

# THE HEALTH OF BOSTON 2003

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prepared by  
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**B O S T O N**

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## **PREFACE**

In 1995, the Legislature passed and the Governor signed legislation establishing the Boston Public Health Commission and requiring it to submit annual reports on various matters related to public health in the city of Boston:

*Sect. 8. (b) ... the commission shall prepare and file with the mayor, the president of the city council and the city clerk an annual assessment of the public health needs of the city. The annual public health assessment shall include an evaluation of existing local, state and federal programs and services to address the public health needs of the city and the adequacy of funding sources available for such programs and services, an assessment of programs, services and other activities provided by private public health providers to address the public health needs of the city, including identification of all vulnerable populations in the city, the performance of providers under contract with the commission in accordance with this act, and proposals by the commission to enlarge or enhance its response to the public health needs of the city including new, expanded or revised programs or services to be provided by the commission or by public health providers under contract with it for the ensuing fiscal year.*

*The Health of Boston 2003* is the seventh in a series of annual reports in response to this legislation.



## **ACKNOWLEDGMENTS**

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**THE HEALTH  
OF  
BOSTON  
2003**



**INTRODUCTION**

*Welcome to The Health of Boston 2003*

This report is presented by the Boston Public Health Commission, the nation’s first health department. The Boston Public Health Commission can trace its roots Paul Revere, the nation’s first health officer. Since his time, Boston has pioneered public health strategies that save lives and improve the quality of life for its residents.

*The Health of Boston 2003* is a comprehensive report that looks at the socioeconomic status, births, hospitalization, and major causes of death among Boston residents. It includes a large section on the surveillance and prevention of infectious diseases such as HIV/AIDS. In accordance with its mission of disease prevention, the Boston Public Health Commission includes in *The Health of Boston 2003* data on healthy behaviors such as diet and physical activity. This year it includes a section focusing on the health of adolescents. The assessment of data in all of these areas can enable individuals and health care professionals to devise strategies that reduce illness and enhance the well-being of Boston residents.

“A healthy city starts with healthy people. And, as we know from experience, preventive health care is one of the best strategies we have.”  
  
**THOMAS M. MENINO**  
*Mayor of Boston*

to

*Current, Relevant, User-Friendly*

This report contains the most up-to-date information available on the health of Bostonians. It is designed to be as easy as possible to read and is meant to be used by residents who want to learn more about the health of their neighborhoods, by researchers, by health care providers, and by those who make public policy. *The Health of Boston* continually expands its sources of information, keeping the information fresh and providing readers with a multi-dimensional view of health in Boston.

*A Tool for Health Promotion*

Data is a powerful tool that can tell a story in a very clear way. Readers are encouraged to use the information in this report for a range of purposes; for example, to apply for new funding for projects and programs, as the basis of community priority-setting, or to devise new outreach plans at the workplace. For more information or to request additional data for these purposes, please call the Research Office at (617) 534-4757.

**Organization of This Report**

Each edition of *The Health of Boston* differs in some respects from its predecessors. Every year this report highlights certain points of interest and updates readers on the annual surveillance of standard health indicators.

In this year’s report, readers will find new data made available after the release of *The Health of Boston 2002*, background information with national statistics on the health topics, a look at trends, a sizable section on infectious diseases, and a special section on health and health issues among Boston adolescents.

Results of testing for statistical significance are presented for data about mortality and lifestyle measures. For more information about these tests, see the Technical Notes and Glossary.

# The Health of Boston 2003.....

This publication, as well as other publications produced by the BPHC Research Office, can be obtained by calling (617) 534-4757. They may also be accessed from the BPHC web site at [www.bphc.org](http://www.bphc.org).

## **Data Issues**

The most recent Boston data available from most sources are from the year 2001, but the time span reported for the health indicators included in this report varies. Mortality and birth data presented by neighborhood in this report are based on census tracts; data on hospitalization, lead poisoning, and communicable diseases are based on ZIP codes.

Rates are calculated using the Boston population as reported in the 2000 US census and population estimates from the Massachusetts Institute for Social and Economic Research (MISER) of the University of Massachusetts and from the Massachusetts Department of Public Health (MDPH). Rates provided by other sources may use different population bases. Data in this report are presented using counts, percentages, and age-specific and age-adjusted rates. The Technical Notes provide details on these and related issues.

## **Data Cautions**

Changes have been made by international and national health organizations in the way data are collected and categorized, the use of new population denominators, and the use of the new population standard in calculating age-adjusted rates. Therefore, age-adjusted and age-specific rates in reports before *The Health of Boston 2002* cannot be compared with similar data from 1999, 2000, and 2001 in *The Health of Boston 2003*. One or more of such changes affects mortality, birth, hospitalization, and infectious disease rates.

Also, in *The Health of Boston 2003*, age-adjusted data for the individual years 1995-1998 cannot be compared to individual years 1999-2001. For more information, see *The Health of Boston 2002*.

## ***Race and Ethnicity***

There are limitations associated with race and ethnicity data. National, state, and local health data sources usually make available data for only a few large racial and ethnic groups, and the classifications they use are not always consistent with each other; caution should be used in comparing racial and ethnic data from different sources. The categories generally used in *The Health of Boston 2003* are non-Latino White (“White”), non-Latino Black (“Black”), Asian/Pacific Islander (“Asian”), and Latino. All data used in this report except those taken from death certificates are self-reported. When population data are needed to calculate age-specific rates and age-adjusted rates, the year 2000 US census and population estimates that count Latinos as a distinct group, separate from Whites, Blacks, and Asian/Pacific Islanders, are used.

An exception is found in the Hospitalization and Childhood Asthma Hospitalization sections of this report, where data presented by race/ethnicity may include Latinos in White, Black, and Asian categories or in a separate Latino category because of inconsistencies across hospitals in the reporting of race/ethnicity.

In considering the racial and ethnic designations used in this report for Boston-specific data, several things should be kept in mind: (1) The concept of race has different meanings in different cultures. (2) Race is not a biological, but rather a social construct. (3) The meanings of racial designations—White, Black, Asians

—are subject to historical, cultural, and political forces. (4) Racial designations can be notably inaccurate in describing what they are called upon to describe. The term Black, for example, includes a variety of people who might describe themselves as African American, African, Caribbean, or Haitian—or by some other term.

In a number of places, this report provides national data by race and ethnicity. For example, in the background discussion about cardiovascular disease, national sources states that “age, gender, race and ethnicity, tobacco smoke exposure, poor nutrition, physical inactivity, increased weight, and diabetes mellitus also contribute to CHD (coronary heart disease) *risk*” (p. 82).

However, it is important to understand that the relationship between race/ethnicity disease risk is a complex one. In only a few cases has a race/ethnicity-specific biological basis for risk been established. Sickle-cell anemia and Tay-Sachs disease are examples. For most conditions for which differences among members of different race/ethnicity groups are seen, race/ethnicity per se is not a risk factor.

Rather, race/ethnicity is a marker used to help understand risk factors, whether they be behavioral, cultural, or social. Race is a proxy or substitute for such factors as socioeconomic status, inadequate access to health care, and racial discrimination. Collecting and reporting on data by race and ethnicity, as is done in *The Health of Boston*, can assist public health efforts to recognize disparities among groups for a variety of health outcomes.

### **Racial Designations and the 2000 Census**

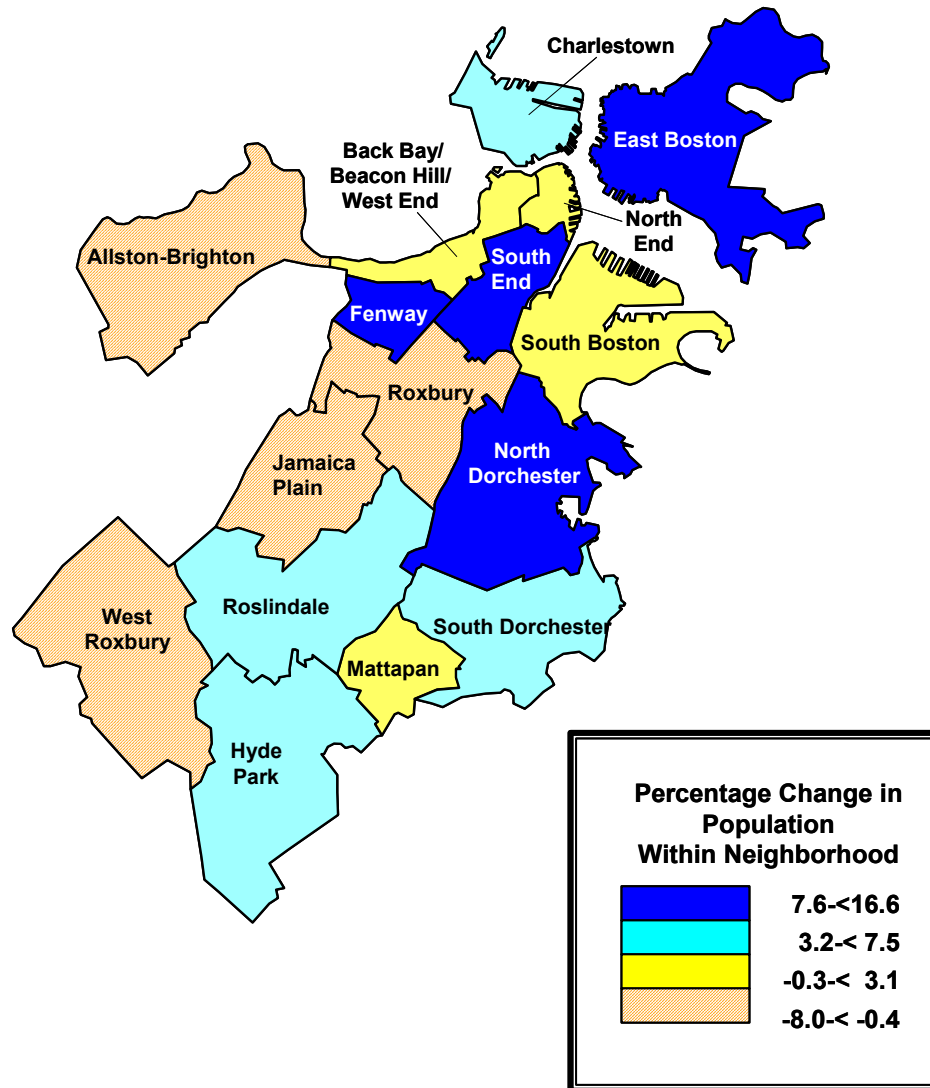
The racial designations, or categories, used in the 2000 census differ from the designations used in the 1990 census and in data derived from it, like the 1990 Modified Age-Race-Sex File for Boston census tracts used in previous editions of *The Health of Boston*. For a discussion of this issue and its impact on the data presented in this report, see the Technical Notes and the Glossary.

**SUMMARY OF CAUTIONS**

1. Population figures used in this report to calculate rates come from the year 2000 US census; population estimates for 1991-1998 come from the Massachusetts Institute for Social and Economic Research (MISER) at the University of Massachusetts; and the 1999 preliminary population estimate comes from the Massachusetts Department of Public Health
2. The year 2000 standard US population used in calculating age-adjusted rates is not the same as the population numbers from the year 2000 census.
3. None of the age-adjusted and age-specific rates presented in this report are comparable to age-adjusted and age-specific rates presented in any edition of *The Health of Boston* before *The Health of Boston 2002* or BPHC reports and presentations before 2002. Age-adjusted rates for 1999, 2000, and 2001 presented in this report are not comparable to age-adjusted rates for earlier years presented in this report.
4. One additional consideration is the fact that a statistically nonsignificant finding does not imply that a finding is not otherwise important. It merely indicates that random chance cannot be ruled out as a possible explanation for the difference between groups or the change over time in a health indicator. Findings of this kind may nevertheless have other significance for program planning and policy-making, and the public health indicators reported here are monitored from year to year regardless of statistical significance testing results.

**DEMOGRAPHICS**

## Change in Population By Neighborhood, Boston, 1990-2000



DATA SOURCE: US Department of Commerce, Bureau of the Census, American FactFinder, Census 2000 Redistricting Data  
CALCULATIONS AND MAP PREPARATION: Boston Public Health Commission Research Office

**Selected Socioeconomic Indicators  
By Race/Ethnicity, Boston, 2000**

	<b>Median Household Income*</b>	<b>Less than HS Graduate or GED**</b>	<b>Population Below Poverty Level***</b>
<b>Boston</b>	\$39,629	21%	20%
<b>White</b>	\$47,668	12%	13%
<b>Black</b>	\$30,447	27%	23%
<b>Latino</b>	\$27,141	43%	31%
<b>Asian</b>	\$27,963	36%	30%

\*Estimated median household income in 1999  
 \*\*Population 25 years and over  
 \*\*\*Based on income in 1999  
 DATA SOURCE: US Department of Commerce, Bureau of the Census, American FactFinder, Census 2000, Summary File-Sample Data  
 DATA ANALYSIS: Boston Public Health Commission Research Office

Recently released data from the 2000 US Census offer a snapshot of the income, educational attainment, and poverty status of Boston’s population.

- The median household income for Boston residents was \$39,629. Households of Latino and Asian people had the lowest median incomes, and households of White residents had the highest median income.
- Twenty-one percent of Boston’s population ages 25 and over did not have a high school diploma or GED. Higher percentages of Black, Asian, and Latino residents had less than a high school education or GED, compared with White residents.
- Twenty percent of Boston’s population lived below the federal poverty level, according to the census. There were higher percentages of Latino, Asian, and Black residents living below the federal poverty line than of White residents.
- Twenty-six percent of Boston’s children lived below the poverty level (data not shown). Latinos had the highest percentage of children living below the poverty level (38%), and Whites the lowest percentage (12%).
- Eighteen percent of adults ages 65 and over lived below the poverty level. A higher percentage of Asian adults ages 65 and over (39%) lived below the poverty level, and a lower percentage of White adults in that age group (14%), compared with Boston residents in other racial/ethnic groups. (Data not shown.)



**Selected Socioeconomic Indicators  
By Neighborhood, Boston, 2000**

	Median Household Income*	Less than HS Graduate or GED**	Population Below Poverty Level***	Children Below Poverty Level***	Adults 65+ Below Poverty Level***
BOSTON	\$39,629	21%	20%	26%	18%
Allston/Brighton	\$38,919	16%	23%	25%	23%
Back Bay	\$63,587	4%	11%	3%	11%
Charlestown	\$56,145	13%	18%	37%	15%
East Boston	\$31,301	40%	20%	25%	20%
Fenway	\$25,380	11%	37%	36%	27%
Hyde Park	\$43,020	20%	12%	15%	14%
Jamaica Plain	\$46,709	17%	17%	28%	17%
Mattapan	\$35,667	25%	18%	25%	14%
North Dorchester	\$34,132	31%	23%	31%	20%
North End	\$57,071	12%	10%	11%	11%
Roslindale	\$50,994	18%	11%	15%	9%
Roxbury	\$26,515	29%	29%	35%	27%
South Boston	\$40,306	19%	17%	32%	11%
South Dorchester	\$38,987	23%	18%	24%	15%
South End	\$38,840	24%	24%	34%	39%
West Roxbury	\$52,406	13%	7%	10%	9%

\* Estimated median household income in 1999

\*\*Adults ages 25 and over

\*\*\*Based on income in 1999

DATA SOURCE: US Department of Commerce, Bureau of the Census, American FactFinder, Census 2000, Summary File-Sample Data

DATA ANALYSIS: Boston Public Health Commission Research Office

- Of all Boston neighborhoods, the Back Bay, the North End, and Charlestown had the highest median household incomes, and the Fenway and Roxbury the lowest.
- East Boston, North Dorchester, and Roxbury had the highest percentages of persons 25 and older who had not attained a high school diploma or GED, and the Back Bay the lowest.
- A higher percentage of residents lived below the poverty level in the Fenway than in any other neighborhood, and a lower percentage in West Roxbury.
- The Back Bay had the lowest percentage of children living below the poverty level of all Boston neighborhoods, and Charlestown, the Fenway, Roxbury, and the South End had the highest percentages.
- The South End had the highest percentage of adults ages 65 and over living below the poverty level (39%), and Roslindale and West Roxbury the lowest (both 9%).

## HOMELESSNESS

Homeless persons are vulnerable to malnutrition, poor sanitation, overcrowding in poorly ventilated warehouse shelters, repeated exposure to the extremes of weather and temperature, habitual use of alcohol and drugs, and severe lack of privacy.

The struggle to survive on the streets often renders health needs neglected and ignored. Chronic diseases such as diabetes and hypertension can progress unabated, tuberculosis and communicable diseases spread rapidly in crowded shelter settings, and injuries such as wounds to the hands or feet can fester and result in cellulitis, all potentially leading to costly emergency room visits and hospital admissions. The bureaucracy of hospitals and clinics can be intimidating. Primary care physicians are often unable to care for the complex health issues faced by homeless people, and continuity of care is complicated by a revolving cast of residents and interns. Treatment plans that might be reasonable for people with homes and supportive families are often unworkable for homeless persons. Fragmentation and duplication of services for individuals are also barriers to high-quality care. (1)

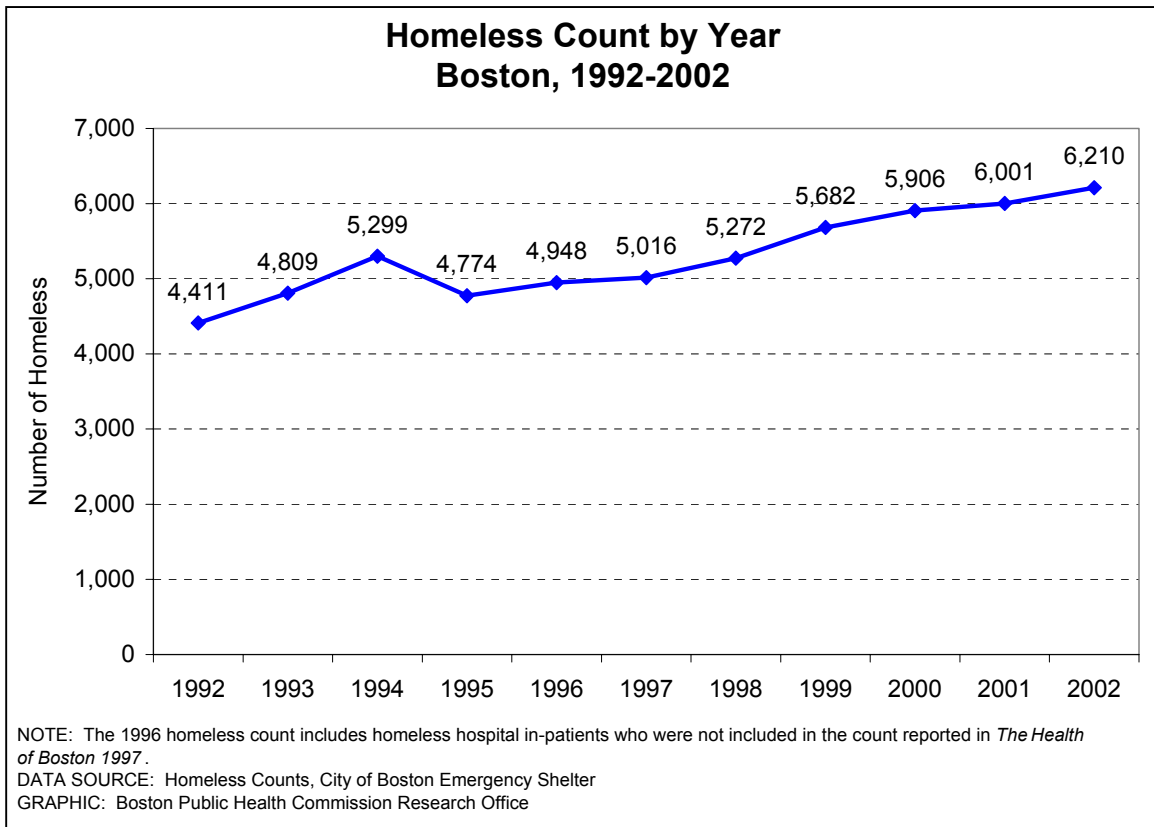
Contemporary homelessness is a complex social phenomenon. Some individuals are homeless for a brief time while others experience episodic or prolonged periods of homelessness. Others live on the brink of homelessness, doubled up in crowded apartments with families or friends. (2)

