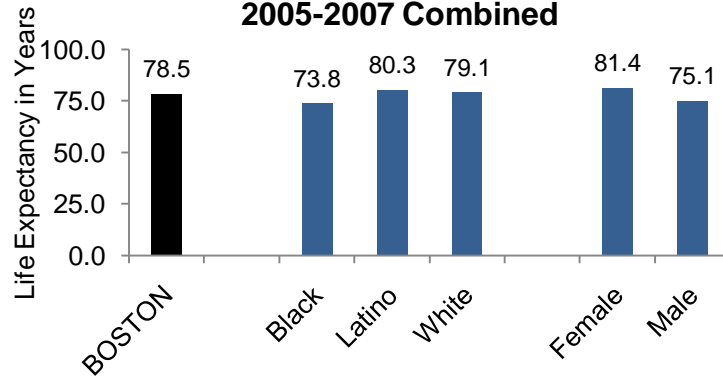


Figure 16.2 Mortality, 2000-2007

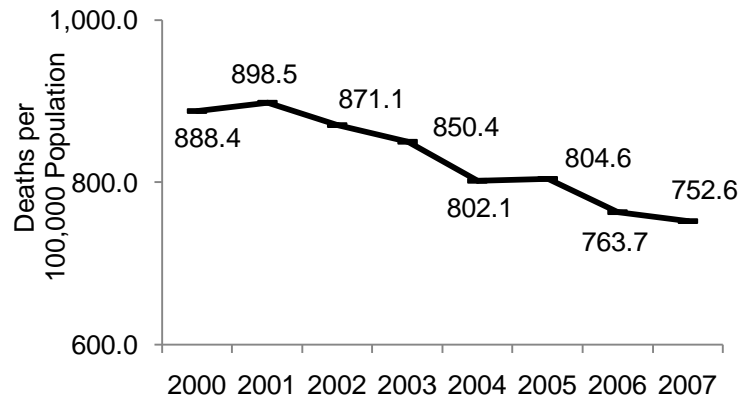


Figure 16.3 Mortality by Gender, 2006 and 2007

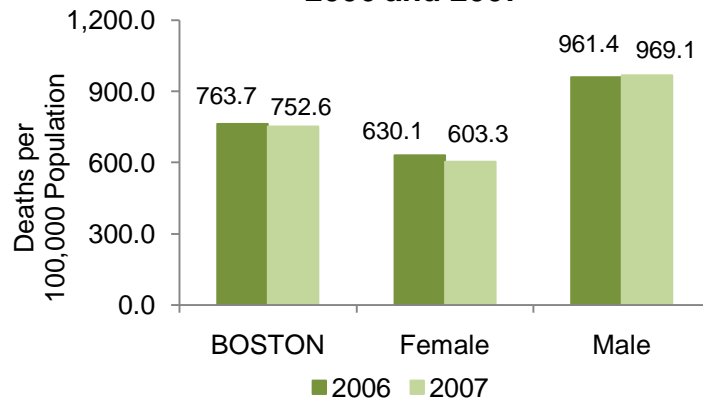
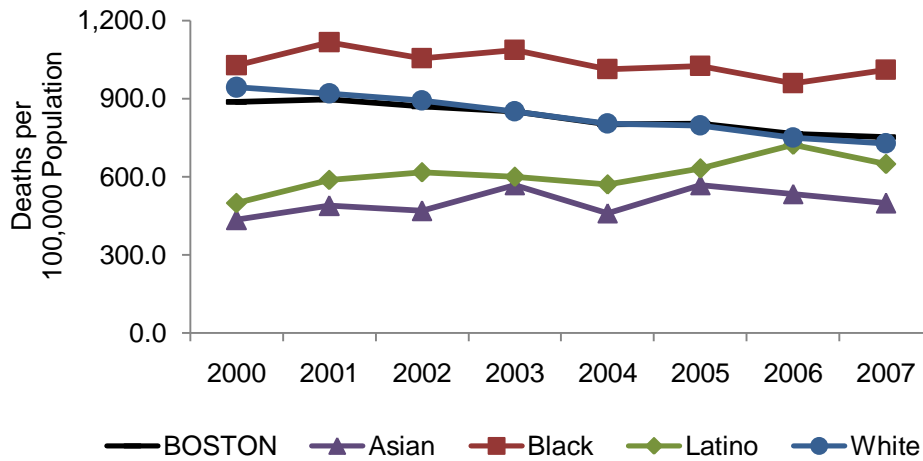


Figure 16.4 Mortality by Race/Ethnicity, 2000-2007



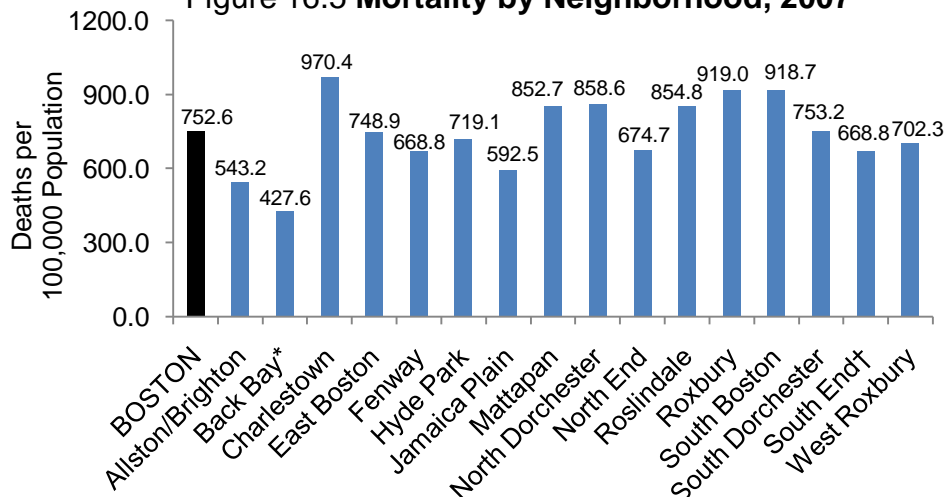
In every year from 2000 to 2007, the age-adjusted mortality rate was higher for Black residents than for other racial/ethnic groups. In 2007, the rate for Blacks was more than twice the rate (103% higher) for Asians, 55.3% higher than the rate for Latinos, and 38.8% higher than the rate for Whites.

The Boston mortality rate was higher in 2007 than in 2000 for Asians, Blacks, and Latinos, but was lower for Whites.

In 2007, Charlestown had the city’s highest age-adjusted mortality rate followed by Roxbury and South Boston. The Charlestown rate was almost 30% higher than the rate for Boston overall.

The lowest age-adjusted mortality rate in 2007 was for the Back Bay, followed by the rate for Allston/Brighton.

Figure 16.5 Mortality by Neighborhood, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 16.6 Top Five Leading Causes of Mortality 2002-2007

Leading Causes	Count	Rate
2002		
Cancer	1,072	218.4
Heart Disease	964	191.7
Injuries	275	47.6
Stroke	227	44.6
Chronic Obstructive Pulmonary Disease	156	31.6
All causes	4,412	871.1
2003		
Cancer	1,036	212.3
Heart Disease	992	198.2
Injuries	279	48.2
Stroke	222	43.3
Chronic Obstructive Pulmonary Disease	203	41.2
All causes	4,287	850.2
2004		
Cancer	977	199.3
Heart Disease	879	174.2
Stroke	245	48.4
Injuries	242	41.4
Chronic Obstructive Pulmonary Disease	172	34.7
All causes	4,063	802.1
2005		
Cancer	992	202.9
Heart Disease	828	164
Stroke	213	41.8
Injuries	241	41.1
Chronic Obstructive Pulmonary Disease	179	35.8
All causes	4,070	804.6
2006		
Cancer	944	192.7
Heart Disease	751	148.4
Injuries	316	55.3
Stroke	209	41.4
Substance Abuse*	176	33.5
All causes	3,864	763.7
2007		
Cancer	930	189.5
Heart Disease	741	147.3
Injuries	304	53.6
Stroke	175	34.3
Substance Abuse*	165	31.2
All causes	3,812	716.9

Leading causes of death among Boston residents are established by ranking age-adjusted mortality rates.

Cancer remained Boston's leading cause of death in 2007, followed by heart disease, injuries, stroke, and substance abuse. From 2006 to 2007, the rates of death from all of these causes decreased.