No research methodology has been adequate to accurately count the homeless. Nationally, estimates of the size of the homeless population have ranged from 250,000 to 3 million (3,4) on any specific night; some estimate that 13.5 million Americans have experienced homelessness at some period in their lifetime. (5)

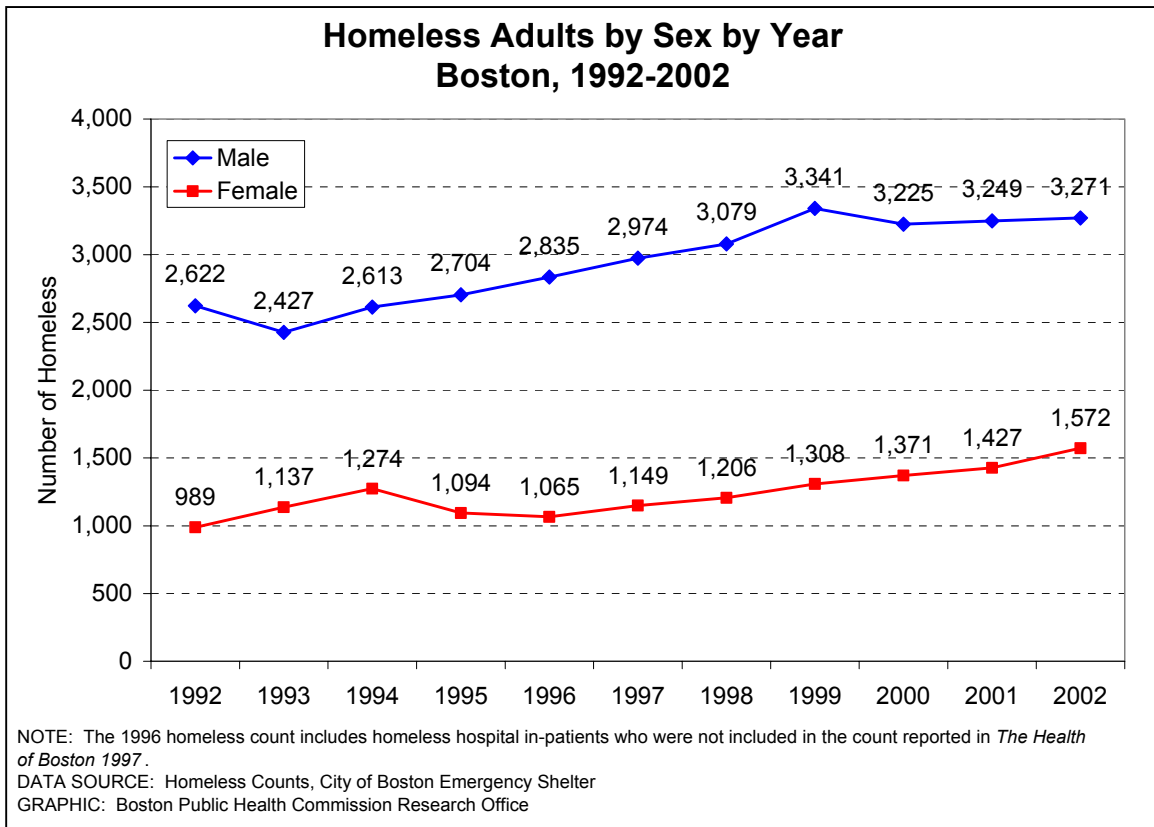
In Boston, most homeless individuals are between the ages of 24 and 64. These data are consistent with most studies of homeless populations in other areas and nationally.

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- Homeless people in Boston are counted every year in a citywide census by the City Emergency Shelter Commission. In December 2002, there were 6,210 homeless people living in shelters or on the street in Boston, a 3.5% increase over the year before.
- Since 1992, the number of homeless people in Boston has increased almost every year. Between 1992 and 2002, the increase was 40.8%. The only decline during this eleven-year period was in 1995, when the number of homeless in Boston declined almost ten percent from the previous year.



- Among homeless adults in Boston, men outnumber women about 2 to 1.
- The numbers of homeless men and women have risen despite some yearly fluctuations. However, the percentage increase has been higher for women. From 1992 to 2002, the number of homeless men rose 24.8%, while the number of homeless women increased 58.9%.

## HEALTHY LIFESTYLES

### Introduction

Physical activity, weight control, and good nutrition are cornerstones of achieving and maintaining good health and preventing innumerable illnesses and diseases. Physical inactivity, obesity, and unhealthy eating contribute to diabetes, cardiovascular disease, and cancer. Together they are responsible for more than 300,000 deaths each year in the United States, with only tobacco use causing more preventable deaths. (1)

The majority of adults in the US do not exercise at recommended levels for optimal health. In 2000, 51% of adults were at risk for health problems because they did not engage in sufficient exercise and 27% because they did not engage in any physical activity. (2)

Obesity has increased dramatically in the past 20 years in the US. In 2000, 37% of the US adult population was estimated to be overweight, and an additional 20% was obese, as indicated by their body mass index (BMI). (2) BMI is a scale that adjusts weight for height and categorizes an adult as underweight, normal weight, overweight, or obese.

The obesity epidemic is not limited to adults; the percentage of young people who are overweight has more than doubled in the past 20 years. (1) The BMI scale for children and adolescents classifies this age group as underweight, normal, at risk for overweight, or overweight. (3)

Good nutrition plays a critical role in lowering the risk for many chronic diseases. Despite this, only 23% of adults ate the recommended five or more servings of fruit and vegetables each day in 2000. (2) These poor eating habits are often established in childhood, and the majority of young people today eat too much fat and too few fruits and vegetables. (1)

Physical inactivity is more common among women than men, among Blacks and Latinos than Whites, and among older than younger adults (4). Overweight is more common among men than women, and obesity tends to be most common among Blacks. (2) A lower percentage of men than women report consuming the recommended amounts of fruits and vegetables. (2)

In 2000, 49% of Boston adults were overweight or obese, and 70% did not eat the recommended five or more servings of fruit and vegetables per day.

In 2001, 21% of Boston high school students did not engage in any vigorous exercise, 9% were overweight and an additional 16% were at risk for overweight, and 88% did not eat at least five servings of fruits and vegetables per day.

### References

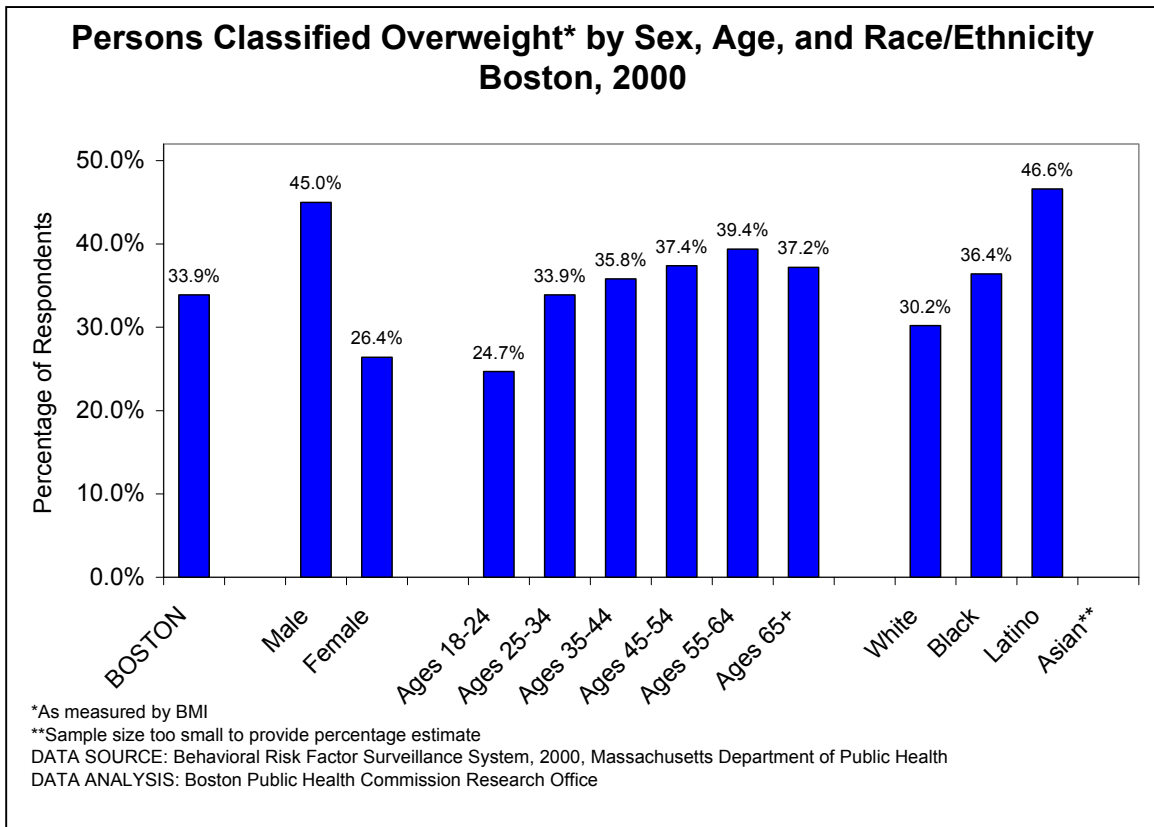
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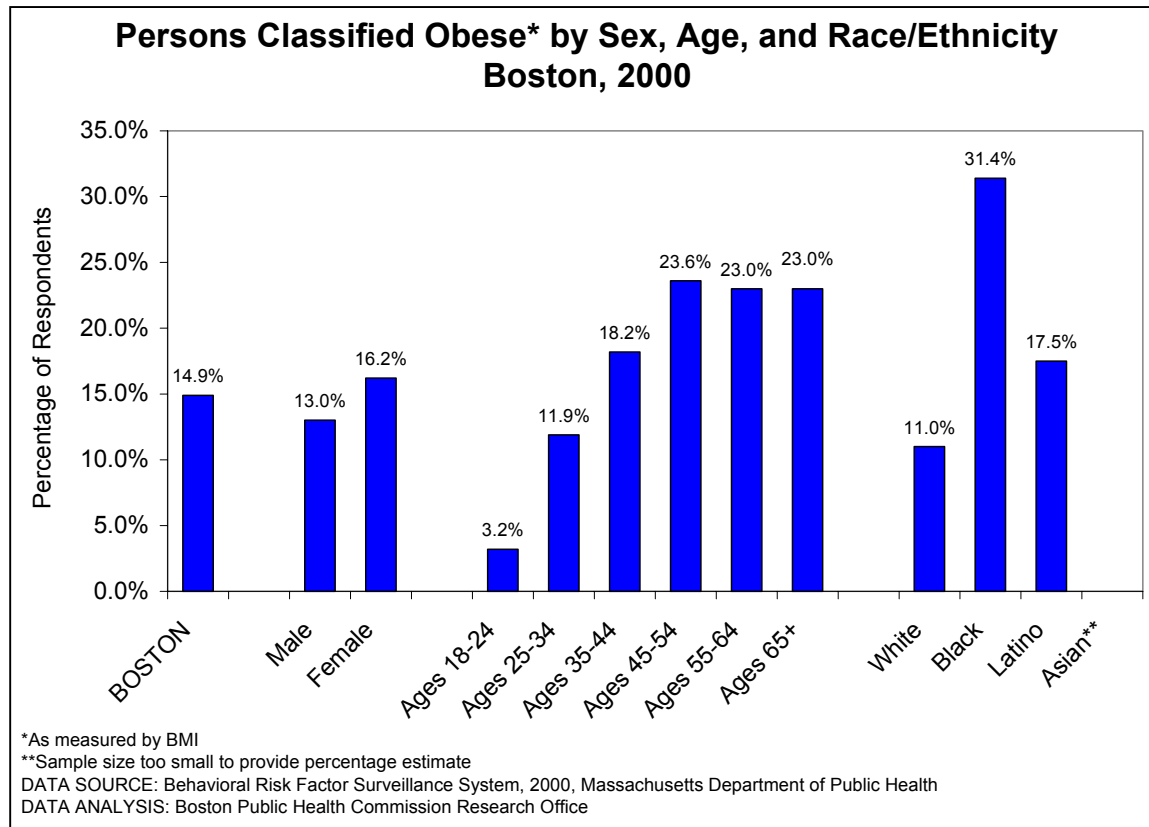


- In 2000, twenty-seven percent of Boston adults ages 18 and over reported not participating in any exercise in the past month.
- A slightly higher percentage of female adults than male adults reported not exercising, but this difference was not significant.
- A significantly higher percentage of adults ages 65 and over reported not exercising in the past month, compared with adults ages 18-24 and ages 25-34.
- A significantly lower percentage of White adults reported not exercising in the past month than did Black or Latino adults.

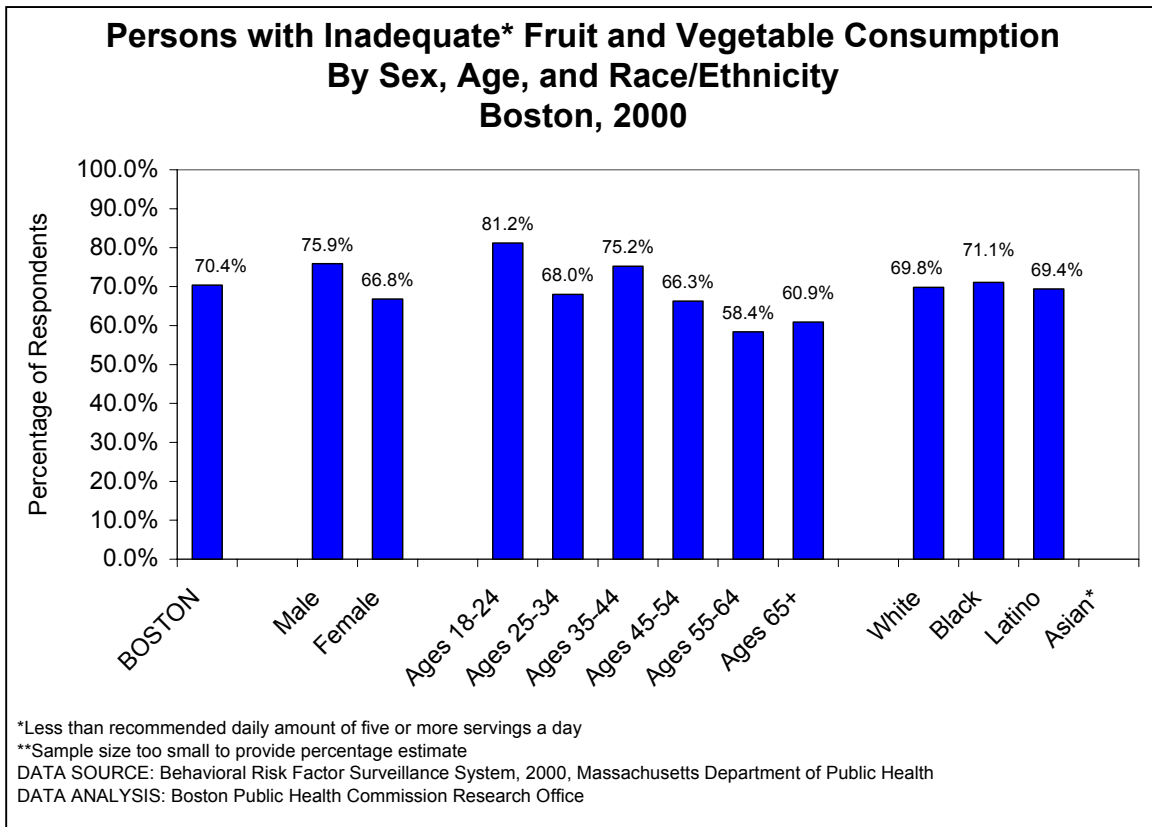


- In 2000, thirty-four percent of Boston adults ages 18 and over reported a weight that, adjusted for their height, classified them as overweight.
- A significantly higher percentage of men than women were overweight.
- A significantly lower percentage of adults ages 18-24 were overweight than older adults. The difference in overweight between 18-24 year-olds and people ages 65 or over was not statistically significant.
- A significantly higher percentage of Latino adults than White adults were overweight.

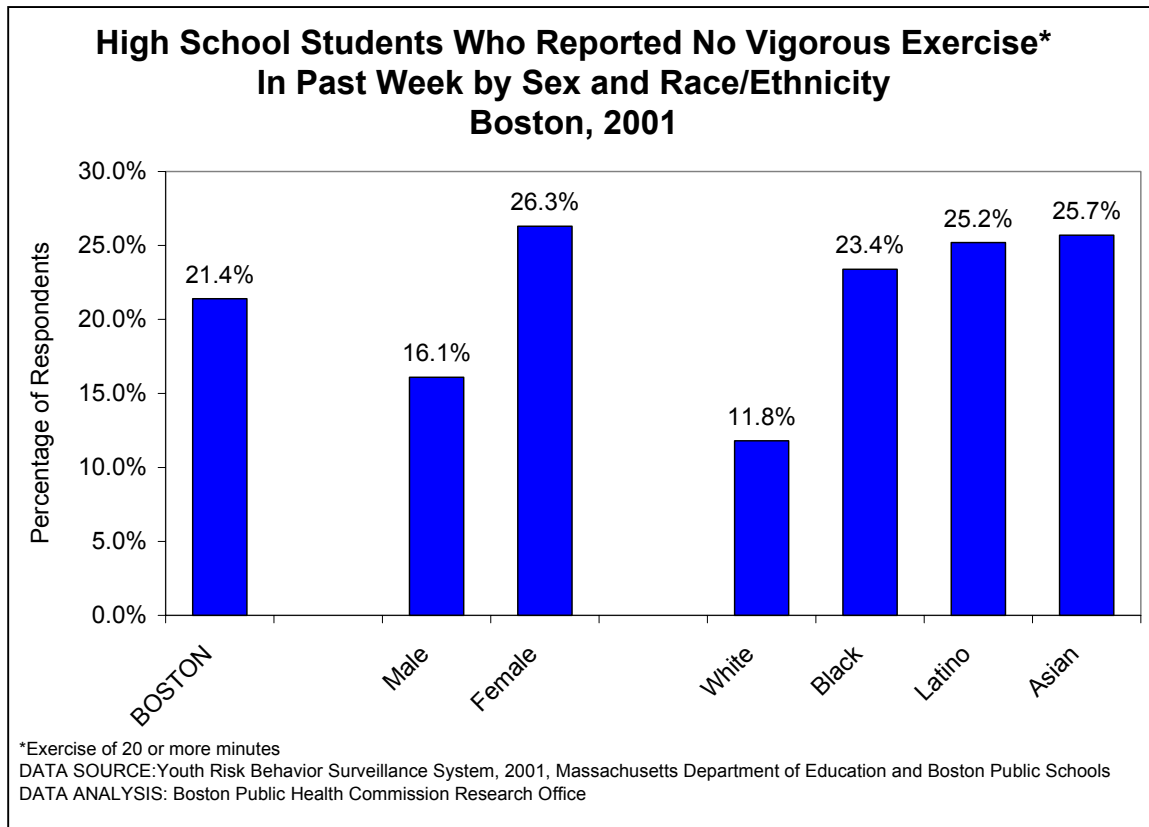




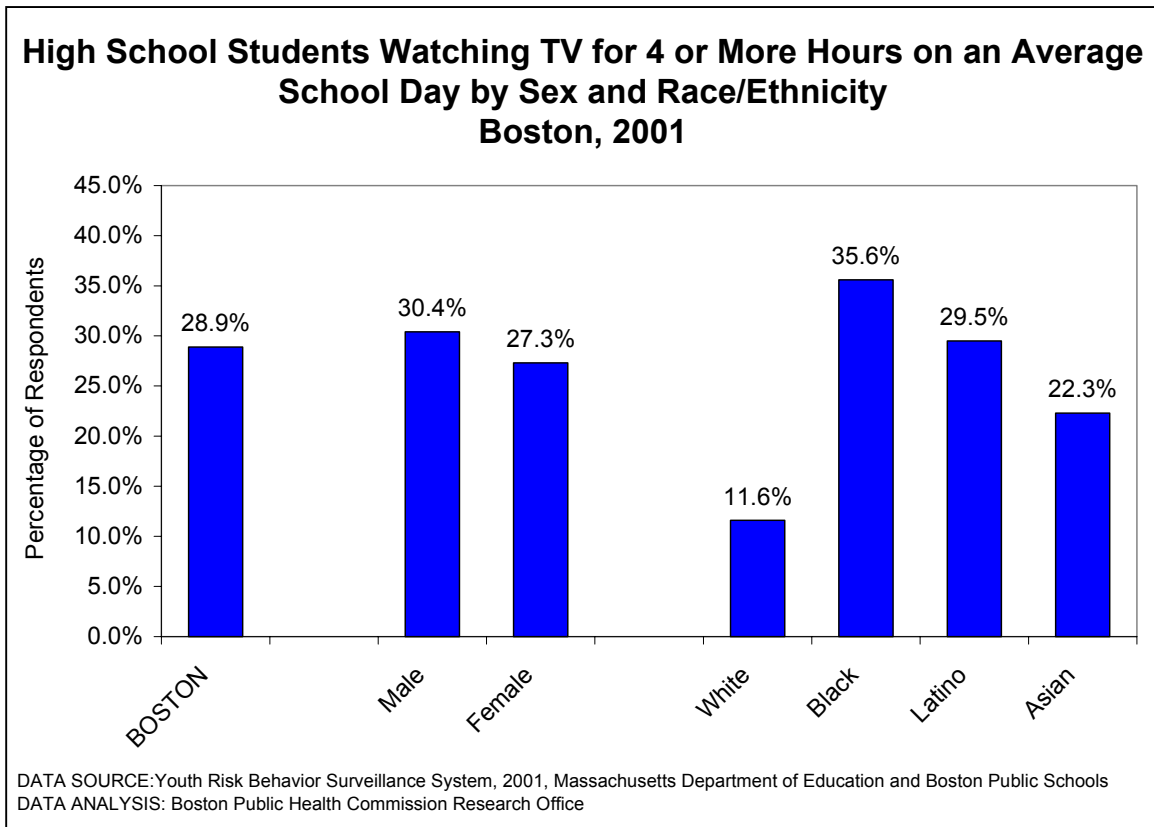
- In 2000, fifteen percent of Boston adults reported a weight that, adjusted for their height, would classify them as obese.
- Although a slightly higher percentage of women than men were obese, this difference was not statistically significant.
- A significantly lower percentage of adults ages 18-24 were obese than adults in any other age group. Additionally, a significantly lower percentage of adults ages 25-34 were obese than adults ages 45-54, 55-64, or 65 and over.
- A significantly higher percentage of Black adults were obese than White or Latino adults. Additionally, a significantly higher percentage of Latino adults were obese than White adults.



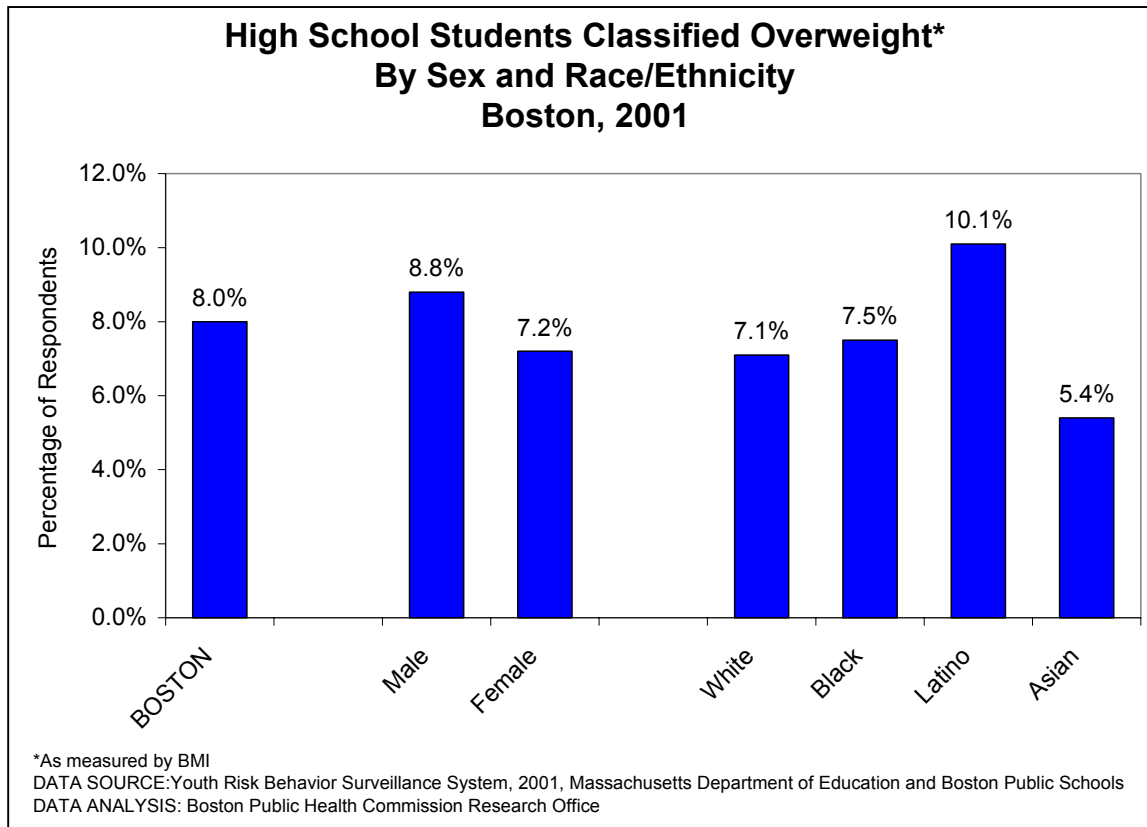
- In 2000, seventy percent of Boston adults ages 18 and over reported eating less than five servings a day of fruits and vegetables. This rate of consumption is lower than the recommended daily amount.
- A significantly higher percentage of men than women reported consuming an inadequate amount of fruits and vegetables.
- A significantly higher percentage of adults ages 18-24 reported not eating the recommended daily amount of fruits and vegetables than adults in all other age groups except those ages 35-44. Additionally, a significantly higher percentage of people ages 35-44 consumed the recommended servings of fruits and vegetables than did adults ages 55-64 or 65 and over.
- There were no significant differences in fruit and vegetable consumption among White, Black, and Latino Boston residents.



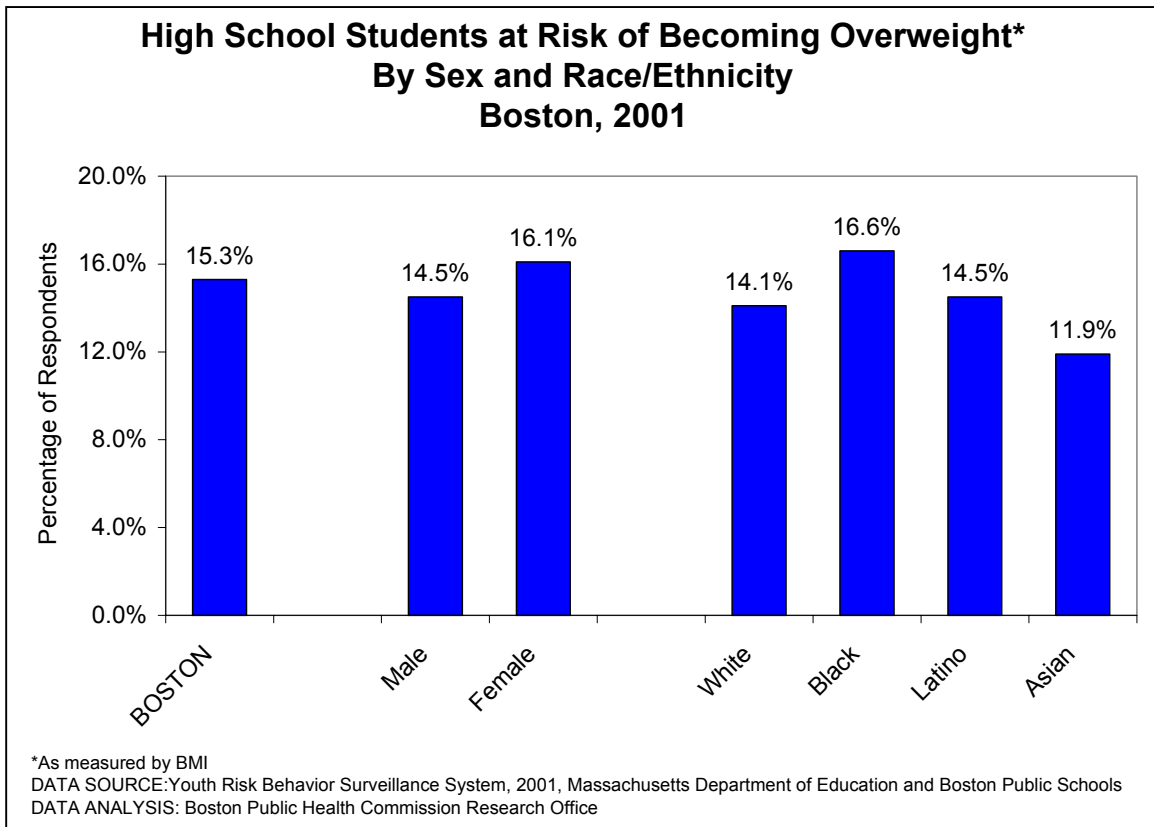
- In 2001, twenty-one percent of Boston high school students reported not engaging in at least 20 minutes of vigorous exercise on any day in the past week.
- This percentage was significantly higher among female high school students than among their male peers.
- Significantly higher percentages of Asian, Latino, and Black high school students reported a lack of vigorous exercise than White high school students.



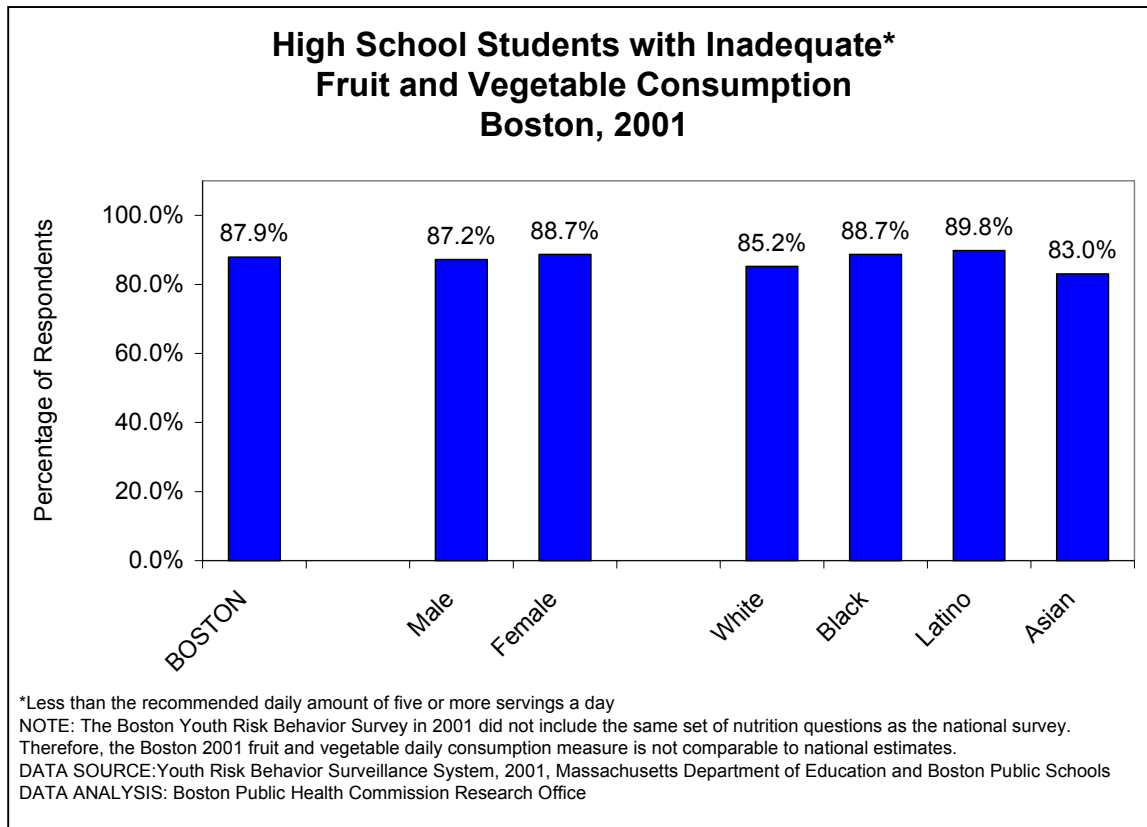
- In 2001, twenty-nine percent of Boston high school students reported that on average they watch four or more hours of television on a school day. The difference between male and female students was not statistically significant.
- A significantly lower percentage of White high school students reported watching four or more hours of TV on school days than did Black, Latino, or Asian high school students. Also, a significantly lower percentage of Asian high school students reported four or more hours of TV watching per day compared with Black high school students.



- In 2001, nine percent of Boston high school students reported a weight that, adjusted for their height, would classify them as overweight.
- Although a slightly higher percentage of male high school students than female high school students were overweight, this difference was not statistically significant.
- A significantly higher percentage of Latino high school students were overweight, compared with Asian high school students. There were no other significant differences among racial/ethnic groups.



- In 2001, sixteen percent of Boston high school students reported a weight that, when adjusted for their height, classified them as “at risk for overweight,” meaning their body mass index was higher than that of most of their peers of the same sex but had not yet reached the threshold of overweight.
- Although a slightly higher percentage of male high school students were “at risk for overweight” than female high school students, this difference was not statistically significant.
- Although slightly higher percentages of White, Black, and Latino high school students were “at risk for overweight” than Asian high school students, this difference was not significant. There were no significant differences across racial/ethnic groups.



- In 2001, eighty-eight percent of Boston high school students reported fruit and vegetable consumption levels below the recommended five servings per day.
- There was no significant between female and male high school students on this health indicator, nor across racial/ethnic groups.

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## HOSPITALIZATION

Hospital utilization is projected to change in the coming years due to aging of the population (1,2), advances in medical technology (3,4), shifting of inpatient procedures and services to other settings (4,5), and constraints in hospital capacity. (5,6)

As people age, they need and use more health care services. (1,5) Some of those born in the US between 1946 and 1964, often referred to as “baby boomers,” are now old enough to be counted in the 55 to 64 age group. Hospitalization rates are 58% higher for this age group than for the 45-54 age group, and more than twice as high as the rate for the 35-44 age group. (5) Effects of aging are expected to increase hospitalization rates 7% over the next 10 years. (5)

Medical technology, especially newer and less invasive surgical techniques, may allow patients to receive treatment that might have been too risky in the past. (5,7,8) Improved diagnostic techniques allow earlier disease detection and treatment. (7) Less invasive surgical procedures and improved diagnostic techniques may contribute to increased hospitalization.

In addition to advances in medical technology, conditions imposed by third-party payers such as Medicaid, Medicare, and managed care plans for hospital reimbursement have shifted many hospital medical and surgical procedures away from the inpatient setting to less expensive facilities. (4,7) This shift is expected to continue.

In 1997, there were about 850,000 hospital beds in the US, a number that is expected to decline to 670,000 in 2010. (3,4) Results of a study by the Massachusetts Hospital Association indicate that the state could experience a shortage of beds by 2007 due to increased utilization. (9) The increasing frequency of hospital emergency department (ED) diversions is also evidence that some hospitals are running out of staffed bed capacity. ED diversions can occur when a hospital is unable to accept patients by ambulance because there is no more room in the hospital emergency department or because there is a shortage of acute and/or critical care beds in that facility. In these instances, ambulances are directed to other hospitals. (1,5)

In 2001, there were an estimated 32.7 million hospital discharges from non-federal acute care hospitals in the US, excluding newborn infants. This was about three percent more than in 2000. (8) The discharge rate was 115.1 per 1,000 population, similar to the rate in 2000. (8) The rate for males (92.6 per 1,000) was 32% lower than for females (136.7 per 1,000). People ages 65 and over accounted for 38% of all discharges. (8)

Heart disease, diseases of the digestive system, pregnancy (deliveries), diseases of the respiratory system, mental disorders, injury, and cancer were among the leading causes of hospitalization nationwide in 2001. (8)

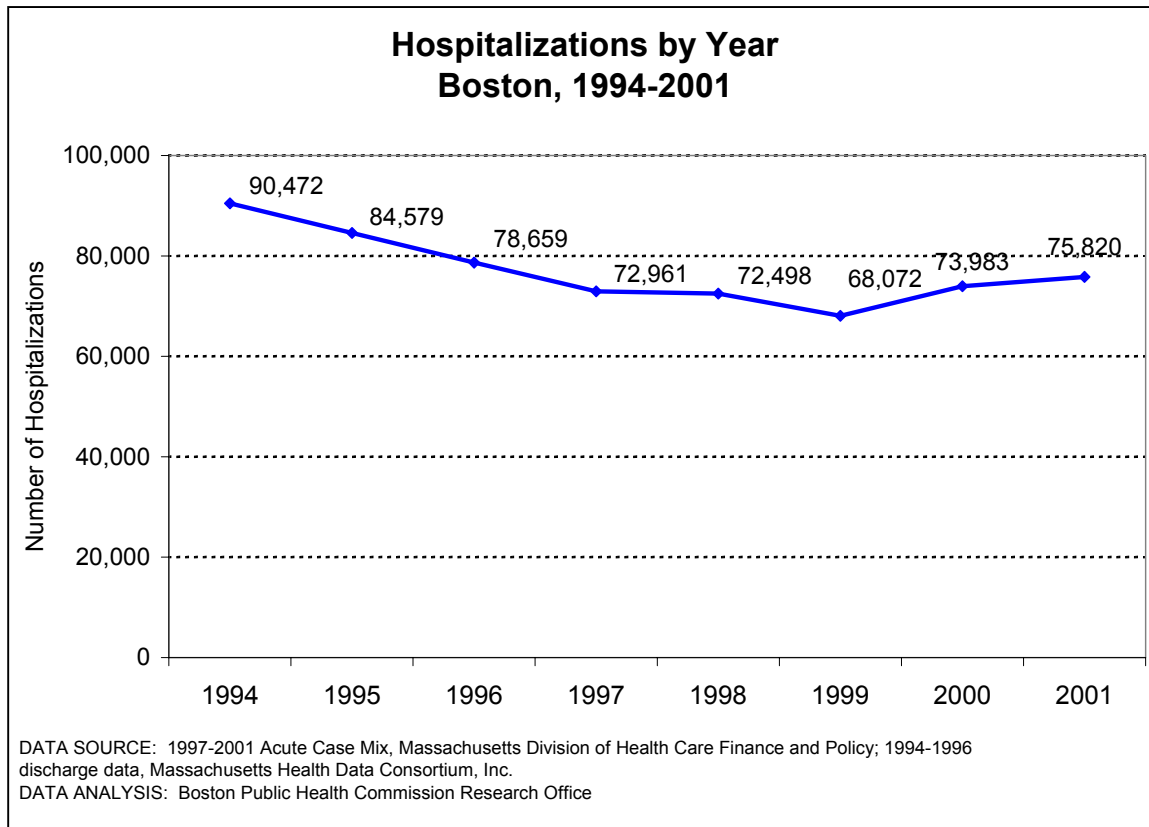
Boston residents had 75,820 hospitalizations during 2001.