Between 2002 and 2007, Boston's top four leading causes were similar from year to year, with cancer and heart disease always ranking first and second, respectively, and stroke and injuries sharing the third and fourth ranks.

Figure 16.7 Top Five Leading Causes of Mortality Among Asian Residents, 2002-2007

Leading Causes	Count	Rate
2002		
Cancer	47	160.1
Heart Disease	18	65.3
Nephritis/Nephrosis	8	29.7
Injuries	9	28.9
Pneumonia/Influenza	6	22.3
All causes	135	469.0
2003		
Cancer	49	164.3
Heart Disease	33	117.8
Injuries	14	37.4
Stroke	10	35.4
Chronic Obstructive Pulmonary Disease	9	32.9
All causes	165	568.0
2004		
Cancer	51	169.1
Heart disease	16	55.9
Chronic Obstructive Pulmonary Disease	8	28.5
Stroke	7	24.3
Injuries	8	22.3
All causes	135	460.3
2005		
Cancer	53	177.5
Heart Disease	22	79.2
Stroke	13	45.5
Chronic Obstructive Pulmonary Disease	7	26.0
Nephritis/Nephrosis	6	21.4
All causes	166	569.0
2006		
Cancer	41	135.9
Heart Disease	28	99.0
Stroke	15	51.5
Chronic Obstructive Pulmonary Disease	11	39.1
Alzheimer's Disease	7	26.0
All causes	156	534.3
2007		
Cancer	43	146.6
Heart Disease	23	79.2
Stroke	10	35.0
Chronic Obstructive Pulmonary Disease	7	25.4
Alzheimer's Disease	6	22.3
All causes	144	498.5

Boston's Asian residents generally have lower mortality rates than other races and ethnicities in Boston.

For every year between 2002 and 2007, cancer was the leading cause of death for Asians, followed by heart disease.

With the exception of cancer mortality, age-adjusted mortality rates for each leading cause of death decreased for the Asian population from 2006 to 2007.

Cancer and heart disease were the leading causes of death among Black Boston residents each year from 2002 through 2007.

The age-adjusted cancer mortality rate increased 10.4% for Blacks from 2006 to 2007. The age-adjusted mortality rate for cancer was higher for Black residents than for Asian, Latino, and White residents from 2002 to 2007.

From 2006 to 2007, the age-adjusted heart disease mortality rate for Black residents increased 16%.

Figure 16.8 Top Five Leading Causes of Mortality Among Black Residents, 2002-2007

Leading Causes	Count	Rate
2002		
Cancer	251	257.3
Heart Disease	205	220.7
Stroke	56	63.1
Injuries	76	54.6
Diabetes	47	48.3
All causes	1,041	1054.9
2003		
Cancer	268	271.0
Heart Disease	225	239.1
Injuries	85	64.9
Stroke	51	57.9
Diabetes	50	54.9
All causes	1,058	1087.4
2004		
Cancer	227	230.2
Heart Disease	182	192.3
Stroke	59	67.2
Injuries	78	55.8
Diabetes	40	42.0
All causes	991	1012.1
2005		
Cancer	231	236.6
Heart Disease	198	221.7
Stroke	55	60.0
Injuries	77	56.6
Nephritis/Nephrosis	40	45.0
All causes	990	1,025.8
2006		
Cancer	246	250.2
Heart Disease	141	157.1
Injuries	107	80.1
Stroke	49	56.0
Diabetes	38	39.4
All causes	938	959.7
2007		
Cancer	259	276.3
Heart Disease	167	182.1
Injuries	99	72.8
Stroke	40	45.5
Diabetes	38	41.1
All causes	980	1,010.3

Figure 16.9 Top Five Leading Causes of Mortality Among Latino Residents, 2002-2007

Leading Causes	Count	Rate
2002		
Cancer	40	138.7
Heart Disease	30	129.8
Stroke	12	50.8
Injuries	38	47.4
Diabetes	11	38.7
All causes	216	618.4
2003		
Heart Disease	35	140.0
Cancer	38	103.7
Chronic Obstructive Pulmonary Disease	7	37.3
Injuries	32	37.0
Nephritis/Nephrosis	7	28.7
All causes	205	600.3
2004		
Cancer	41	126.6
Heart Disease	31	112.1
Stroke	13	43.6
Injuries	25	34.7
Nephritis/Nephrosis	6	25.6
All causes	200	570.9
2005		
Cancer	46	141.4
Heart Disease	32	110.1
Injuries	28	39.5
Chronic Obstructive Pulmonary Disease	7	30.6
Substance Abuse	19	28.7
All causes	212	631.7
2006		
Cancer	47	168.6
Heart Disease	38	162.9
Injuries	36	43.7
Stroke	9	36.6
Substance Abuse*	22	30.9
All causes	233	723.3
2007		
Cancer	42	137.9
Heart Disease	29	106.5
Injuries	38	53.6
Substance Abuse*	27	48.0
Stroke	9	32.6
All causes	214	650.5

Cancer and heart disease were the leading causes of death for Latino Bostonians between 2002 and 2007.

From 2006 to 2007, the cancer and heart disease mortality rates for Latinos decreased 18.2% and 34.6%, respectively.

Figure 16.10 Top Five Leading Causes of Mortality Among White Residents, 2002-2007

White Boston residents' first and second leading causes of death for the years 2002-2007 were cancer and heart disease.

Between 2002 and 2007, age-adjusted mortality rates for White Boston residents declined 27.6% for heart disease, and 20.4% for cancer.

Leading Causes	Count	Rate
2002		
Cancer	733	230.5
Heart Disease	708	205.4
Injuries	150	4904.0
Stroke	152	41.3
Chronic Obstructive Pulmonary Disease	123	37.6
All causes	3005	892.6
2003		
Cancer	698	214.2
Heart Disease	677	203.8
Chronic Obstructive Pulmonary Disease	158	47.3
Injuries	145	46.5
Stroke	152	41.4
All causes	2,845	851.2
2004		
Cancer	655	204.3
Heart Disease	645	185.4
Stroke	166	46.0
Injuries	126	42.8
Chronic Obstructive Pulmonary Disease	135	40.4
All causes	2,717	804.5
2005		
Cancer	656	208.4
Heart Disease	572	160.8
Injuries	129	42.8
Chronic Obstructive Pulmonary Disease	134	39.9
Stroke	139	37.6
All causes	2,683	797.2
2006		
Cancer	607	191.8
Heart Disease	540	151.6
Injuries	160	53.3
Substance Abuse*	109	39.6
Stroke	135	37.8
All causes	2,513	750.0
2007		
Cancer	582	183.4
Heart Disease	517	148.8
Injuries	164	53.9
Substance Abuse*	101	36.3
Chronic Obstructive Pulmonary Disease	109	32.0
All causes	2,451	727.9

Figure 16.11 Leading Causes of Mortality by Gender, 2006 and 2007

For both male and female Boston residents, cancer was the leading cause of death in 2006 and 2007, followed by heart disease.

With the exception of stroke and Alzheimer's disease, age-adjusted mortality rates were higher for males than for females for all causes shown.

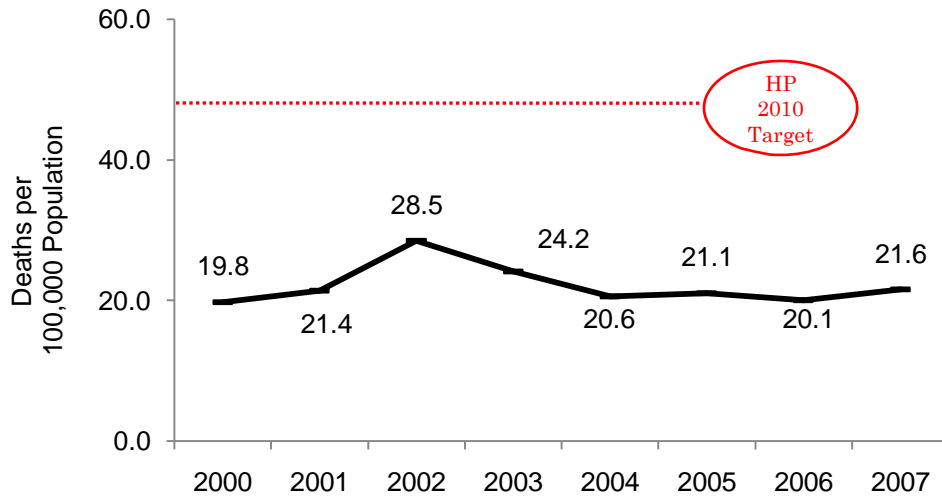
Marked differences in mortality existed for some causes. For example, the age-adjusted cancer mortality rate for males in 2007 was more than double the rate for females. The rate for injury for males was also more than three times the rate for females in 2007.