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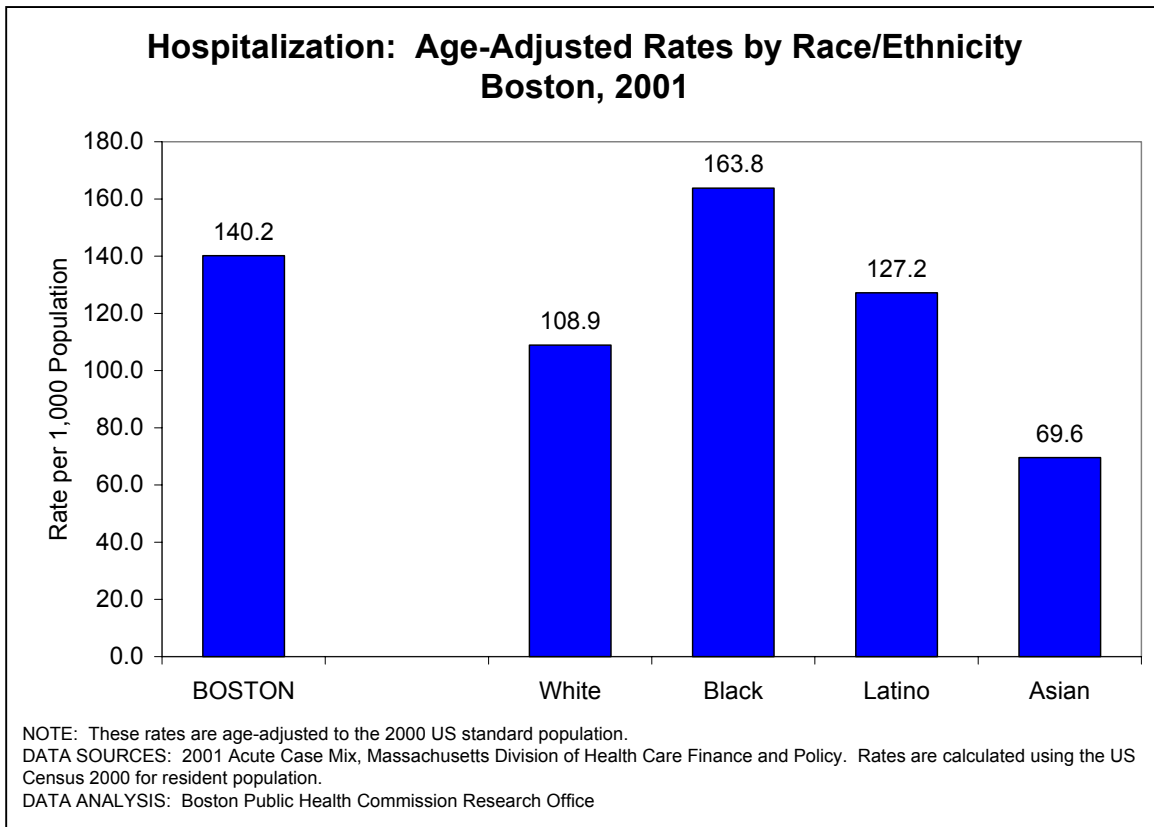
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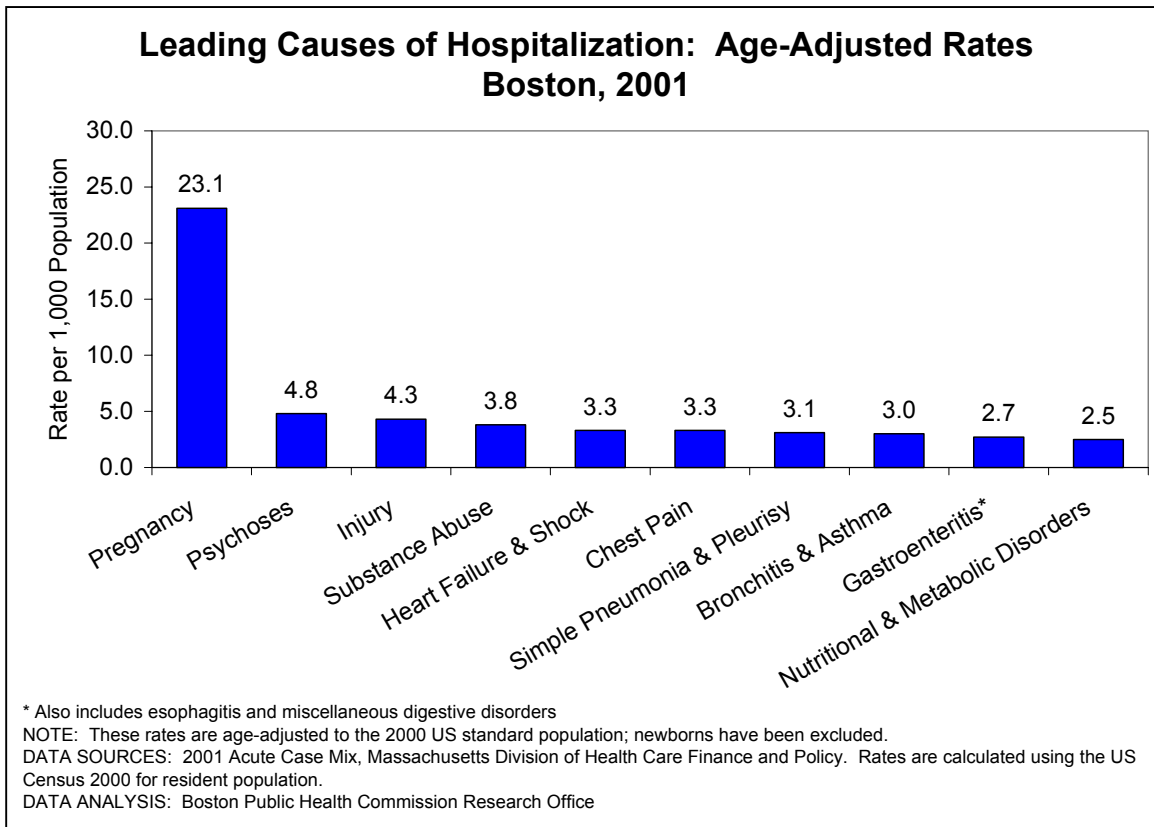


- In 2001, the number of hospitalizations of Boston residents increased to 75,820 from 73,983 in 2000, continuing an upward trend that started in 1999.
- The age-adjusted hospitalization rate for Boston residents in 2001 was 2.6% higher than the rate in 2000.
- From 1994 through 2001, the number of hospitalizations among Boston residents declined 16.2%.



NOTE: Racial/ethnic information in the hospital discharge data should be interpreted with caution because it is not collected consistently by Massachusetts hospitals. Latinos may be found in any of the above categories, depending on the individual hospital's reporting practices.

- Disparities in hospitalization rates continue to exist among Boston's racial/ethnic groups.
- In 2001, Black residents had the highest hospitalization rate and Asians the lowest.
- The hospitalization rate for Blacks was 50.4% higher than the rate for Whites, 28.8% higher than the rate for Latinos, and 135.3% times higher than the rate for Asians. It was also 16.8% higher than the hospitalization rate for Boston overall.



- Ten leading causes accounted for 25,448 hospitalizations (33.6%) of all hospitalizations among Boston residents in 2001. Pregnancy and pregnancy-related conditions were the leading reasons for hospitalization, and psychoses and injuries the second and third most common reasons, respectively.
- Other leading causes among Boston residents were substance abuse, heart failure and shock, chest pain, simple pneumonia and pleurisy, bronchitis and asthma, gastroenteritis, and nutritional and metabolic disorders.

**Leading Causes of Hospitalization: Age-Adjusted Rates  
By Race/Ethnicity, Boston, 2001**

White		Black	
Cause of Hospitalization	Rate per 1,000 Population	Cause of Hospitalization	Rate per 1,000 Population
Pregnancy	14.2	Pregnancy	31.9
Psychoses	4.4	Injury	6.3
Substance Abuse	3.4	Heart Failure and Shock	5.1
Injury	2.9	Bronchitis and Asthma	4.4
Simple Pneumonia and Pleurisy	2.6	Psychoses	4.4

Latino		Asian	
Cause of Hospitalization	Rate per 1,000 Population	Cause of Hospitalization	Rate per 1,000 Population
Pregnancy	29.6	Pregnancy	18.3
Chest Pain	4.8	Simple Pneumonia and Pleurisy	2.2
Bronchitis and Asthma	3.9	Bronchitis and Asthma	1.4
Injury	3.5	Respiratory Infection	1.4
Simple Pneumonia and Pleurisy	3.4	Psychoses	1.3

NOTES: These rates are age-adjusted to the 2000 US standard population; newborns have been excluded. For Asians, the age-adjusted rate for the fifth leading cause of hospitalization was the same for both psychoses and nutritional and metabolic disorders.

DATA SOURCE: 2001 Acute Case Mix, Massachusetts Division of Health Care Finance and Policy. Rates are calculated using the US Census 2000 for resident population.

DATA ANALYSIS: Boston Public Health Commission Research Office

NOTE: Racial/ethnic information in the hospital discharge data should be interpreted with caution because it is not collected consistently by Massachusetts hospitals. Latinos may be found in any of the above categories, depending on the individual hospital's reporting practices.

- In 2001, leading causes of hospitalization for Boston residents differed across racial/ethnic groups. Rates were highest for Blacks and for Latinos. They were lowest for Asians, except for pregnancy, where the hospitalization rate was lowest for Whites. Among the five leading reasons for hospitalization, pregnancy was first for all races/ethnicities.
- As in 2000, psychoses (a group of severe mental disorders) was the second leading reason for hospitalization for Whites, injury the second leading cause for Blacks, chest pain the second leading cause for Latinos, and simple pneumonia and pleurisy the second leading cause for Asians.
- Bronchitis and asthma were among the leading causes for Blacks, Latinos, and Asians. The bronchitis and asthma hospitalization rate was 12.8% higher for Blacks than for Latinos, and 214.3% higher for Blacks than Asians. Simple pneumonia and pleurisy was among the leading causes for Whites, Latinos, and Asians, but the rate for Latinos was 30.8% higher than the rate for Whites and 54.5% higher than the rate for Asians.
- Heart failure and shock was a leading reason for hospitalization among Blacks.
- Psychosis was among the leading causes for all races/ethnicities except Latinos. Rates were highest for Whites and for Blacks; both had the same hospitalization rate for this cause.

## CHILDBEARING

Striking disparities in health status exist among childbearing American women and their infants. There is great concern that these disparities are first observable as early as birth and that such disparities, which are typically associated with race/ethnicity, national origin, and/or income, can be seen across the lifespan and for most health measures.

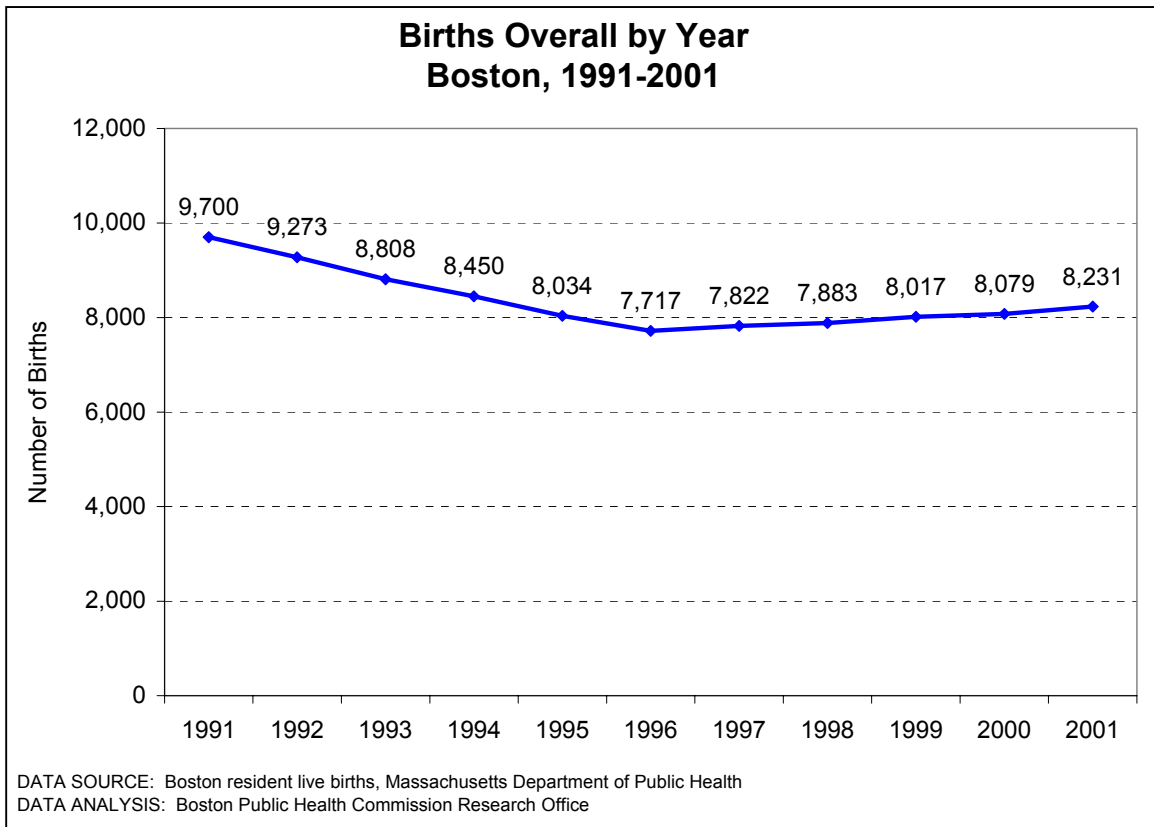
Across the United States, low birthweight occurs far more often in Black births than in births to members of other racial/ethnic groups. (1) US infant mortality also illustrates very early health disparities, with 14.2 Black infant deaths per 1,000 live births in 2001 compared with 5.7 White infant deaths per 1,000. (2)

Some trends seen nationally are similar to those reported here for Boston. US birth rates have fallen over the past decade, and rates for Latinas and Black women remain higher than those for Asian and White women.(3) Birth rates among American adolescents ages 15-19 declined precipitously during the 1990s, with a larger drop among Black adolescents than among Whites or Latinas. (4) Differences from national childbearing data also exist, for instance, in Boston's comparatively low adolescent birth rate (31.6 births per 1,000 females ages 15-19 versus 45.3 per 1,000 females nationally) (4) and the fact that close to half (46%) of Boston births are to women who are born in another country; for the US as a whole, that figure is just 20%. (5)

There were 8,231 births to Boston women in 2001.

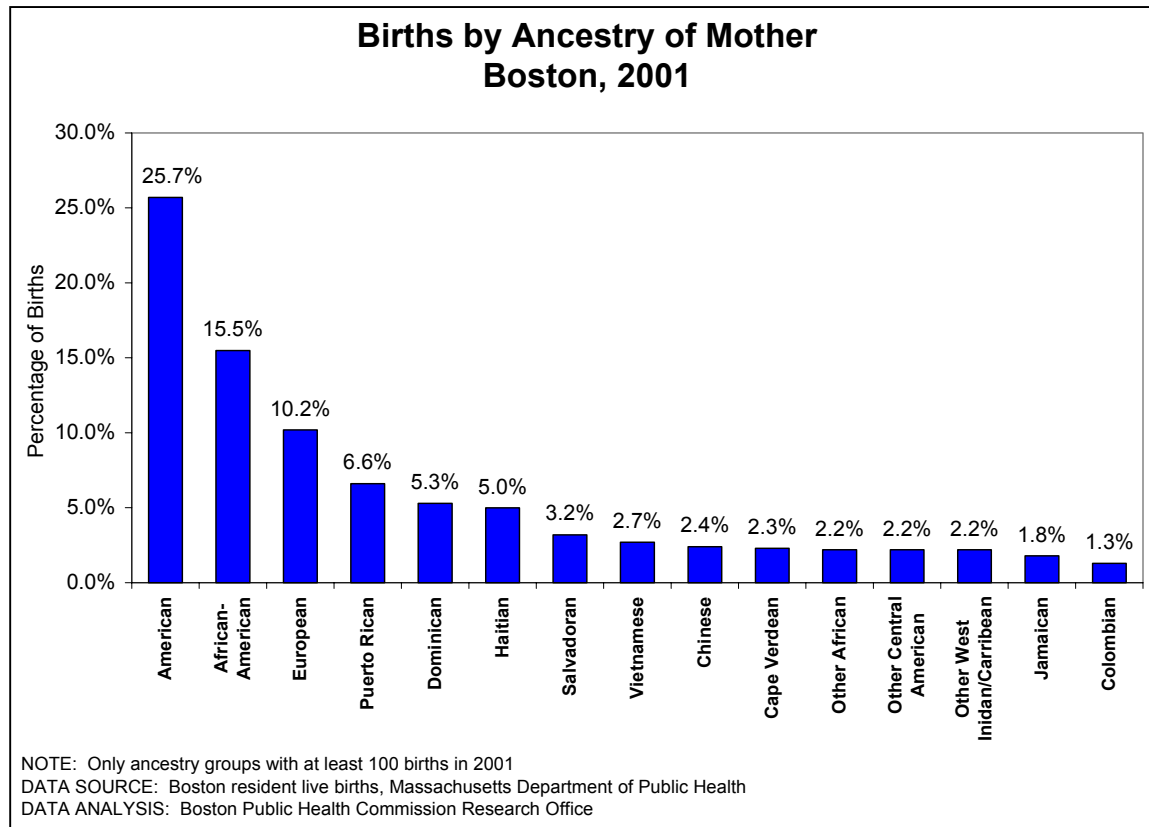
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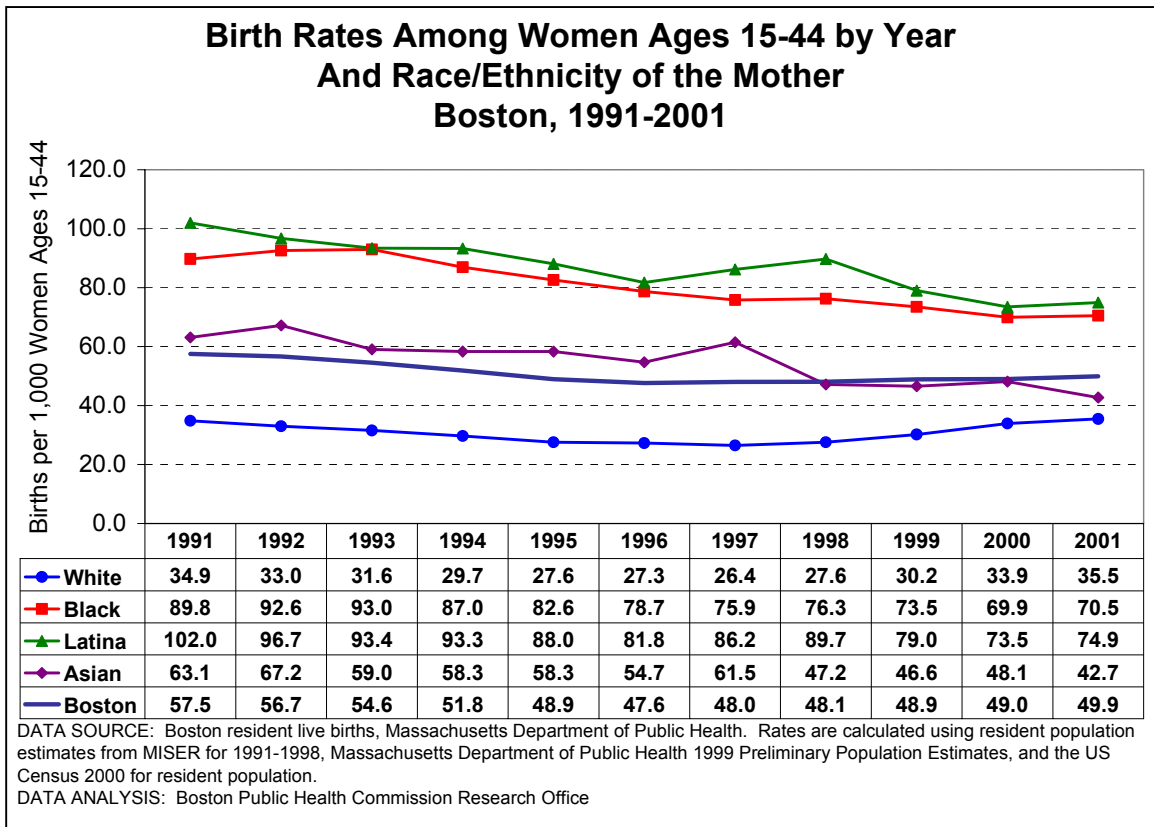


- The number of births to Boston residents increased in 2001 to 8,231, continuing the upward trend of the past several years.
- Between 1991 and the low point in 1996, the number of Boston births fell 20.4%. They have risen since then by 6.7%.
- One in eleven (8.7%) Boston births in 2001 were to women under age 20 (data not shown).

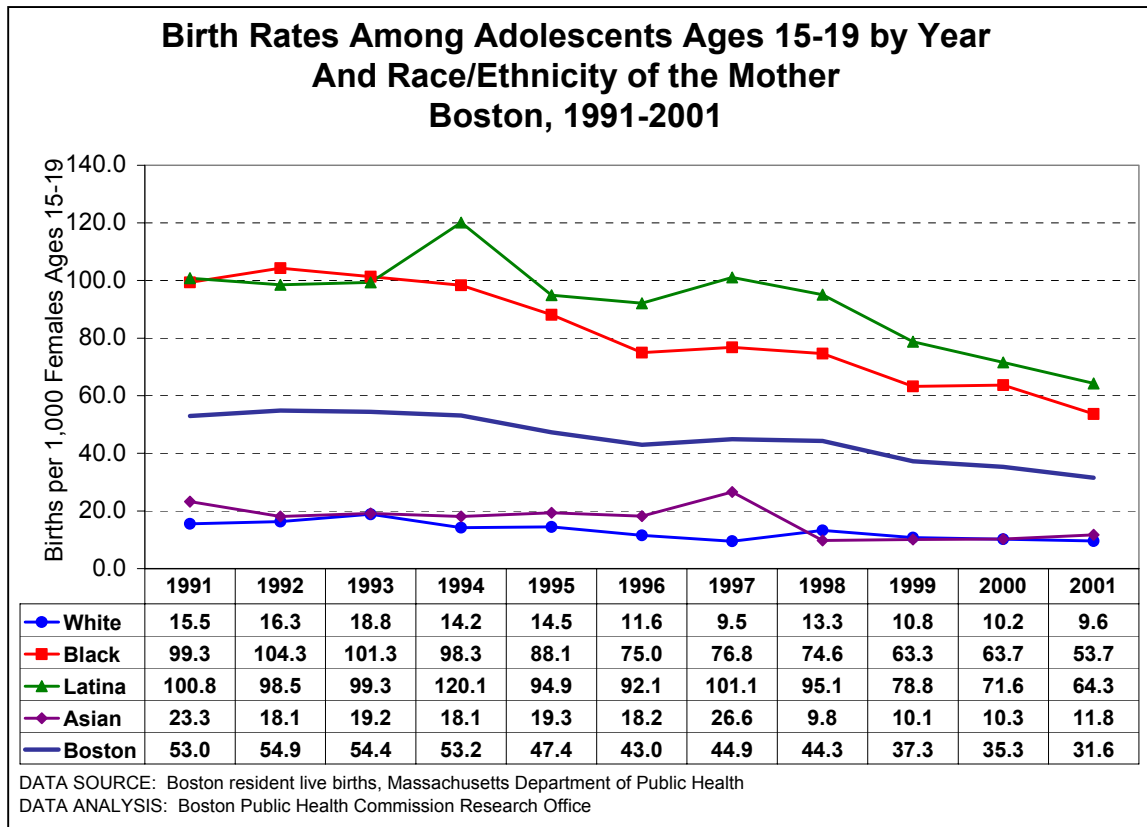




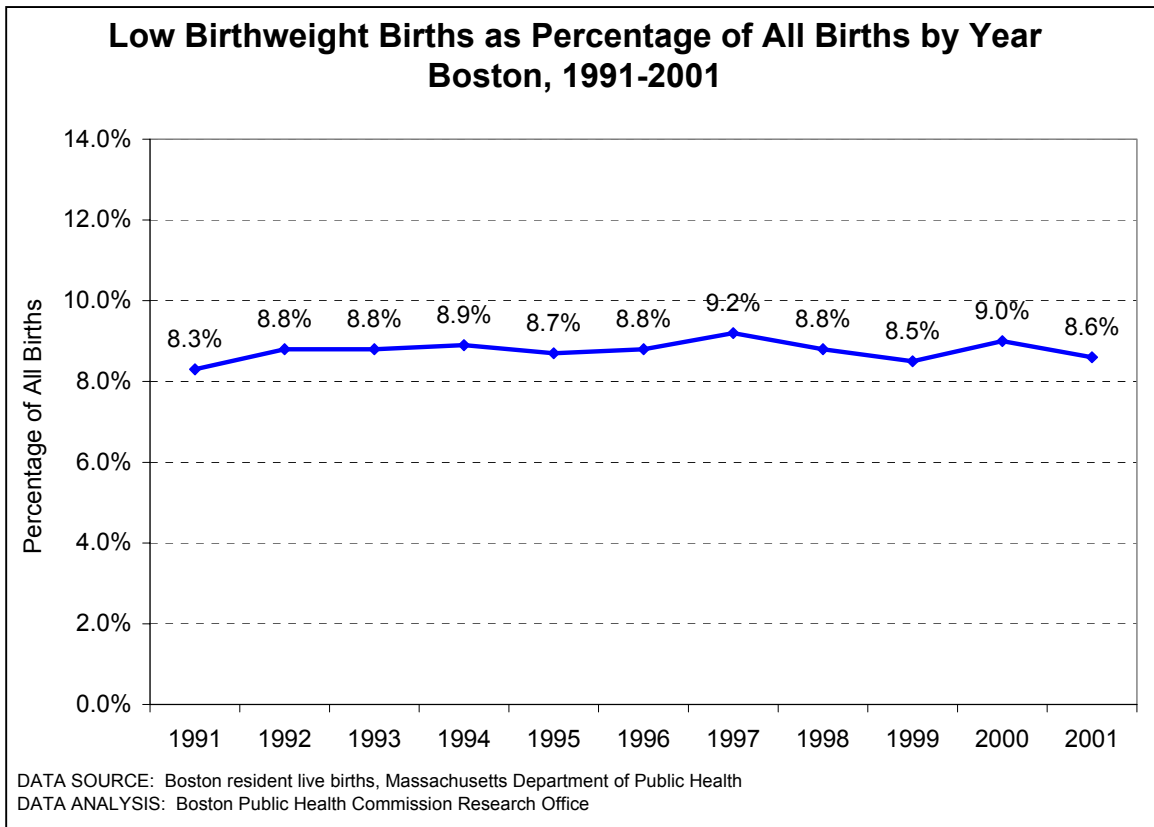
- The racial/ethnic composition of the population of Boston women who gave birth in 2001 was as follows: White 36.1%; Black 30.6%, Latino 21.7%, Asian 7.2%, Other or Unknown 4.5% (data not shown).
- Births to Boston women born in Latin America, the Caribbean, and Asia have increased over time, and close to half (45.7%) of Boston births in 2001 were to women who were born in another country. Women from the Dominican Republic (5.0% of births), Haiti (4.9%), El Salvador (3.2%), Puerto Rico (2.9%), and Vietnam (2.8%) contributed the largest numbers of these births (data not shown).
- The self-reported ancestry of childbearing Boston women encompassed a wide range of backgrounds, including “American” (25.7% of births), African American (15.5%), European (10.2%), Puerto Rican (6.6%), Dominican (5.3%), Haitian (5.0%), and many smaller groups.



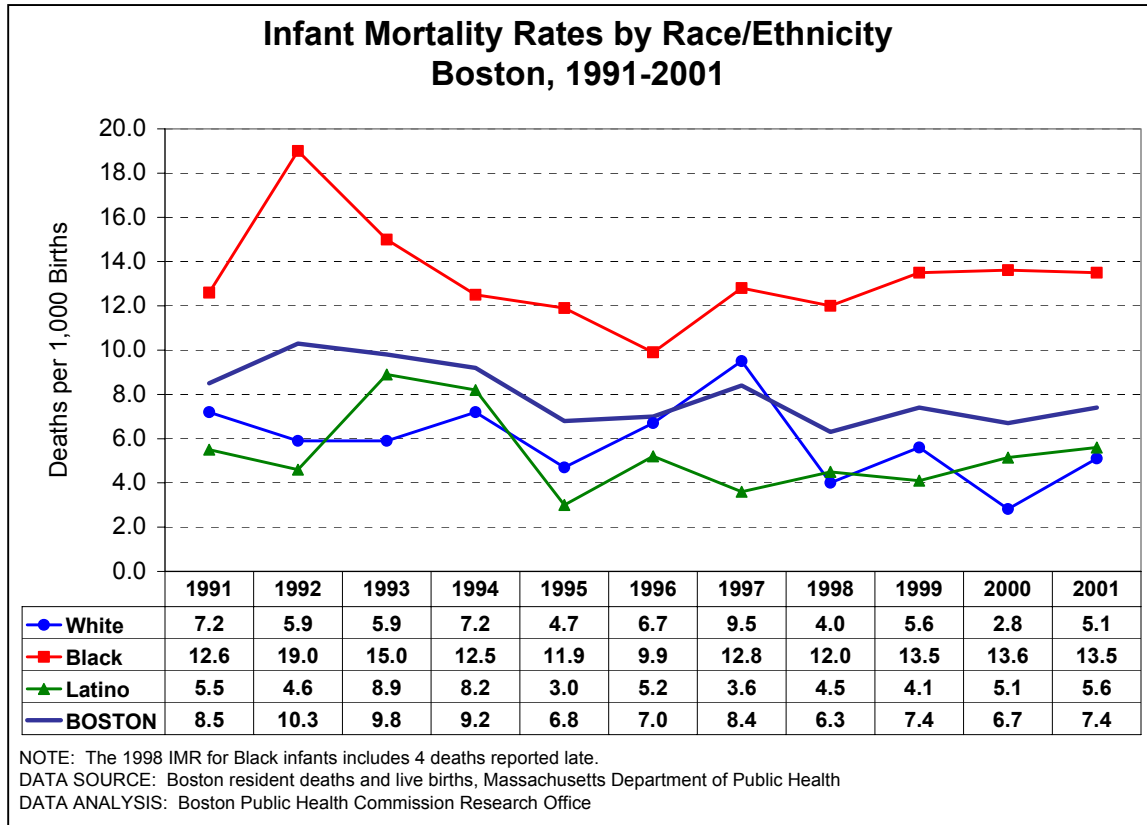
- Boston's birth rates (the number of births per 1,000 women of childbearing age) have fallen among all racial/ethnic groups except Whites over the past decade. Overall the city's birth rate declined 13.2% between 1991 and 2001.



- Adolescent birth rates (the number of births per 1,000 females ages 15-19) have fallen dramatically in Boston in recent years, with an overall drop of 40.4% between 1991 and 2001. Among White adolescents, this change totaled 38.1%; among Blacks, 45.9%; among Latinas, 36.2%; and among Asians, 49.4%.



- Boston's low birthweight rates have not changed significantly during the past decade, hovering between 8.3% and 9.0% of all live births.
- Large disparities by race/ethnicity exist in low birthweight rates among Boston residents. The 12.1% rate for births to Black women, although at its lowest point since 1995, remains substantially higher than the rates for births to Whites (7.0%), Latinas (7.6%), and Asians (5.4%) (data not shown).



- Boston had a slight increase (statistically nonsignificant) in its overall infant mortality rate between 2000 and 2001, with 7.4 deaths during the first year of life per 1,000 live births.
- The ratio of Black to White infant mortality narrowed in 2001, to 2.6 Black deaths for every White death. In 2000, the ratio was 4.9. This narrowing is a result of an increase in White infant mortality in 2001.
- However, infant mortality among Black infants remains high compared with that of White and Latino infants, as it was throughout the 1990s.

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## **CHILDHOOD ASTHMA**

Asthma is a chronic respiratory disease that affects the bronchioles, tiny tubes which bring air in and out of the lungs. During an asthma episode or attack, the bronchioles become swollen and constricted and filled with thick mucus, making it hard to breathe. (1, 2) Asthma can be life-threatening if not properly managed. (3,4) To prevent and control asthma attacks, treatment with anti-inflammatory agents such as inhaled steroids and bronchodilators is usually provided. (5)

In 1980, an estimated 7 million people in the United States had asthma (1.9 million children under age 15). (6) However, in 2001, an estimated 31.3 million people in the US had asthma, including 9.2 million children ages 0-17. (4)

In 2001, Blacks had the highest asthma rates and Whites the second highest rates. (4) Rates for Blacks are highest among those under age 5. (7) Rates for asthma emergency department visits, hospitalizations and deaths are higher for Blacks than for Whites. (4,5,6) Asthma is an increasing health problem in urban African-American and Latino populations. (5,8)

Although asthma affects all age groups, recent increases in asthma cases have been greater among the youngest age groups. (1) Children with asthma make more visits to physicians, clinics, and hospital emergency departments than do adults with asthma. (4,6) In 2000, children under age 18 made 4.6 million asthma-related visits to physician offices and hospital clinics and over 728,000 hospital emergency department visits. (6) Hospital emergency department visit rates for asthma and hospitalization rates for asthma are highest for children under age 5. (4,6)

Genetic and other factors that influence susceptibility may predispose some individuals to developing asthma, but environmental conditions are believed to be critical to the disease process. (5,7) Asthma attacks are caused by a number of stimuli called triggers. Among some common triggers are exercise, infections, allergens such as house dust, molds, feathers, pets, pollen, milk, soy, and eggs, irritants such as cigarette smoke, air pollution, strong odors, aerosol sprays and paint fumes; weather or sudden change in temperature, and emotional stress such as anxiety, frustration, or anger. (1,3,5,8)