2006					
MALES			FEMALES		
	Count	Rate		Count	Rate
Cancer	454	235.8	Cancer	490	167.3
Heart Disease	359	201.4	Heart Disease	392	115.5
Injuries	218	78.7	Stroke	133	40.0
Substance Abuse*	122	48.5	Injuries	74	24.2
Stroke	76	41.5	Chronic Obstructive Pulmonary Disease	98	32.3
Chronic Obstructive Pulmonary Disease	65	35.8	Substance Abuse*	54	19.9
Diabetes	57	30.3	Nephritis/Nephrosis	60	19.2
Nephritis/Nephrosis	53	29.7	Pneumonia/Influenza	61	17.5
Pneumonia/Influenza	44	25.7	Septicemia	43	14.2
Septicemia	36	19.3	Diabetes	41	14.0
All causes	1,864	961.4	All causes	2,000	630.1

2007					
MALES			FEMALES		
	Count	Rate		Count	Rate
Cancer	472	248.3	Cancer	458	117.9
Heart Disease	364	200.4	Heart Disease	377	113.8
Injuries	224	83.8	Stroke	121	35.9
Substance Abuse*	121	47.6	Injuries	80	26.3
Chronic Obstructive Pulmonary Disease	66	37.1	Chronic Obstructive Pulmonary Disease	72	22.9
Nephritis/Nephrosis	65	34.6	Diabetes	56	18.0
Pneumonia/Influenza	51	30.5	Pneumonia/Influenza	57	16.0
Stroke	54	30.3	Substance Abuse*	44	16.0
Diabetes	52	27.2	Alzheimer's Disease	57	15.5
Septicemia	31	17.8	Nephritis/Nephrosis	49	15.2
Chronic Liver Disease	32	14.7	Septicemia	47	13.8
All causes	1,878	969.1	All causes	1,934	603.3

For explanation of symbols within charts (* † ‡ § ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Figure 16.12 Diabetes Mortality, 2000-2007



The 2007 diabetes mortality rate was 9% higher than in the year 2000.

From 2001 to 2007, Boston’s Black residents had the highest age-adjusted diabetes mortality rate among all racial/ethnic groups. Their highest rate, which occurred in 2003, was approximately twice as high as the rate for the city of Boston and three times as high as the rate for White residents. From 2006 to 2007, Latino residents had the second highest age-adjusted diabetes mortality rate.

Between 2000 and 2007, the diabetes mortality rate increased 24.5% for Blacks and 19.1% for Whites. Although the rate decreased 40.4% for Latinos during this time, it increased between 2005 and 2007.

Figure 16.13 Diabetes Mortality by Race/Ethnicity, 2000-2007

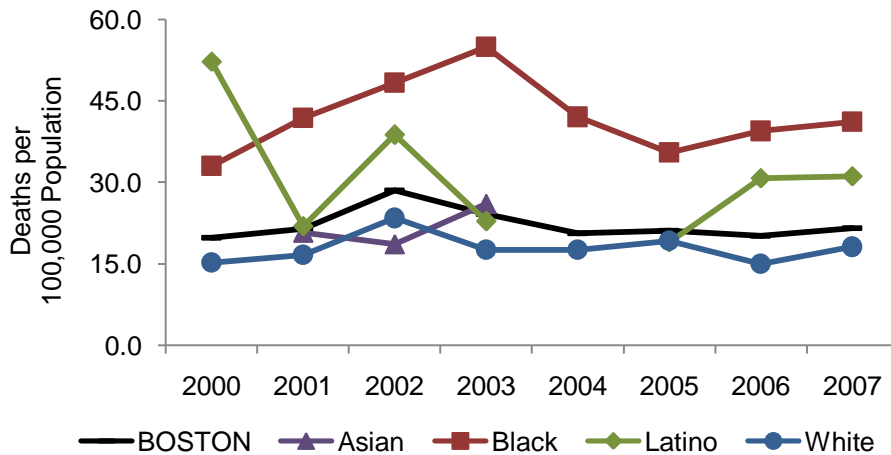
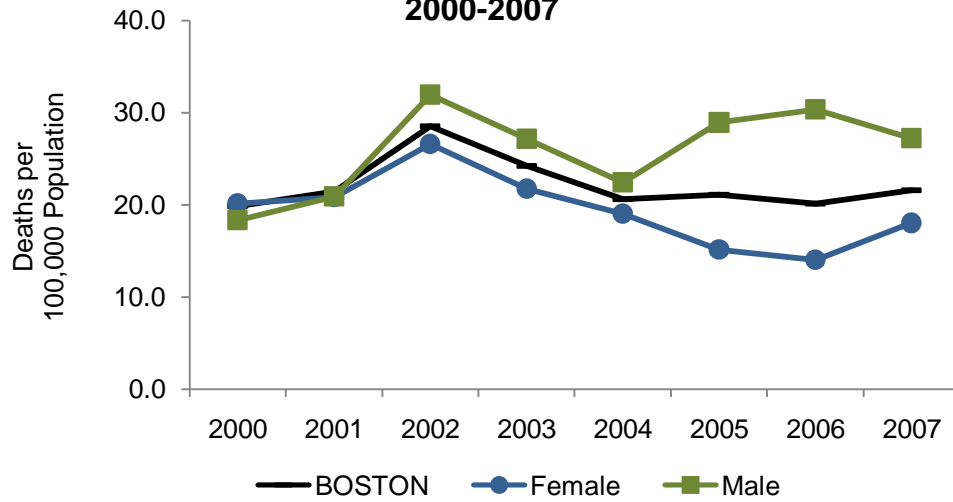


Figure 16.14 Diabetes Mortality by Gender, 2000-2007

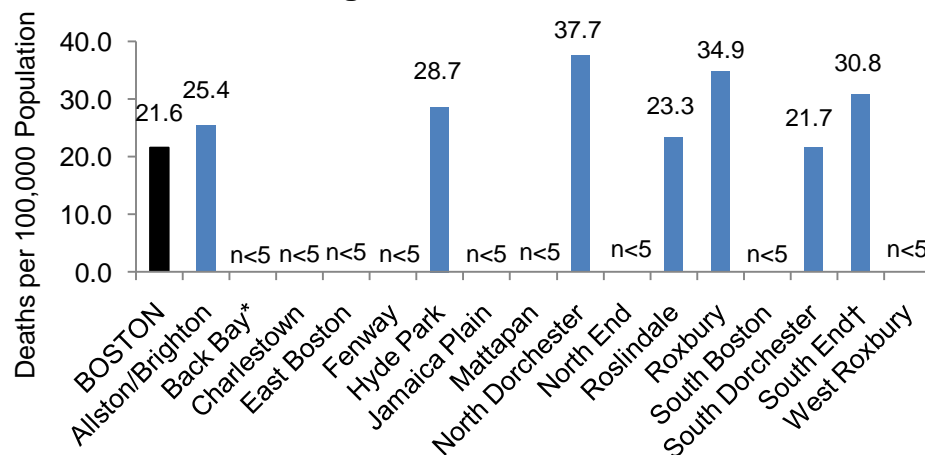


From 2001 through 2007, the age-adjusted diabetes mortality rate was higher for Boston’s male residents than female residents. In 2007, the rate for males was 1.5 times the rate for females.

Between 2000 and 2007, the diabetes mortality rate for males increased almost 50%. However, from 2006 to 2007, the rate for males decreased 10.2%, while the rate for females increased 28.6%.

Among the Boston neighborhoods with at least five diabetes deaths in 2007, North Dorchester had the highest age-adjusted mortality rate. This rate was 74.5% higher than Boston’s rate. Roxbury had the second highest rate which was 61.6% higher than the Boston rate.