Boston children under age 5 experienced 273 hospitalizations for asthma in 2001.
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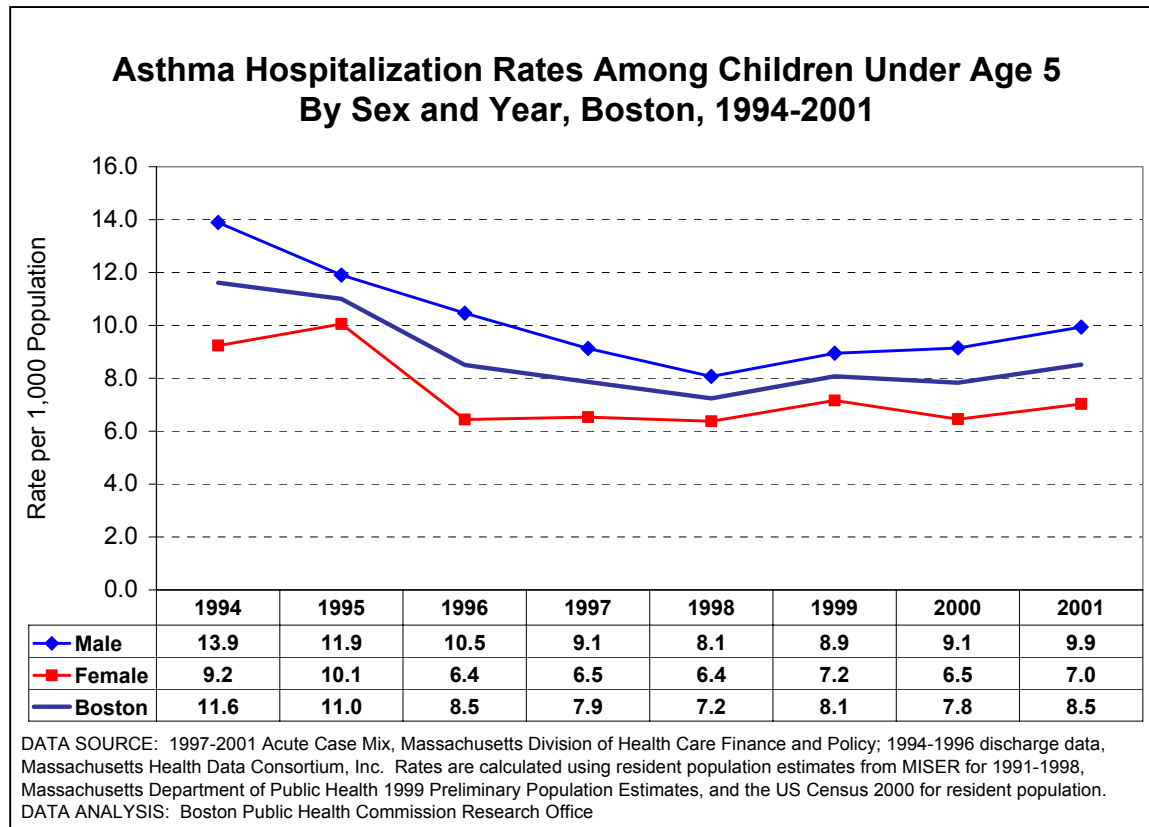
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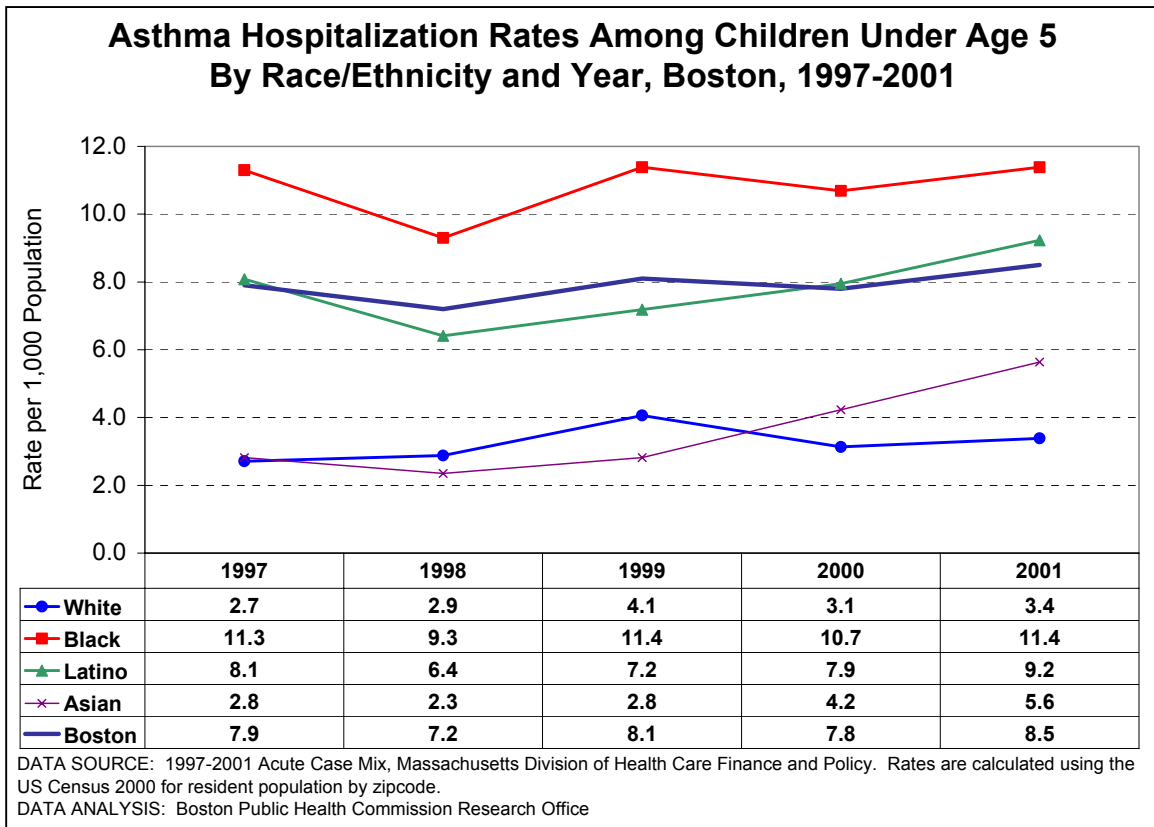
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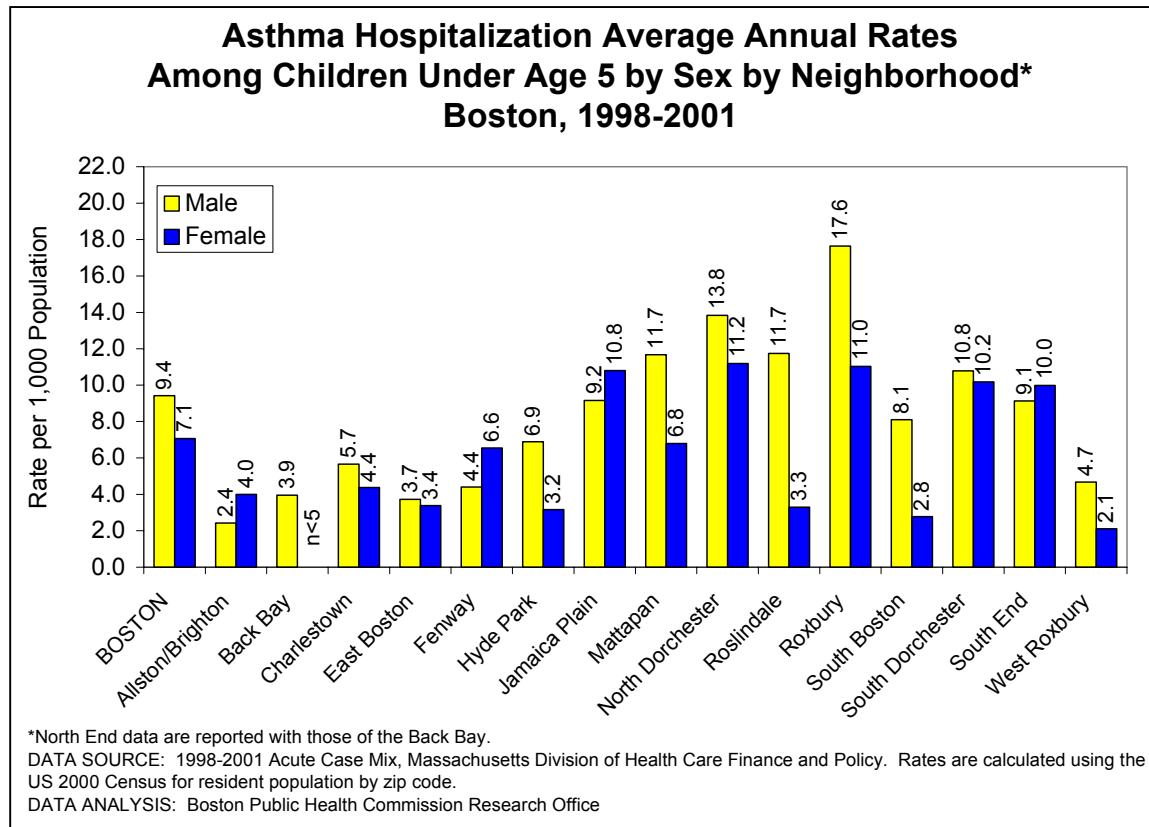


- In 2001, the asthma hospitalization rate for Boston children under age 5 increased about 9% above the rate in 2000.
- The asthma hospitalization rate for male children under age 5 continued to be higher than for female children under age 5 in 2001. The rate for males was 41.4% higher than the rate for females.
- For each of the years shown, the hospitalization rate among males under age 5 was consistently higher than the rate for females under age 5. The rate for males in 1994 was 51.1% higher than the rate for females. This disparity narrowed to 17.8% in 1995, widened again in 1996, narrowed in 1997 and 1998, and then widened to 40.0% in 2000 and to 41.4% in 2001.
- The asthma hospitalization rate among males under age 5 declined 41.7% between 1994 and 1998. Between 2000 and 2001, it had increased 8.8%. Between 1994 and 2001, the overall Boston rate for male children under age 5 declined 28.8%.
- The asthma hospitalization rate among females under age 5 rose 9.8% between 1994 and 1995 and fell 36.6% from 1995 to 1996, fluctuating slightly thereafter with increases in 1999 and again in 2001. Between 1994 and 2001, the rate for female children under age 5 declined 23.9%.



NOTE: Racial/ethnic information in the hospital discharge data should be interpreted with caution because it is not collected consistently by Massachusetts hospitals. Latinos may be found in any of the above categories, depending on the individual hospital’s reporting practices.

- Asthma hospitalization rates for Black and Latino children were substantially higher than for White and Asian children, a pattern that has existed since 1997.
- The 2001 rate for Blacks, the highest among all Boston racial/ethnic groups, was almost four times the rate for Whites and about twice the rate for Asians.
- Between 1997 and 2001, rates increased for all races/ethnicities. However, the increase was greatest for Whites (25.9%) and for Asians (100.0%). The rate increased 13.6% for Latinos but less than one percent for Blacks.



- Asthma hospitalization rates for the years 1998-2001 for children under age 5 were highest for Roxbury and for North Dorchester.
- Rates for male children were higher than for female children for all neighborhoods except Allston/Brighton, the Fenway, Jamaica Plain, and the South End. The highest rates for males were in Roxbury, North Dorchester, Mattapan, and Roslindale.
- Roxbury, Roslindale, Mattapan, South Boston, and Hyde Park had the greatest disparity in rates between male and female children. Rates for male children were 3.5 times higher than for female children in Roslindale, 2.9 times higher in South Boston, 2.2 times higher in Hyde Park, 1.7 times higher in Mattapan, and 1.6 times higher in Roxbury.

## CHILDHOOD LEAD POISONING

Childhood lead poisoning is a preventable environmental health problem that can affect almost every system in the body. (1,2) A child under the age of 6 is considered to have lead poisoning if his or her blood lead level is 10 micrograms per deciliter ( $\geq 10 \mu\text{g/dL}$ ) or higher. (1)

Lead poisoning can result in behavioral problems, learning disabilities, anemia, seizures, impaired kidney function, coma, and death. (2,3,4) By the time symptoms appear, damage is often already irreversible.

In 1978, 3-4 million children under the age of 6 in the US had lead poisoning. (4) Currently that figure is about 1 million and declining. (1)

Children under the age of 6 are at risk of lead poisoning because they grow rapidly and tend to put their hands and other objects into their mouths. If dust paint chips, or dirt that are thus consumed contains lead, poisoning can result. (1,2,3,4)

Lead-based paint and lead-contaminated dust from old, deteriorating buildings are the major sources of lead poisoning among US children. (1,2,3,4) Although lead-based paints were prohibited for use in housing in 1979, about 24 million housing units in this country still contain deteriorated lead paint and lead-contaminated dust. (1)

Other sources of lead poisoning include drinking water, certain home health remedies, jobs related to making or recycling automotive batteries, hobbies, and old toys and furniture painted with lead-based paint. (2,3,4) Children need to be tested, and, if necessary, treated. Lead hazards in a child's environment must be removed.

While children from all social and economic backgrounds are subject to lead poisoning, those living at or below the poverty level in old housing are at greatest risk. (2,5) Minority and poor children—because they often live in older housing that has not been delead—especially are affected. (1,3,5) Twenty-two percent of Black children and 13% of Mexican-American children who live in housing built before 1946 have lead poisoning, compared with 6% of White children who live in similar housing. (2)

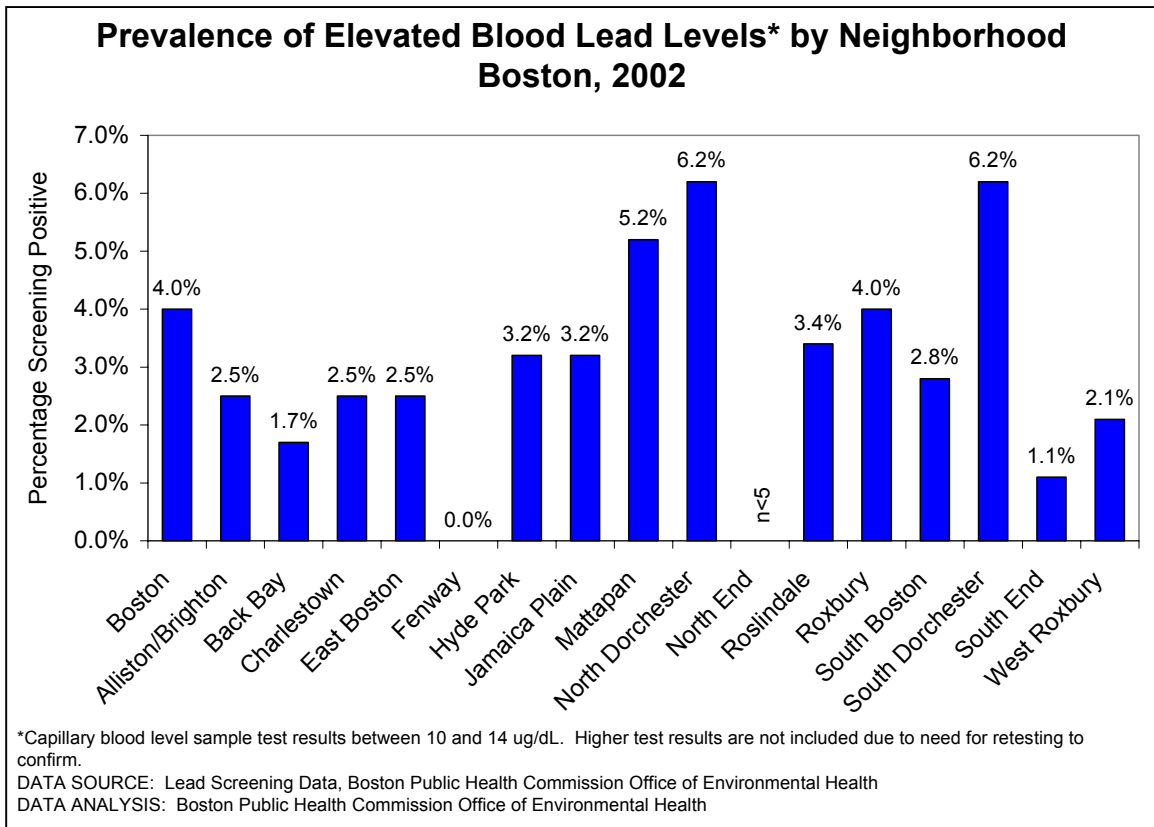
Some neighborhoods in urban areas place residents at greater risk for exposure to lead than other neighborhoods. These high-risk neighborhoods often have higher proportions of minority and poor residents, unoccupied houses and vacant lots, and older housing containing lead paint. (6) Deteriorating, older housing, in addition to low socioeconomic status of residents, have been found to be major contributors to lead exposure for children. (5)

During 2002, 24,115 Boston children under age 6 were screened for lead poisoning and 961 were found to have blood lead levels of  $10\mu\text{g/dl}$  or higher.

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- In 2002, 24,115 Boston children under age 6 were screened for elevated blood lead levels. Of the children screened, 961 (4.0%) had blood levels of 10 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ) or higher. Children with capillary blood sample test results between 10 and 14  $\mu\text{g}/\text{dL}$  have been included in this report.
- The number of Boston children with blood lead levels of 10  $\mu\text{g}/\text{dL}$  or higher has been declining since 1993, when 18.6% of children had blood lead levels at that level or higher. In 2002, this percentage was 4.0%. Between 2001 and 2002, the percentage of children with blood lead levels of 10  $\mu\text{g}/\text{dL}$  or higher declined 14.4%. The Healthy People 2010 goal is to have no elevated blood lead levels among children.
- In 2002, the prevalence of elevated blood lead levels in children was highest in North Dorchester (6.2%) and South Dorchester (6.2%), followed by Mattapan (5.2%).

## **INFECTIOUS DISEASES**

### **Introduction**

Infectious diseases are illnesses caused by various organisms, including bacteria, viruses, protozoa, parasites, fungi, and others. They can be transmitted directly from person to person or from animal to person, or through vectors (agents capable of transmitting a pathogen from one organism to another) such as insects, contaminated food or water, or infected objects. Prevention of infectious diseases depends on the particular disease and its mode of transmission. Frequent, thorough hand-washing is the single most effective way to prevent the transmission of many infectious diseases.

The Boston Public Health Commission Communicable Disease Control Division (CDC) is responsible for surveillance and control of over 50 communicable diseases, such as enteric infections, hepatitis, tuberculosis, and various vaccine-preventable illnesses, that must by state law be reported to local health departments. In Boston, CDC investigates over 2,000 reported cases of communicable diseases annually and provides education and public health measures to limit the spread of disease. In addition, the division conducts follow-up in response to outbreaks to minimize the event of illness and help prevent future outbreaks from occurring.

### **Enteric Infections**

Enteric disease is caused by consuming contaminated food or water. Enteric disease may occur if disease organisms in the feces of an infected person are transmitted to another person. This may occur through poor hygiene practices. Enteric diseases are caused by a variety of organisms, including bacteria, viruses, and parasites, and affect the gastrointestinal system. Infants, the elderly, and persons with weakened immune systems are at the highest risk of serious infection. Enteric illness can occur sporadically or in outbreaks. Good hand washing is critical in the prevention of enteric disease.

In 2001, the incidence rate of salmonellosis was 11.3 new cases per 100,000 population in the US. (1) The incidence of salmonellosis in Massachusetts was eighty-one percent higher than the national rate (20.4 new Massachusetts cases per 100,000 compared to 11.3 new US cases per 100,000).

In 2001, the incidence rate of shigellosis was 3.8 new cases per 100,000 population in the United States. (2) In Massachusetts, the incidence of shigellosis was slightly less than the national rate (3.0 new cases per 100,000).

In 2001, 519 new cases of enteric disease (Campylobacter, giardiasis, salmonellosis, and shigellosis) were reported for Boston residents.
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## **Hepatitis**

### ***Hepatitis A***

Hepatitis A is a disease that primarily affects the liver and is caused by the hepatitis A virus (HAV). It causes acute (short term) infection. In 2001, 10,616 new cases of hepatitis A infection were reported in the US, an incidence rate of 3.8 cases per 100,000 population. (3)

HAV infection is primarily spread person-to-person by the fecal-oral route. Individuals at greatest risk include household and sexual contacts of infected persons, people traveling to areas where HAV infections are common, and men who have sex with men. A vaccine to prevent HAV infection was introduced in the late 1990s and is recommended for groups at high risk.

In 2001, 94 new cases of hepatitis A infection were reported for Boston residents.

### ***Hepatitis B***

Hepatitis B is a disease caused by the hepatitis B virus (HBV). HBV causes both acute and chronic infection. There are an estimated 1.25 million persons with chronic HBV infection in the US. (4) Death due to chronic liver disease occurs in fifteen percent to twenty-five percent of those with chronic HBV infection. (4)

HBV is primarily spread through unprotected sex with an infected person, sharing needles for injection drug use, or from an infected mother to her baby during birth. In 1982, a vaccine was introduced for the prevention of HBV infection. The number of new cases of HBV infection has declined because of routine vaccination of children and adolescents against HBV. (4) In 2001, there were 2.4% fewer cases of acute HBV infection reported to the federal Centers for Disease Control and Prevention than in 2000. (3)

In 2001, 541 new cases of hepatitis B infection were reported for Boston residents.

### ***Hepatitis C***

Hepatitis C is a disease that primarily affects the liver and is caused by the hepatitis C virus (HCV). Hepatitis C is the most commonly reported blood-borne infection in Boston. In the US, an estimated 3.9 million persons are infected with HCV, with 2.7 million people having chronic infection. (5) In 2001, an estimated 25,000 new acute HCV infections occurred in the US. In Massachusetts, 100,000 people are estimated to be infected with HCV. (6) Often there are no symptoms associated with HCV infection. There is no vaccine to prevent HCV infection.

Substance abuse, particularly injection drug use, is the most significant risk factor associated with HCV infection. It is estimated that eighty to ninety percent of injecting drug users are positive for HCV. (7) Other significant risk factors for HCV infection include a history of blood transfusion prior to 1992 and unprotected sexual contact with multiple partners. (8)

During 2001, 1,128 new cases of hepatitis C infection were reported for Boston residents.



## Tuberculosis

Tuberculosis is a bacterial infection, which usually affects the lungs. It is transmitted through airborne droplets created by activities such as sneezing, coughing, or spitting. Some people develop “active tuberculosis” (TB disease) which is usually associated with symptoms such as prolonged cough, chest pain, fatigue, fever, and weight loss. TB disease can be transmitted from person to person. Other people with TB have latent infection, which does not cause symptoms and cannot be transmitted.

Nationally, TB rates continue to decline. In 2001, the incidence of TB in the US was 5.6 cases per 100,000 population. Persons ages 25-44 account for thirty-five percent of TB cases. In 2001, seventy-nine percent of all US tuberculosis cases occurred among people of color. (9)

In 2001, the incidence of TB in Massachusetts was 4.2 per 100,000 population. (10) Persons ages 25-44 accounted for forty-five percent of the cases. (11) In 2001, twenty-seven percent occurred among White residents, with seventy-three percent occurring in Black, Latino, Asian, and other racial/ethnic groups. (12) In Massachusetts, seventy-seven percent of TB cases were in foreign-born persons, compared with forty-nine percent nationally. (13)

In 2001, 75 new cases of TB were reported for Boston residents.
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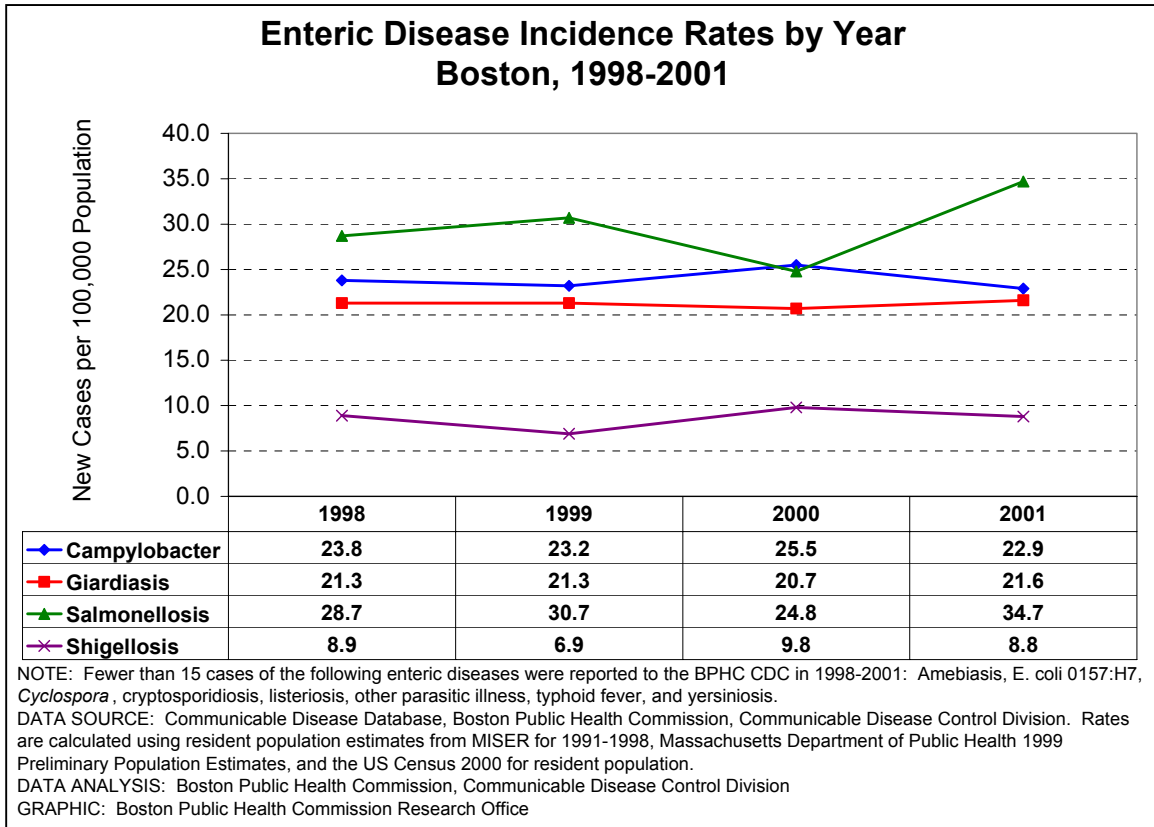
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Enteric Infections

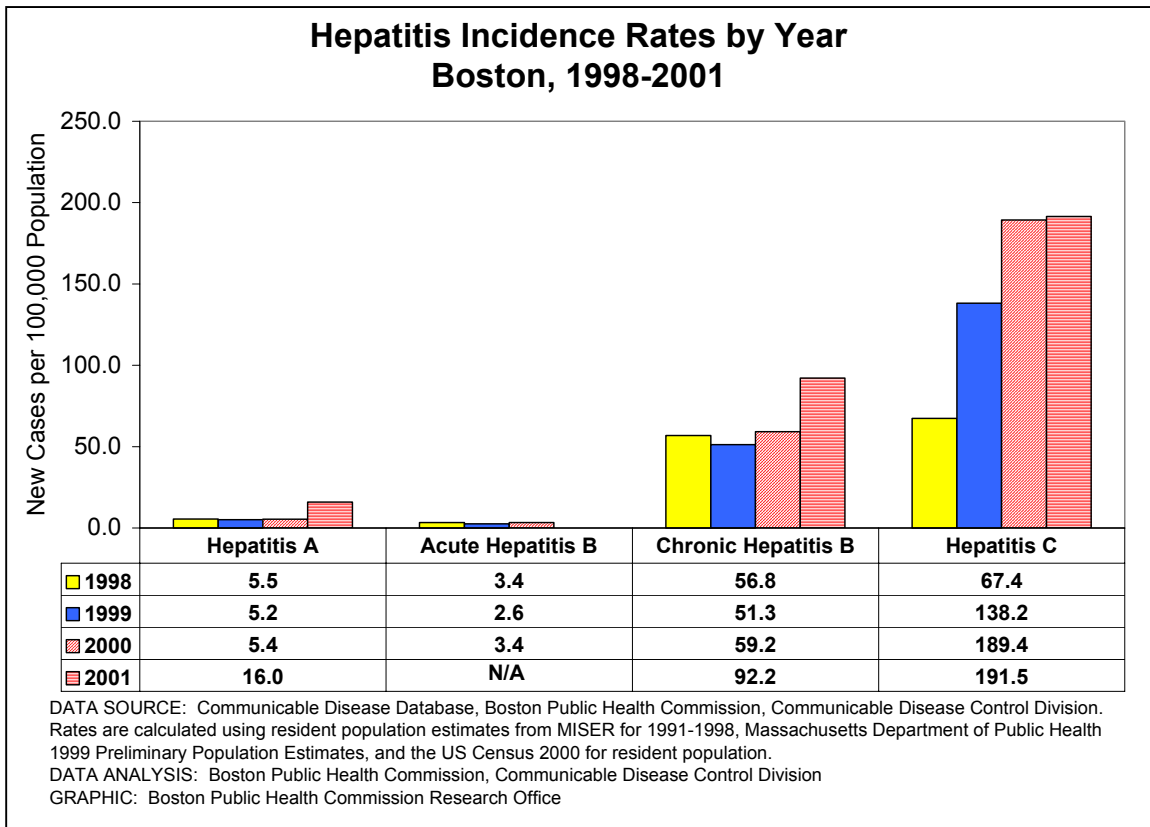


For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

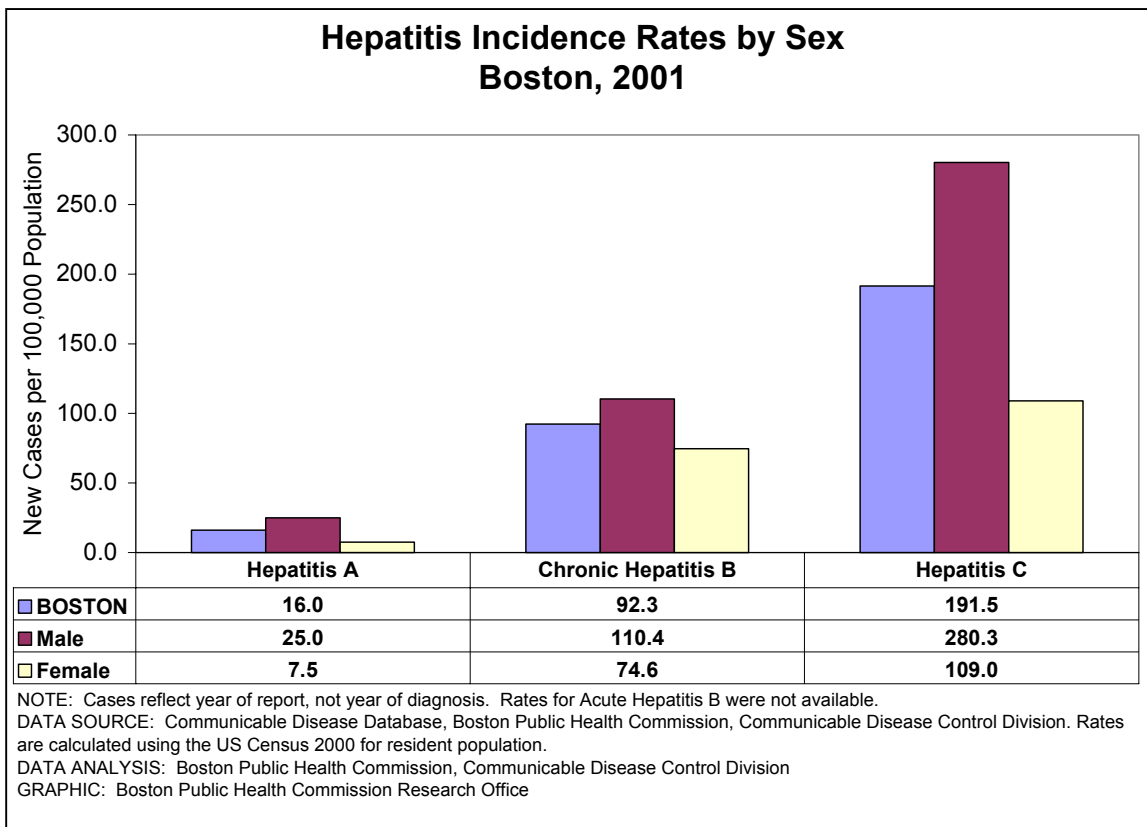
Note: Individual enteric diseases are defined in the Glossary.

- In 2001, the incidence of salmonellosis increased 39.9% (from 24.8 new cases per 100,000 population in 2000 to 34.7 new cases per 100,000 in 2001). There was a slight increase in reported giardiasis, from 20.7 new cases per 100,000 population in 2000 to 21.6 new cases per 100,000 population.
- In 2001, the incidence of shigellosis decreased 10.2% (from 9.8 new cases per 100,000 population in 2000 to 8.8 new cases per 100,000). There was a slight decrease in reported Campylobacter infection, from 25.5 new cases per 100,000 population in 2000 to 22.9 new cases per 100,000 population.

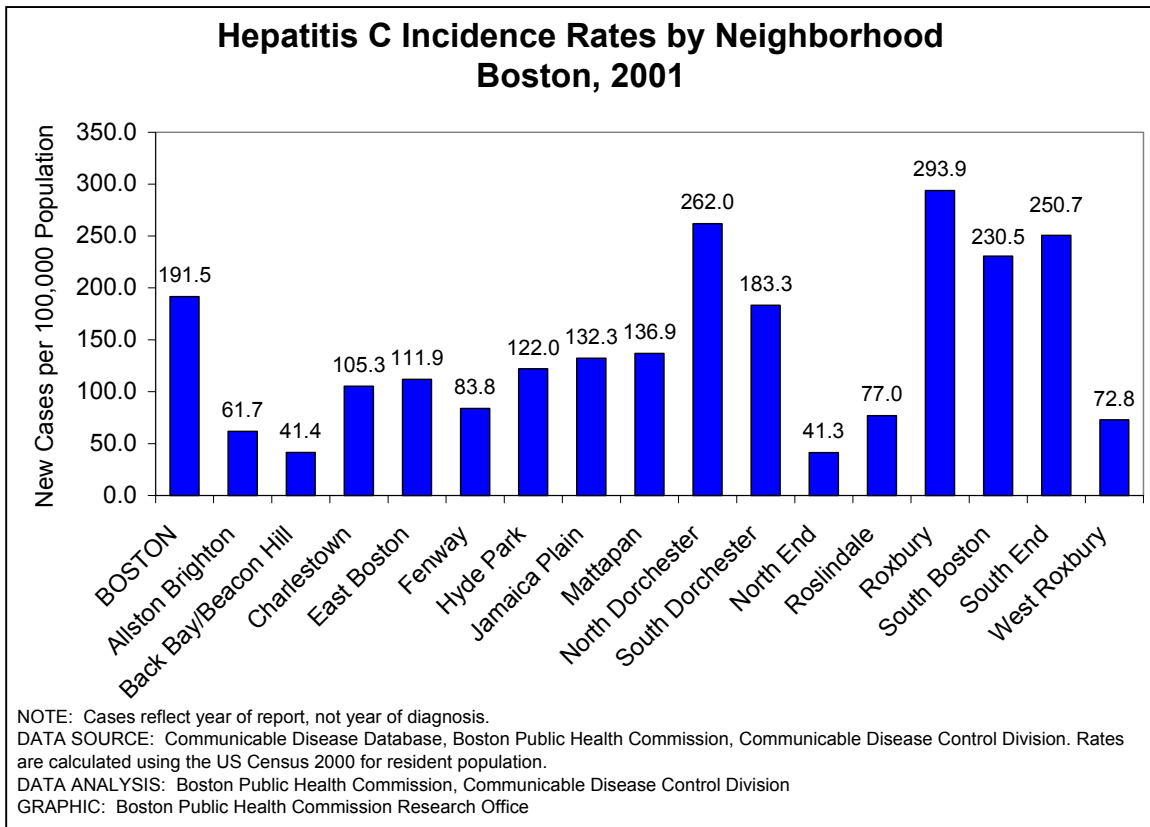
**Hepatitis**



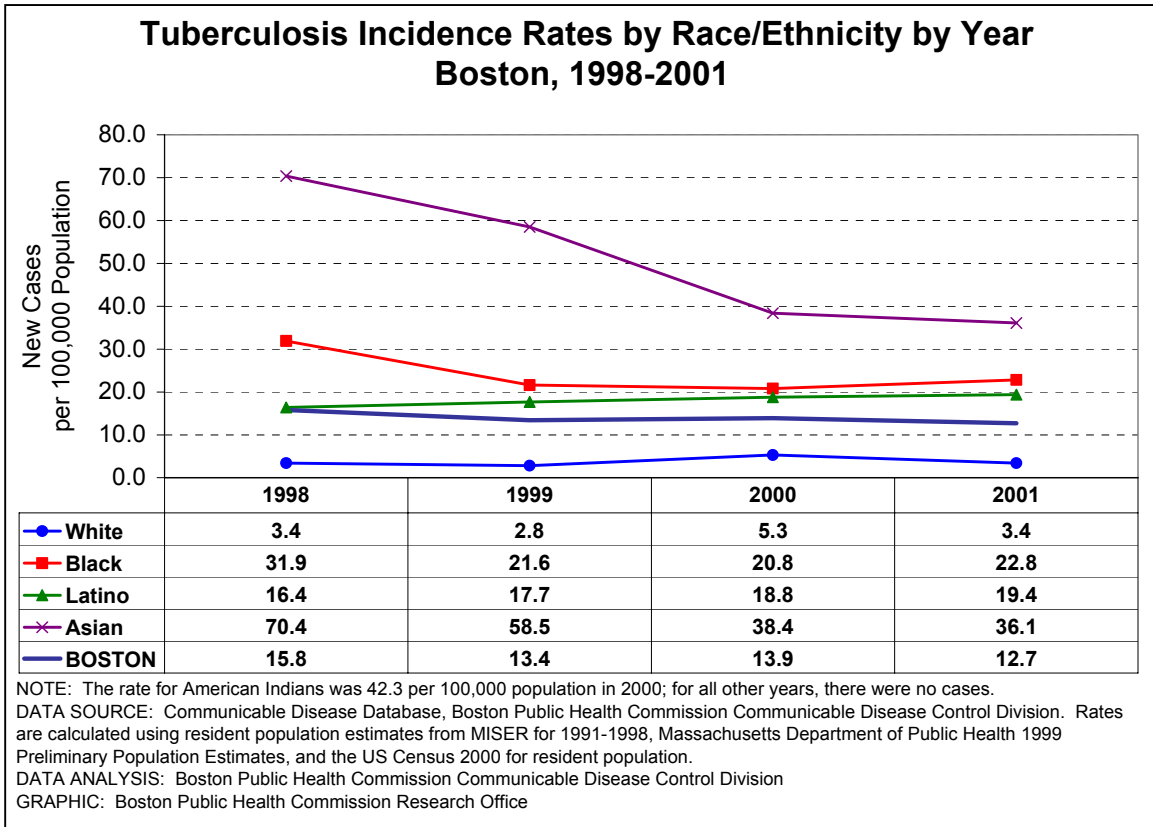
- In 2001, the incidence of hepatitis A infection increased 196.3% from 5.4 new cases per 100,000 population in 2000 to 16.0 new cases per 100,000. The increase was due to an outbreak among men who have sex with men.
- There was a 55.7% increase in the reported chronic hepatitis B infection, from 59.2 new cases per 100,000 population in 2000 to 92.2 new cases per 100,000 population in 2001. The increase was due to improved reporting.
- There was a slight increase in reported hepatitis C infection from 189.4 new cases per 100,000 population in 2000 to 191.5 new cases per 100,000 in 2001. The increase was due to more testing and improved reporting.