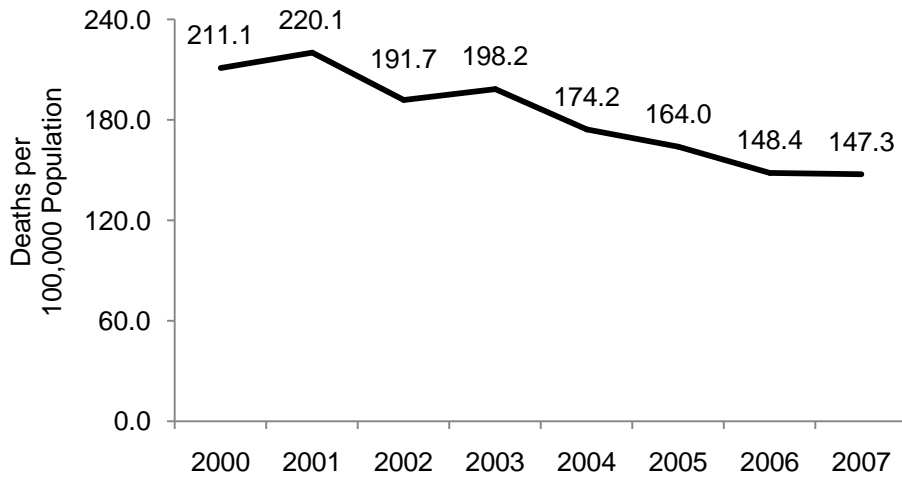
Figure 16.15 Diabetes Mortality by Neighborhood, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 16.16 Heart Disease Mortality, 2000-2007



The age-adjusted heart disease mortality rate in Boston has been declining steadily since 2001. The 2007 rate decreased 30% from 2000 to 2007.

Heart disease is one of the leading causes of death for all racial/ethnic groups in Boston. In 2007, the highest age-adjusted heart disease mortality rate was for Blacks, followed by Whites and Latinos.

Between 2000 and 2007, the rate declined 35% for Whites, 19% for Blacks, and 8.0% for Asians. The rate for Latinos increased 68%.

From 2006 to 2007, the heart disease age-adjusted mortality rate decreased for Asians, Latinos, and Whites, but increased for Blacks.

Figure 16.17 Heart Disease Mortality by Race/Ethnicity, 2000-2007

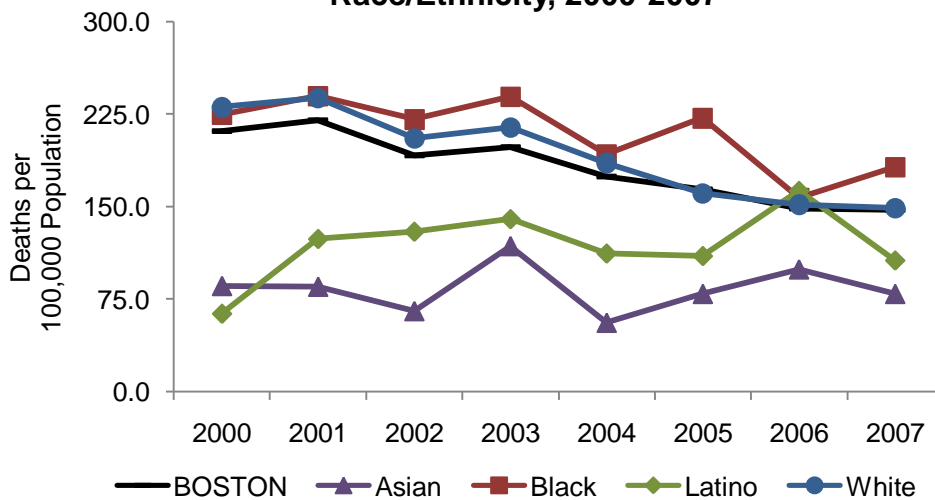
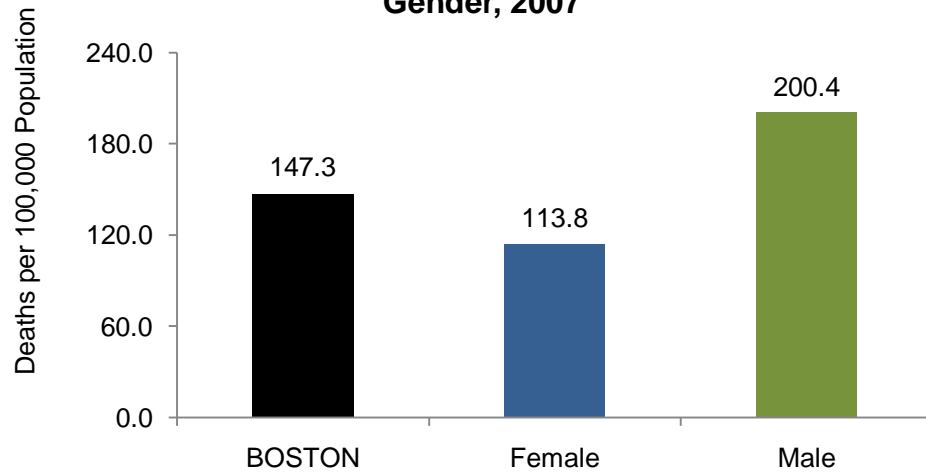


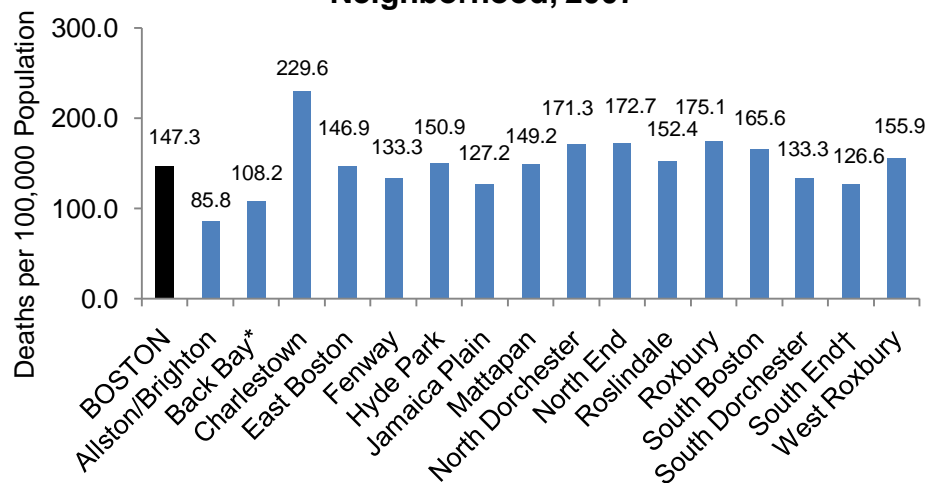
Figure 16.18 Heart Disease Mortality by Gender, 2007



In 2007, the age-adjusted rate of heart disease mortality for Boston males was almost twice the rate for Boston females and slightly more than a third higher than the rate for Boston overall.

Heart disease mortality varied greatly among Boston neighborhoods in 2007. Charlestown had the highest age-adjusted heart disease mortality rate and Allston/Brighton, the lowest. The rate for Charlestown was 56% higher than the overall Boston rate and the rate for Allston/Brighton, 42% lower.

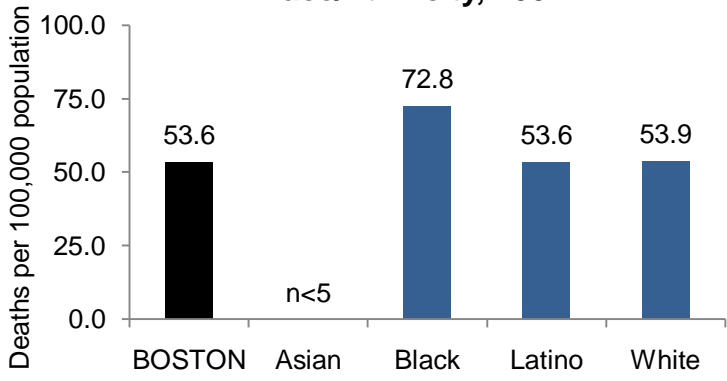
Figure 16.19 Heart Disease Mortality by Neighborhood, 2007



For explanation of symbols within charts (* † ‡ § || ¶ ** ††) and for notes, data sources, and data analysis, see **Notes, Data Source, and Data Analysis** at the end of this section.

Additional data can be found on the Boston Public Health Commission website at www.bphc.org/hob.

Figure 16.20 All-Injury Mortality by Race/Ethnicity, 2007



With the exception of Boston’s Asian population, injury ranks in the top five leading causes of death for all racial/ethnic groups in Boston. In 2007, the age-adjusted injury mortality rate for injuries was highest for Blacks.

Summary: Mortality

In 2005, the age-adjusted mortality rate for the Black population in the U.S. was 1010.3 (per 100,000) compared with 727.9 for the White population. Life expectancy for the White population was 5.1 years longer than the life expectancy for the Black population (1). Nationally, this gap between Blacks and Whites in (age-adjusted) death rate for all causes has decreased only slightly from 1950 to 2000.

Boston mortality data is similar to the national data. For Boston residents born between 2005 and 2007, the life expectancy is 78.5 years. The life expectancy for Black residents is 73.8 years – 6.5 years shorter than the life expectancy for Latino residents and 5.3 years shorter than the life expectancy for White residents. The life expectancy for female residents was 81.4 years, 6.3 years longer than for males.

In 2007, the leading cause of death in Boston (using age-adjusted mortality rates) was cancer, followed by heart disease, injuries, and stroke. Black residents had the highest mortality rates for each of these causes of death compared to other groups. Among Black residents, the age-adjusted mortality rate for cancer was 276.3 (46% higher than overall city rate); the rate for heart disease was 182.1 (24% higher than the city rate); the rate for injury was 72.8 (49% higher than the city rate); and the rate for stroke was 45.5 (63% higher than the city rate). Black residents also had the highest age-adjusted diabetes mortality rate among all racial/ethnic groups.

For both male and female Boston residents, cancer was the leading cause of death in 2006 and 2007, followed by heart disease. In 2007, the age-adjusted rate for injury for males was more than three times the rate for females; the age-adjusted cancer mortality rate for males was more than

double the rate for females; and the age-adjusted rate of heart disease mortality for males was almost twice the rate for females.



References

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2. **Department of Health and Human Services**. Healthy People 2010 Midcourse Review Focus Area 5 Diabetes. *Healthy People 2010*. [Online] April 7, 2007. [Cited: February 18, 2009.] <http://www.healthypeople.gov/data/midcourse/html/focusareas/FA05TOC.htm>.

Notes, Data Source, and Data Analysis

Figure 16.1

NOTE: Life expectancy could not be calculated for Asians due to the small number of deaths among Asians.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.2

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.3

NOTES: Data are presented as age-adjusted rates. These data do not include persons whose gender was not reported, except in the Boston overall count and rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.4

NOTES: Data are presented as age-adjusted rates. These data do not include persons whose race/ethnicity was not reported except, in the Boston overall rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.5

*Includes Beacon Hill, Downtown, and West End

†Includes Chinatown

NOTES: Data are presented as age-adjusted rates. These data do not include homeless persons or individuals whose neighborhood of residence was not reported, except in the Boston overall rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.6

*Included among substance abuse deaths are a significant number of those identified as injury deaths.

NOTE: Data are presented as age-adjusted rates and represent deaths per 100,000 population.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.7

NOTE: Data are presented as age-adjusted rates and represent deaths per 100,000 population.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.8

NOTE: Data are presented as age-adjusted rates and represent deaths per 100,000 population.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.9

*Included among substance abuse deaths are a significant number of those identified as injury deaths.

NOTE: Data are presented as age-adjusted rates and represent deaths per 100,000 population.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.10

*Included among substance abuse deaths are a significant number of those identified as injury deaths.

NOTE: Data are presented as age-adjusted rates and represent deaths per 100,000 population.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.11

*Included among substance abuse deaths are a significant number of those identified as injury deaths.

NOTE: Data are presented as age-adjusted rates and represent deaths per 100,000 population. These data do not include persons whose sex was not reported, except in the Boston overall rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.12

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.13

NOTES: Too few deaths among Asians and Latino to permit presentation of rates. Data are presented as age-adjusted rates. These data do not include persons whose race/ethnicity was not reported except, in the Boston overall rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.14

NOTES: Data are presented as age-adjusted rates. These data do not include persons whose gender was not reported except, in the Boston overall rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.15

* Includes Beacon Hill, Downtown, and West End

† Includes Chinatown

NOTES: Too few deaths among residents of Back Bay, Charlestown, East Boston, Fenway, Jamaica Plain, Mattapan, North End, South Boston and West Roxbury to permit presentation of rates. Data are presented as age-adjusted rates. These data do not include homeless persons or individuals whose neighborhood of residence was not reported, except in the Boston overall rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.16

NOTE: Data are presented as age-adjusted rates.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.17

NOTES: Data are presented as age-adjusted rates. These data do not include persons whose race/ethnicity was not reported, except in the Boston overall rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.18

NOTES: Data are presented as age-adjusted rates. These data do not include persons whose gender was not reported, except in the Boston overall rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.19

*Includes Beacon Hill, Downtown and West End

† Includes Chinatown

NOTES: Data are presented as age-adjusted rates. These data do not include homeless persons or individuals whose neighborhood of residence was not reported, except in the Boston overall rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

Figure 16.20

NOTES: Data are presented as age-adjusted rates. These data do not include persons whose race/ethnicity was not reported, except in the Boston overall rate. There were too few injury deaths among Asians to permit the calculation of a rate.

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

TECHNICAL NOTES

Rates
Population
Racial and Ethnic Designations
Age-Adjusted Mortality
Neighborhoods
Boston Neighborhood Survey (BNS)
Boston Behavioral Risk Factor Surveillance System
Youth Risk Behavioral Surveillance System
HIV/AIDS Reporting

Rates

A rate is a measure of some event, disease, or condition in relation to a population per unit time. For instance, the number of deaths due to heart disease per 100,000 population in a given year. Three types of rates are presented in this report: crude rates, age-specific rates (ASRs), and age-adjusted rates (AARs).

Crude rates are used to present data pertaining to the entire population, such as all of Boston, or to present data pertaining to an entire group within a population, such as all males or females. A crude rate is calculated by dividing the number of events for the entire population by the total population. It is usually calculated on the basis of every 100,000 people or, in the case of birth rates, every 1,000 females.

Age-specific rates take into account the size and age distribution of the population. They enable the reader to compare different groups without being concerned that differences in health status are due to differences in the size of the groups or in the distribution of ages. An ASR is calculated by dividing the number of events among people in an age group by the number of people in that age group. ASRs for deaths and for communicable diseases are usually calculated on the basis of every 100,000 people.

Age-adjusted rates are used to present data for comparison among several populations, such as Boston neighborhoods, in which distribution of age can differ considerably. The calculation for AARs takes into account the differences in age distribution and adjusts for them.

The AAR is calculated by applying the age-specific rate in a population for a specific event such as death to a standard population (typically, the 2000 U.S. standard population). AARs are used for Boston mortality data overall, for overall Boston mortality data by gender, by race/ethnicity, and by neighborhood, and for hospitalization data.

New cases of a communicable disease such as hepatitis or AIDS are presented as incidence rates, which may be age-specific or crude. Cancer incidence rates may be presented as crude, age-specific, or age-adjusted. Incidence rates are usually reported on the basis of every 100,000 people per year.

Population

Population statistics are drawn from two main sources. The first is the census of the population taken every ten years by the federal government, a literal count of people living in the United States. The second is population estimates made by the U.S. Census Bureau or other sources between censuses.

The national decennial census provides the best actual count of the U.S. population. It presents data to the level of small areas called census tracts, each of which has only a few thousand residents, to larger areas such as zip codes. Census tracts or zip codes can be combined to produce Boston neighborhood-level analyses. Zip-code based populations from the 2000 U.S. Census were used in calculating the rates of tuberculosis, sexually transmitted diseases, hospitalizations, emergency department visits, substance abuse treatment, and HIV and AIDS presented in this report.

Population projections or estimates are developed by the U.S. Census Bureau and other institutions using sophisticated statistical methods. The results are designed to take into account in- and out-migration and other changes occurring in the population between census years. However, estimates of population changes between census years have some drawbacks. They do not typically account for changes in the racial composition of a community, and they do not generally permit neighborhood-level analyses. Perhaps most importantly, even small errors in the accuracy of projections for neighborhoods or other population subgroups can result in large distortions in the resulting statistical estimates. In *The Health of Boston 2008*, estimates are used in the Population Characteristics Section.

To provide data on people of Latino ethnicity, who may be of any race, this report uses the 2000 U.S. Census. This avoids the double-counting that would result if Latinos were included in the White, Black, and Asian racial categories as well as in a Latino ethnicity category. However, in hospitalization and emergency department visits data, Latinos are reported in the White, Black, Latino, or Asian category, depending on the individual hospital's practices. This produces unreliability in data reporting, and readers must interpret hospitalization and emergency department data by race/ethnicity with considerable caution.

Racial and Ethnic Designations

The classification of race/ethnicity used in this report varies by data source. All racial and ethnic designations except those from the death certificate, some hospital discharge data, and some emergency department data are self-reported. Several cautions should be kept in mind when using data reported by race/ethnicity.

Race and ethnicity are social constructions, not biological facts. There is often more genetic variation between members of the same race than between members of different races. In addition, the meanings of these designations are highly subject to historical, cultural, and political forces. Not only do these designations change over time, but there is also a very subjective element that influences who is considered a member of one group or another. And the concept of race can be notably vague: the term "Black," for example, includes

people describing themselves as African American, African, or Caribbean, groups with distinct histories and differing health risks.

Nevertheless, racial designations are useful in that they are nearly universally used by people in the United States to describe themselves, and they permit us to identify and address the often huge disparities in health that exist across race/ethnicity groups. Race is often a proxy for such factors as socioeconomic status, inadequate access to health care, and racial discrimination.

Boston-specific data in this report are presented for each racial and ethnic subgroup when numbers are large enough to allow calculation of percentages or reliable rates. Few sources have data in large enough numbers to allow presentation of data about smaller groups such as the many ethnicities included in the category "Asian."

Since Latinos can be of any race, federal data sources often report Latino persons within the race categories Black or White. In *The Health of Boston*, however, Latino ethnicity is presented as a separate category. Prior to 2007, exceptions are the hospitalization and emergency department visits data, for which race/ethnicity reporting practices vary by hospital. The U.S. Census Bureau does not recommend comparing the population by race in 1990 with the population by race in 2000.

Age-Adjusted Mortality

Age-adjusted rates (AARs) are used to present data for comparison among several populations, such as Boston neighborhoods, in which the distribution of age can differ considerably. The calculation for AARs takes into account differences in age distribution and adjusts for them. The AAR is calculated by applying the age-specific rate in a population (for a specific event such as death) to a standard population. The year 2000 standard U.S. population is used in this report.

The International Classification of Disease (ICD) is a coding system developed by the World Health Organization (WHO) and 10 international centers. The ICD system standardizes medical terms used on death certificates and groups them for statistical purposes. The International Classification of Disease, Ninth Revision, Clinical Modification (ICD-9-CM) is used for categorizing and classifying morbidity data from inpatient and outpatient records of hospitals. It should not be confused with the International Classification of Disease used for categorizing and classifying mortality data from death certificates, whose revision from ICD-9 to ICD-10 became effective with 1999 mortality data.

Mortality data from death certificates are coded using ICD-10. The change from ICD-9 to ICD-10 means that causes of death classified according to the ICD-10 are not precisely comparable to causes of death classified according to ICD-9.

Boston Neighborhoods

The population of individual census tracts or zip codes is typically so small that there are not a sufficient number of health-related events to permit the presentation of reliable rates. For *The*

Health of Boston, census tracts or zip codes, depending upon the data source, are aggregated into Boston neighborhoods for the presentation of health data.

Some of Boston's neighborhoods are clearly defined. West Roxbury, for example, is bordered by the West Roxbury Parkway, the Stony Brook Reservation, and Dedham. The boundaries of most neighborhoods, however, are less distinct and often the subject of dispute. The neighborhood definitions used here were defined by the Boston Public Health Commission in consultation with local residents, health care providers, and advocates throughout the city.

Boston Neighborhood Survey (BNS)

The BNS is telephone survey of Boston adults (18 and older) conducted every two years. It is designed to provide information about some important sociodemographic characteristics of Boston neighborhoods. Among other topics the 2008 BNS asked respondents about: (1) community norms and neighborhood resources, (2) respondents' sense of community well-being and perceptions of community safety, (3) demographic characteristics, and (4) the well-being of neighborhood youth. The survey, which is conducted in both English and Spanish, provides results for Boston overall and for neighborhoods.

Funding for the survey is provided by the Centers for Disease Control and Prevention. The Boston Neighborhood Survey was supported by Grant/Cooperative Agreement Number U49 CE000740 from the Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the Harvard Youth Violence Prevention Center and do not necessarily represent the official views of CDC.

Boston Behavioral Risk Factor Surveillance System (BBRFSS)

The Behavioral Risk Factor Surveillance System (BRFSS) is system of telephone health surveys of adults ages 18 and over that collects information on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury. The survey is conducted by all 50 states as well as many major cities.

The Boston Public Health Commission conducts an independent survey every other year modeled after BRFSS. Over time, the survey has been modified by the Commission to be more reflective of health risk behaviors specific to the Boston population. However, the Boston version, now called the Boston Behavior Risk Factor Surveillance System (BBRFSS), has maintained many standard core questions included in the BRFSS used by the State. Results from the survey are used by the Commission to plan and implement health initiatives; to identify health problems within a population; to identify racial/ethnic disparities in access to and utilization of health care, in risk behaviors, and selected health conditions; to establish and monitor health objectives; to support health-related legislative activities; to evaluate disease prevention activities and programs, and to assist in getting grants and other funding.

Youth Risk Behavioral Surveillance System (YRBSS)

The Youth Risk Behavior Surveillance System (YRBSS) is system of national school-based surveys conducted by the Centers for Disease Control and Prevention (CDC) every other year

among public high school students in grades 9-12. It is currently conducted in 44 states and 22 cities. The survey contains questions related to risk behaviors such as unintentional injuries and violence, alcohol and drug use, tobacco use, and sexual behavior; unhealthy eating behaviors, physical inactivity; and the prevalence of obesity and asthma.

The Boston Public Health Commission uses results from the YRBSS to identify the prevalence of health risk behaviors among Boston youth, identify racial/ethnic disparities, plan and implement health initiatives, support health-related legislative activities, assist in getting grants and other funding, and other activities.

HIV/AIDS Reporting

The 2007 HIV/AIDS data are not included in this report. According to the Massachusetts Department of Public Health HIV/AIDS Surveillance Program, a regulation change in reporting requirements set by the State occurred. As a result of processes that had to be implemented to comply with the change in regulation, data at the local level is not yet ready for release.

U.S. Census Poverty Designation

There are two predominant definitions of poverty. One is defined by the U.S. Census Bureau and referred to as “poverty thresholds,” and the other is defined by the Department of Health and Human Services and referred to as “poverty guidelines.” The poverty definition present in *The Health of Boston 2009* is that of the U.S. Bureau of the Census. Poverty estimates are from the censuses of 1970, 1980, 1990, and 2000 and the U.S. Bureau of the Census, American Community Survey (ACS) of 2004, 2005, 2006, and 2007.

The U.S. Census Bureau’s definition of poverty is a federal definition characterized by a series of “poverty thresholds” which specify before-taxes, monetary income maximums, in dollars, an individual and/or family can earn in a given year and still be declared impoverished. This definition is based on same household of residence and takes into account family size and whether or not any members in one or two-person familial units are over the age of 65. It does not include any income that may have been generated through federal financial assistance programs, capital gains, or from children under the age of 15; foster children are not included in the calculations.

Starting in 1969 poverty thresholds were modified annually to account for inflation according to rates specified by the Consumer Price Index. Poverty thresholds are not adjusted for regional differences in mean/median income levels, nor do they include prison inmates, residents of nursing homes, students who live in on-campus university housing, and persons who live in military barracks; however, persons living in shelters are included.

DATA SOURCES AND LIMITATIONS

Births. Massachusetts Department of Public Health, Center for Health Information, Statistics, Research, and Evaluation, Division of Research and Epidemiology, Registry of Vital Records and Statistics.

The recording of resident live births is nearly complete for Massachusetts resident births, including those that take place at home or out of state but to Massachusetts residents.

Race/ethnicity is self-reported by the mother. Infants are assigned their mother's race/ethnicity, not a combination of both parents'.

There is an approximate 14-month delay between the close of a data year and the Department's releases of the data for outside publication.

Breastfeeding. Massachusetts Pregnancy Risk Assessment Monitoring System (MA PRAMS).

These data are based on a survey that relies on self-reporting by the respondent. The data are limited by the degree to which mothers respond to survey questions pertaining to breastfeeding and whether or not they respond based on actual breastfeeding experience or what is expected.

Cancer Incidence. Massachusetts Department of Public, Massachusetts Cancer Registry

There is a 3-year lag in published cancer incidence data. The data are based on reported new cases only and incidence data for some races/ethnicities may not be made available due to small numbers of cases. Under-reporting of cancers that may not be diagnosed in hospitals is another limitation.

Communicable diseases (hepatitis, tuberculosis, and reportable disease listing). Boston Public Health Commission, Communicable Disease Control Division.

Data from communicable disease surveillance systems are limited by the degree to which people with a condition seek health care that results in testing and reporting to the system. Many such diseases are asymptomatic or mild, or are treated presumptively without formal testing, and for some conditions, reporting may be less than complete. All of these factors may contribute to underestimates of the frequency of disease and/or distortions in the pattern of disease seen in the reported data.

Communicable diseases (sexually transmitted diseases). Massachusetts Department of Public Health, Center for Clinical and Laboratory Services, Division of Sexually Transmitted Disease (STD) Prevention.

As noted in the section above, communicable diseases, including those transmitted sexually, are subject to a number of limitations. New cases of chlamydia, syphilis and

gonorrhea infection are reported to the Massachusetts Department of Public Health by diagnosing physicians and laboratories. Undiagnosed cases and variations in screening practices and compliance with reporting requirements may influence the accuracy of reported sexually transmitted diseases.

Census 2000, U.S. Department of Commerce, U.S. Census Bureau, American Fact Finder.

A limitation of census data is that censuses are conducted only every ten years and may thus be out of date before a new census has been completed. Another is that undercounts of certain subpopulations may occur when people, for example, undocumented immigrants, avoid being recorded in the census for fear of contact with the government or for other reasons.

The collection and coding of race and ethnicity data has changed significantly over time. Hispanic ethnicity was not asked until 1930, and then was limited to Mexican ancestry. It was collected in 1940 for all Hispanics/Latinos, but not again until 1970, and then only in samples, not in the count of the whole population. Beginning in 1980, Hispanic origin has been a regular part of the data collection. The capacity to distinguish race groups from Hispanic/Latino origin was not built into the census until 1980.

Deaths. Massachusetts Department of Public Health, Center for Health Information, Statistics, Research, and Evaluation, Division of Research and Epidemiology, Registry of Vital Records and Statistics.

Death data used by the Boston Public Health Commission pertain only to Boston residents. Death due to homicide as reported by the Boston Police Department applies to any homicides that occur in Boston without regard to the actual city of residence of the deceased. As a result, the number of deaths, such as homicides, reported by the Boston Public Health Commission will always be less than those reported by the Boston Police Department.

Death records are completed with the assistance of an informant, typically a family member or funeral director, which may result in errors (for example, in race/ethnicity reporting) that would not occur in self-reported data.

Inconsistencies in the recording of immediate cause of death, intervening causes, and the underlying cause of death have been documented nationally, which may result in under- or over-reporting of certain causes. Data are embargoed until after public release by the Massachusetts Department of Public Health, approximately 14 months after the close of the data year.

GLOSSARY

To help the reader compare the data presented for specific health indicators in this report to data from other sources, the definitions provided below include the codes used to classify causes of hospitalization or death. The hospitalization codes are from the Diagnostic Related Grouping (DRG), based on version 18 of the Federal Groupers. The cause-of-death codes are from the International Classification of Diseases, 10th Revision (ICD-10), a product of the World Health Organization (WHO).

AAR: See Age-Adjusted Mortality Rate.

Acquired Immune Deficiency Syndrome (AIDS): See HIV/AIDS.

African American: All persons self-identified as of African descent that do not also identify themselves as Latino.

Age-Adjusted Mortality Rate (AAR): Calculated by applying the age-specific mortality rates in a population to a standard population (typically, and in this report, the 2000 U.S. population). The age-adjusted rate of one group can be compared to the age-adjusted rate of another group with confidence that differences in the rates of the two areas or groups do not stem from differences in the age structure of their populations. AARs are extensively used in the national Healthy People 2010 goals.

Age-Specific Rate (ASR): The number of events such as deaths or diseases per year in a given age group per 100,000 people in that age group.

Age-Specific Birth Rate: The number of live births to women in an age group divided by the female population of that age group, expressed per 1,000 females in that age group.

Age-Specific Hospitalization or Emergency Department Visit Rate: The number of hospitalizations or emergency department visits per year in a given age group per 1,000 people in that age group.

Alcohol-Related Deaths: Death directly attributable to alcohol use/abuse, such as liver disease due to alcohol consumption, and accidental alcohol overdose. This category does not include deaths indirectly due to alcohol use, such as deaths due to injuries occurring while intoxicated or deaths caused by another person who was intoxicated. ICD-10 codes F10, G31.2, G62.1, I42.6, K29.2, K70, R78.0, X45, X65, and Y15 are used to define alcohol-related deaths.

Asian: All persons self-identified as Asian or Pacific Islander (e.g., Chinese, Japanese, Hawaiians, Cambodians, Vietnamese, Asian Indians, Filipinos) who do not also identify themselves as Latino. The numbers from the 2000 Census used in the Demographics section use a different way of counting races and ethnicity and should not be compared with numbers drawn from earlier censuses.

Asthma and Bronchitis: Asthma is a chronic inflammatory condition defined by sudden periodic attacks of difficulty in breathing accompanied by wheezing caused by a spasm of the

bronchial tubes. Bronchitis refers to inflammation of the mucous membrane of the bronchial tubes. DRG codes 96-98.

Biracial: An Individual with ancestors from mostly two separate races.

Birth Rate: The number of live births per year, per 1,000 women ages 15-44.

Birthweight: The weight of an infant at the time of delivery. It may be recorded in either grams or pounds/ounces. If recorded in pounds/ounces, it is converted to grams for use in this report based on the following formula: 1 pound = 453.6 grams; 1,000 grams = 2 pounds and 3 ounces.

Black: All persons self-identified as Black (e.g., African Americans, Haitians, West Indians) who do not also identify themselves as Latino.

Blood Lead Levels: The amount of lead in micrograms per deciliter, detected in the blood during finger-stick screening or venous-confirmation blood tests.

Cancer: A group of diseases characterized by uncontrolled growth and spread of abnormal cells. ICD-10 codes C00-C97.

Census 2000: The count of the entire American population undertaken by the U.S. Census Bureau in 2000. Census 2000 should not be confused with the year 2000 standard population, which is a set of population weights used to calculate age-adjusted rates.

Chlamydia: A sexually transmitted disease caused by the bacterium *Chlamydia trachomatis*. About half of infected men, and three-quarters of infected women, have no symptoms. Chlamydia can permanently damage a woman's reproductive organs if not treated promptly.

Chronic Obstructive Pulmonary Disease (COPD): Diseases including bronchitis, asthma, emphysema, and allergies from inhaled organic dust particles, which decrease the ability of the lungs to oxygenate the blood. The leading cause of COPD is smoking. ICD-10 codes J40-J47. For hospitalization data, DRG code 88.

Death Rate: The number of deaths per year per 100,000 population.

Demographics: The statistical study of characteristics of human populations and of population distributions such as age, sex, and race/ethnicity.

Diabetes: A chronic metabolic disease characterized by inadequate insulin production by the pancreas. ICD-10 codes E10-E14.

Diagnostic Related Grouping (DRG) Codes: Codes used to group reasons for hospitalization.

Drug-Related Deaths: Deaths due to use of drugs other than alcohol and tobacco, including direct physiological causes as well as some accidental deaths in which drug use/abuse is involved. Does not include deaths indirectly due to drug use, such as death due to injuries occurring while under the influence of drugs or deaths caused by another person under the

influence of drugs. ICD-10 codes F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F17.0, F17.3-F17.5, F17.7-F17.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, X40-X44, X60-X64, X85, and Y10-Y14.

Gonorrhea: A sexually transmitted disease caused by the bacterium *Neisseria gonorrhoeae*. Symptoms in men can include a burning sensation when urinating, a white, yellow, or green discharge from the penis, or painful or swollen testicles. Symptoms in women can include a painful or burning sensation when urinating, increased vaginal discharge, or vaginal bleeding between periods. Many men and women have no symptoms.

Healthy People 2010 Goals and Objectives: Targets established by the U.S. Public Health Service, in conjunction with the Centers for Disease Control and Prevention and the National Center for Health Statistics, to assist communities with health promotion and disease prevention efforts and to establish health status goals to be met by the year 2010.

Heart Disease: A group of conditions, including valve and conductive disorders as well as hypertensive diseases. ICD-10 codes I00-I09, I11, I13, and I20-I51.

Hepatitis A: Liver disease caused by infection with the hepatitis A virus (HAV). HAV is transmitted person-to-person through the fecal-oral route, most commonly through contaminated food or water. Onset is abrupt, and symptoms include jaundice, fatigue, abdominal pain, nausea, diarrhea, and fever. Infection does not become chronic.

Hepatitis B: Liver disease caused by infection with the hepatitis B virus (HBV). HBV is transmitted person-to-person through contact with blood and other bodily fluids. Symptoms include jaundice, abdominal pain, fatigue, and joint pain. Acute infection resolves over time. Chronic infection occurs in 90% of infants born with HBV, 20-50% of children less than 5 years old, and 1-10% of persons infected as adults.

Hepatitis C: Liver disease caused by infection with the hepatitis C virus (HCV). HCV is transmitted through blood-to-blood contact, most often through injection drug use. About 80% of people infected with HCV will not develop any symptoms, which include jaundice, fatigue, dark urine, and abdominal pain. 75-85% of those infected with HCV will develop chronic liver disease.

Hispanic: See Latino.

HIV/AIDS: The human immunodeficiency virus (HIV) infection, which leads to Acquired Immune Deficiency Syndrome (AIDS) or other HIV-related infections. ICD-10 codes B20-B24.

HIV+ or HIV Infected: Having tested positive for the antibodies to human immunodeficiency virus (HIV), meaning that one is infected with the virus, with or without major related conditions. DRG codes 701-716.

Homeless: The federal government defines “homeless” to mean (1) an individual who lacks a fixed, regular, and adequate night-time residence; and (2) an individual who has a primary night-time residency that is (i) a supervised publicly or privately operated shelter designed to

provide temporary living accommodations (including welfare hotels, congregate shelters, and transitional housing for the mentally ill); (ii) an institution that provides a temporary residence for individuals intended to be institutionalized; or (iii) a public or private place not designed for, or ordinarily used as, a regular sleeping accommodation for human beings. This term does not include any individual imprisoned or otherwise detained under an Act of Congress or a state law.

Homicide: A death intentionally caused by a person other than the deceased. ICD-10 codes X85-Y09 and Y87.1.

Hospitalization: A patient's continuous stay of one night or more in the hospital for observation, care, diagnosis, or treatment before being released by the hospital, or before death.

Human Immunodeficiency Virus (HIV): The virus that is responsible for causing AIDS.

ICD-10 Codes: Data from 1999 and later years are classified according to the International Classification of Diseases, 10th Revision (ICD-10), released by the World Health Organization in 2000 and adopted by the United States National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention. ICD-10 classification replaces ICD-9 classification. For more information on these codes and their use, see <http://www.cdc.gov/nchs/icd9.htm#ICD-10-CM>.

IMR: See Infant Mortality Rate.

Incidence: The number of new cases of a particular disease over a period of time (usually a year) and in relation to the population in which it occurs.

Infant Mortality Rate (IMR): The number of deaths under one year of age per 1,000 live births.

Injury: Injury deaths include five categories: homicides, suicides, motor vehicle-related injuries, (other) unintentional injuries, and "undetermined" injuries (for which it was not determined on the death certificate whether the injury was intentional). The latter two categories are frequently presented together in this report. ICD-10 codes are used for identifying the type of injury that resulted in death. The determination of intent are for purposes of medical record-keeping only. Visits to emergency departments, clinics, hospitals, physician offices, and other outpatient facilities for treatment of injuries are identified by type of injury using ICD-9-CM E codes.

Latino: Includes people of any race (Asian, Black, White, or Other) self-identified as Hispanic or Latino (such as Puerto Rican, Mexican, Cuban, Spanish, or Dominican).

Lead Screening: The measurement of blood-lead levels in children to identify those who have been exposed to toxic levels of environmental lead. In Boston, annual screening of children between 6 and 48 months of age is mandatory.

Low Birthweight (LBW): Birthweight less than 2,500 grams (or 5.5 lbs).

Multiracial: An Individual from two or more racial or ethnic groups.

Mortality: Death, or the relative frequency of death per unit of population in a specific time period.

n<5: A notation used to indicate that for this health indicator there were fewer than five occurrences (for example, births, deaths, new case of a disease) and therefore a rate could not be presented (see Note to Readers).

Neighborhood: One of 16 distinct geographical areas in Boston (see Note to Readers).

Nephritis/Nephrosis: Inflammation of the kidneys (nephritis), or kidney disease with severe protein loss and fluid retention or degenerative changes in the kidneys without inflammation (nephrosis). For data from 1999 and later years, ICD-10 codes N00-N07, N17-N19, and N25-N27.

Pneumonia/Influenza: Bacterial or viral infections of the lungs that primarily affect the aged and persons with compromised immune systems. ICD-10 codes J10-J18.

Pregnancy: The condition of carrying a developing embryo or fetus in the uterus. DRG codes 370-384.

Septicemia: A serious infection caused by bacteria in the blood, which is sometimes called blood poisoning. Symptoms include fevers and chills, rapid breathing and heart rate, changes in mental state (such as irritability, feeling very tired, or anxious), and feeling shock. Septicemia progresses rapidly, and can be fatal.

Sexually Transmitted Disease: Infection spread by transfer of organisms from person to person during sexual contact.

Standard Population: An estimate of the U.S. population in which the age, race, and sex distributions are known, resulting in a set of population weights that can be used to calculate adjusted mortality rates. In this report, the year 2000 U.S. standard population is used to calculate age-adjusted mortality rates.

Stroke: A cerebrovascular accident. Stroke occurs when a blood vessel in the brain bursts or when the blood supply to part of the brain is blocked, depriving the brain of oxygen. ICD-10 codes I60-I69.

Substance Use and Abuse: Use or overuse of ingested substances both legal (such as alcohol) and illegal (such as cocaine); for alcohol-related data, ICD-10 codes F10, G31.2, G62.1, I42.6, K29.2, K70, R78.0, X45, X65, and Y15; for drug-related data, ICD-10 codes F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F17.0, F17.3-F17.5, F17.7-F17.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, X40-X44, X60-X64, X85, and Y10-Y14.

Suicide: The intentional and voluntary taking of one's own life. For data from 1999 and later years, ICD-10 codes X60-X84 and Y87.0.

Syphilis: A sexually transmitted disease caused by the bacterium *Treponema pallidum*. The first stage of syphilis is usually a sore (chancre), followed by skin rashes and lesions of the mucous membrane, fever, swollen lymph glands, sore throat, patchy hair loss, headaches, weight loss, muscle aches, and fatigue. Although signs and symptoms of initial infection can subside without treatment, untreated syphilis can cause complications many years later, including paralysis, blindness, dementia, and death.

Tuberculosis (TB): A bacterial infection that primarily affects the lungs. TB is transmitted via airborne droplets through sneezing, coughing, or spitting. People who are infected with latent TB do not have symptoms and cannot transmit the bacteria to others. People with active TB experience symptoms including chronic cough, pain in the chest, coughing up blood or sputum, fatigue, weight loss, and fever.

µg/dL: Micrograms per deciliter. A measurement unit for level of lead in a measured quantity of blood: a billionth of a gram in a tenth of a liter. Children with blood lead levels of 10 µg/dL or higher are considered to have elevated blood lead levels.

Unintentional Injury: An accidental injury. ICD-10 codes V01.0, V01.1, V01.9, V05.0, V05.1, V05.9, V06.0, V06.1, V06.9, V09.1, V09.3, V09.9, V10.0, V10.1-V10.5, V10.9, V11.0-V11.5, V11.9, V15.0-V15.5, V15.9, V16.0-V16.5, V16.9, V17.0-V17.5, V17.9, V18.0-V18.5, V18.9, V19.3, V19.8, V19.9, V80.0-V80.2, V80.7-V80.9, V81.2-V81.9, V82.2-V82.9, V87.9, V88.9, V89.1, V89.3, V89.9, V90-V95, V96.0-V96.2, V96.8-V96.9, V97.0-V97.3, V97.8-V97.9, V98-V99, W00-X59, Y85.0, Y85.9, and Y86. Codes used by *Healthy People 2010* are slightly different.

White: All persons self-identified as White who do not also identify themselves as Latino.