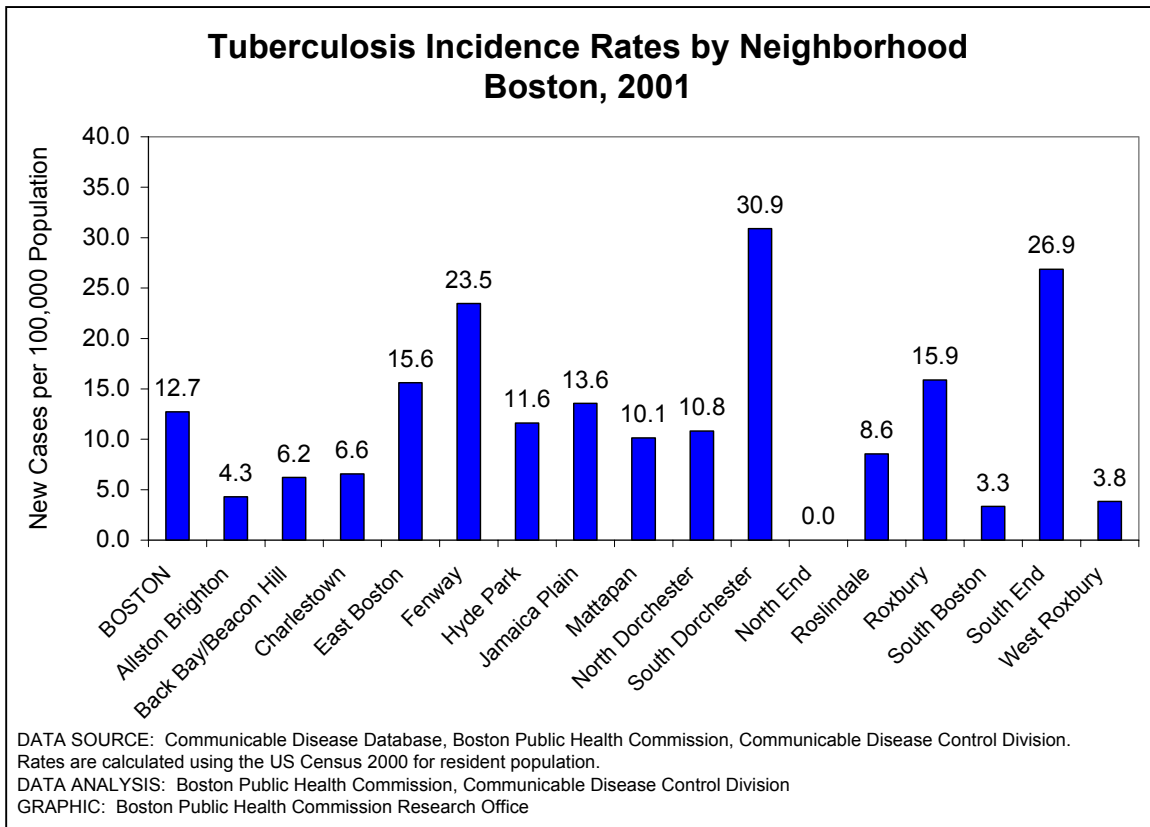
- The incidence rate of reported hepatitis A infection was 3.3 times as high in males as in females.
- The incidence rate of reported hepatitis C infection was about 2.5 times as high in males as in females.



- The highest incidence rates of hepatitis C infection among Boston neighborhoods in 2001 were in North Dorchester, Roxbury, South Boston, and the South End. In part, these rates may reflect differences in local screening practices. All four neighborhoods had hepatitis C infection incidence rates above the overall Boston rate of 191.5 new cases per 100,000 population.
- In 2001, Roxbury had the highest incidence rate of reported hepatitis C infection (293.9 new cases per 100,000 population), 1.5 times as high as the overall Boston rate.

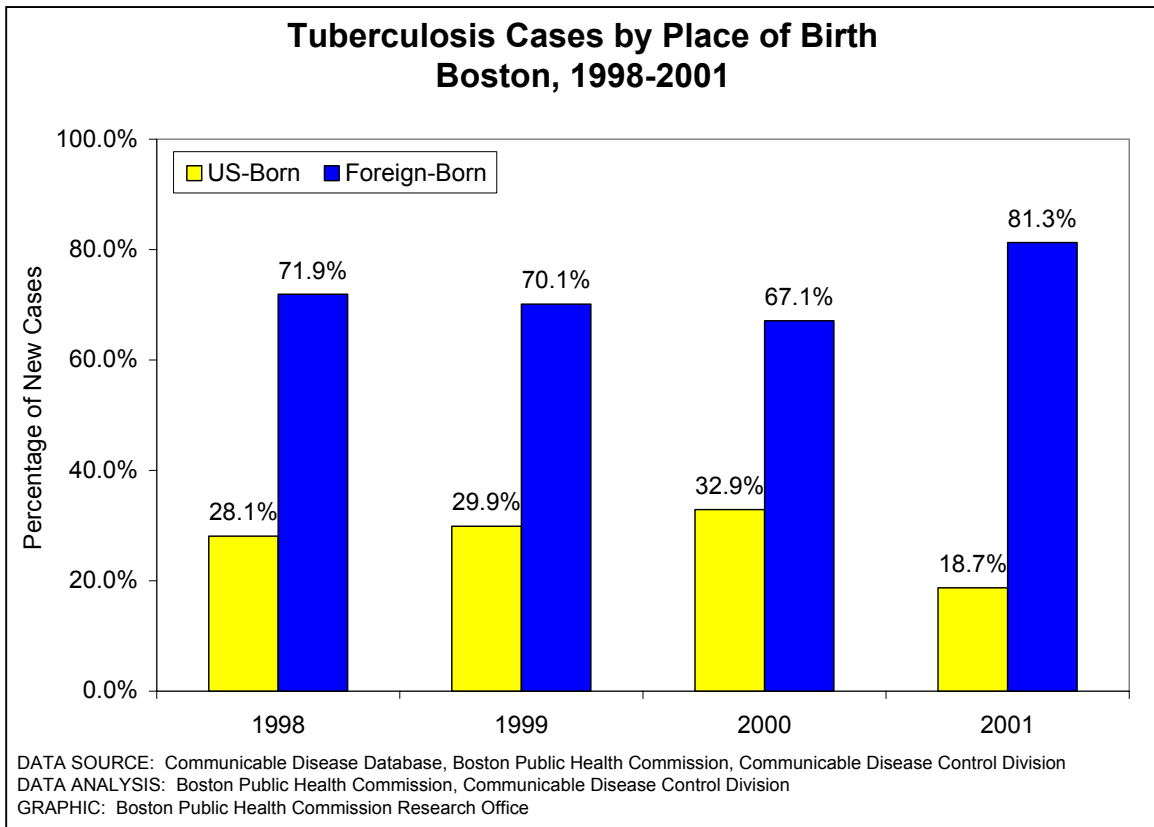


- The TB incidence rate declined to 12.7 new cases per 100,000 population in 2001, from 13.9 new cases per 100,000 in 2000.
- The highest incidence rate for TB was among Asians. The rate however declined 6.0% between 2000 and 2001. Differences in rates across racial/ethnic groups may be related to immigration of individuals from countries with high rates of tuberculosis.



- The highest incidence rate of TB in 2001 was among South Dorchester residents (30.9 new cases per 100,000 population) and was 2.4 times that of the overall Boston rate.
- East Boston, Fenway, Jamaica Plain, Roxbury, and South End also had comparatively high rates of new TB cases. This may be due to larger numbers of homeless persons and of people from countries where TB is common living in these neighborhoods.





- In 2001, over eighty percent of new TB cases in Boston residents were among individuals born in another country.
- The percentage of all cases that were among the foreign-born rose 21.2% between 2000 and 2001, while the percentage of all TB cases that were among US-born residents decreased 43.2%.

## Sexually Transmitted Diseases

### Introduction

In the United States chlamydia, gonorrhea, and syphilis are the most common sexually transmitted diseases (STDs), with over one million cases reported nationally in 2001. Of these, thirty-five percent were among adolescents. (1)

Chlamydia is the most commonly reported infectious disease in the US and is a particular problem among women. Because symptoms of chlamydia are mild or absent, serious complications, including infertility, can occur "silently" before a woman ever recognizes a problem. In 2001, an estimated 783,242 new cases of chlamydia were reported in the US, with the rate in women four times that in men. For both sexes, individuals ages 15-19 had the highest incidence rates of chlamydia. Reported chlamydia rates in women greatly exceed those in men partly because screening programs have been primarily aimed at women. True rates are probably far more similar for both women and men. (2)

Gonorrhea is an STD that, if left untreated, can cause serious problems, including infertility, in both women and men. Gonorrhea is a common cause of pelvic inflammatory disease (PID) in women. In 2001, an estimated 361,705 cases of gonorrhea were reported in the US, with the rate in men slightly higher than that among women. Among women, those ages 15-19 had the highest rate of infection, while among men, those ages 20-24 had the highest rate. (3)

Syphilis is another STD that, if left untreated, can have serious health complications. Pregnant women can pass on the disease to their newborns, resulting in infant death, preterm delivery, low birth weight, deafness, and seizures. In 2001, 32,221 cases of all stages of syphilis were reported in the US, with 6,103 cases of primary and secondary syphilis. The occurrence of primary and secondary syphilis reflects relatively recent transmission. The reported rate of primary and secondary syphilis in the US in 2001 (2.2 cases per 100,000 population) was slightly higher than the rate reported in 2000 (2.1 cases per 100,000). In men, the rate of primary and secondary syphilis was 2.1 times the rate in women, with continued outbreaks reported among men who have sex with men. In 2001, the rate of primary and secondary syphilis among women was highest in those ages 20-24 and the rate among men was highest in those ages 35-39. The rate of reported primary and secondary syphilis among African Americans was 16 times the rate reported in Whites. (4)

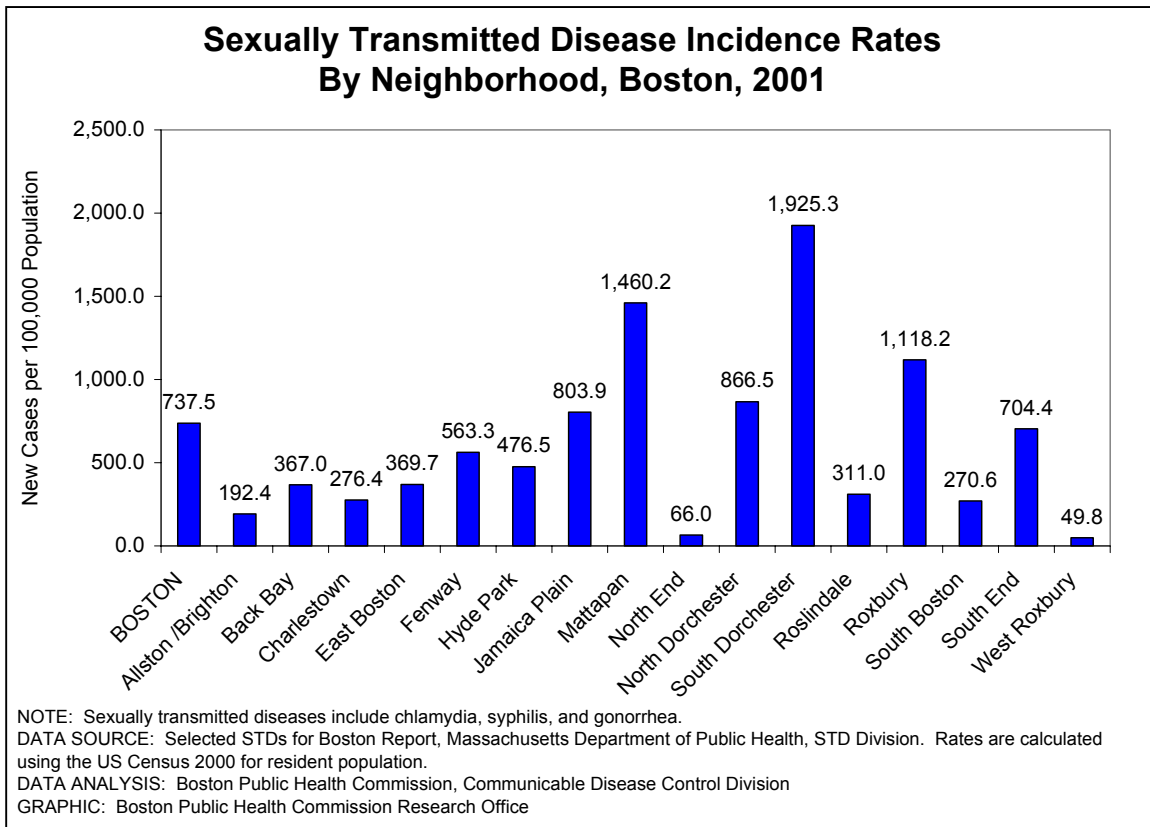
Women, adolescents, and people of color are disproportionately affected by STDs such as chlamydia, gonorrhea, and syphilis. (3,4) Up to forty percent of women with untreated chlamydia and gonorrhea will develop pelvic inflammatory disease (PID), and twenty percent of women with PID develop infertility. Women who have chlamydia are also 3-5 times more likely than women without chlamydia to become infected with HIV if exposed. (2) Reported STD rates are generally higher among Blacks and Latinos than Whites. (1,2,3,4) This disparity is partly due to more complete reporting by public clinics, which disproportionately serve populations of color, to inadequate access to health care, and to inadequate STD prevention outreach efforts. (1)

As with many other infections, the actual number of STD cases is unknown. STDs can be difficult to track, and many people with STDs do not have symptoms and therefore remain undiagnosed. (1) These facts may account for much of the observed differences between men and women and between racial/ethnic groups in reported rates of sexually transmitted disease.

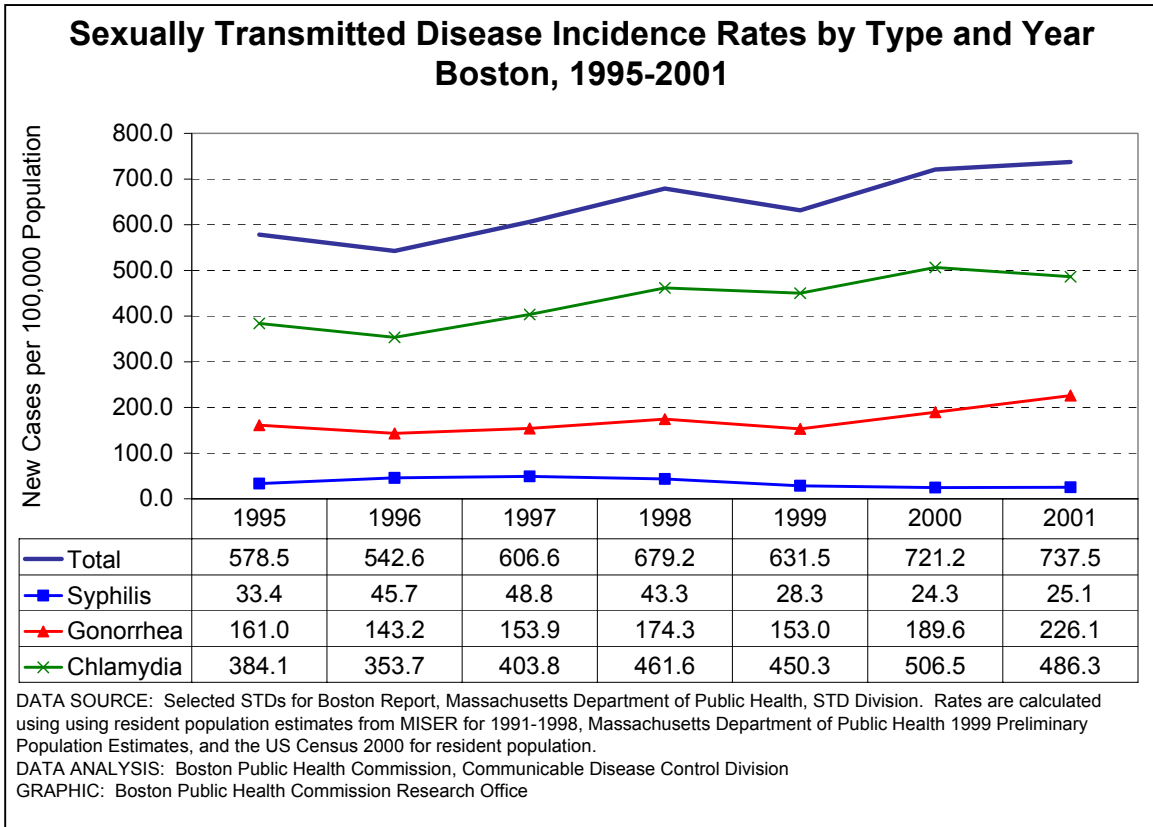
There were 4,346 new cases of STDs (chlamydia, syphilis, and gonorrhea) reported for Boston residents in 2001.

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- In 2001, South Dorchester had the highest incidence rate of reported sexually transmitted diseases (STDs) (1,925.3 new cases per 100,000 population), 2.6 times higher than the overall Boston rate.
- Jamaica Plain, Mattapan, North Dorchester, and Roxbury also had incidence rates higher than the Boston rate. In part, these rates may reflect local differences in STD screening and reporting practices.



- The overall Boston incidence rate for sexually transmitted diseases (STDs, including syphilis, gonorrhea, and chlamydia) was 737.5 new cases per 100,000 population in 2001.
- There was a 3.3% increase in the incidence rate for syphilis from 2000 (24.3 new cases per 100,000) to 25.1 new cases per 100,000 in 2001.
- There was a 4.0% decline in the incidence rate for chlamydia (from 506.5 new cases per 100,000 in 2000 to 486.3 new cases per 100,000 in 2001) and a 19.3% increase in the incidence rate for gonorrhea (from 189.6 new cases per 100,000 in 2000 to 226.1 new cases in 2001).

## **HIV/AIDS**

### **Introduction**

Human Immunodeficiency Virus (HIV) is the organism that causes Acquired Immune Deficiency Syndrome (AIDS). People become infected with HIV through sexual contact, contact with infected blood, or at birth, when infection can be transmitted from mother to baby. The virus can also be transmitted to infants through breast feeding.

Over a period of years, most people who are infected with HIV develop AIDS as the virus damages the immune system. People are classified as having AIDS when their immune system shows significant damage by HIV, based upon blood tests (T-cell or CD4 counts) or when they develop certain infections or tumors related to infection with HIV.

### ***HIV***

The federal Centers for Disease Control and Prevention (CDC) national goal to reduce the number of new HIV infections in the US calls for a reduction in the number of new cases from an estimated 40,000 annually to 20,000 by 2004, with a particular focus on eliminating racial and ethnic disparities. (1)

During the past two decades, great strides have been made in HIV/AIDS prevention through widespread HIV counseling, community-level interventions and initiatives, and reduction in risk-taking behavior. New drug combinations to treat HIV have delayed the progression from HIV infection to AIDS for many HIV-positive Americans. (1)

As of January 1, 2003, 161,976 persons living with HIV (without AIDS) were reported to the federal CDC. (2) As of January 1, 2003, there were 6,187 Massachusetts residents living with HIV (without AIDS). Of these cases, 69.2% were male. Whites accounted for 48.6%, Blacks 24.9%, and Latinos 24.3%. Men having sex with men (MSM) was the most common reported transmission category. (3)

A total of 166 new cases of HIV among Boston residents were reported in 2001. As of January 2003, there were 1,784 Boston residents living with HIV.

### ***AIDS***

In 2001, 41,311 adult/adolescent persons with AIDS were newly reported in the US. Black persons accounted for 50.2% of these cases, Whites 28.3%, and Latinos 19.9%. Of the cumulative cases of AIDS reported through 2001, 42.1% were White, 38.4% were Black, and 18.3% were Latino. (2).

In the US, men having sex with men (MSM) is still the most common transmission category for AIDS, followed by injection drug use and heterosexual contact. (2,4) Since 1996, declines in the number of new cases of AIDS have been largest in the MSM and injection drug use transmission categories. (4)

Beginning in 1996, large declines were reported in the US for both AIDS incidence and AIDS deaths. These declines are due in large part to the availability of new medications that delay the onset of AIDS in those with HIV infection and to increases in the lifespan of many who already have AIDS.

In 2001, an estimated 15,603 deaths among persons with AIDS were reported by the federal CDC. (2) Of the 816,149 cumulative AIDS cases reported to the federal CDC, 57.3% have died. (5)

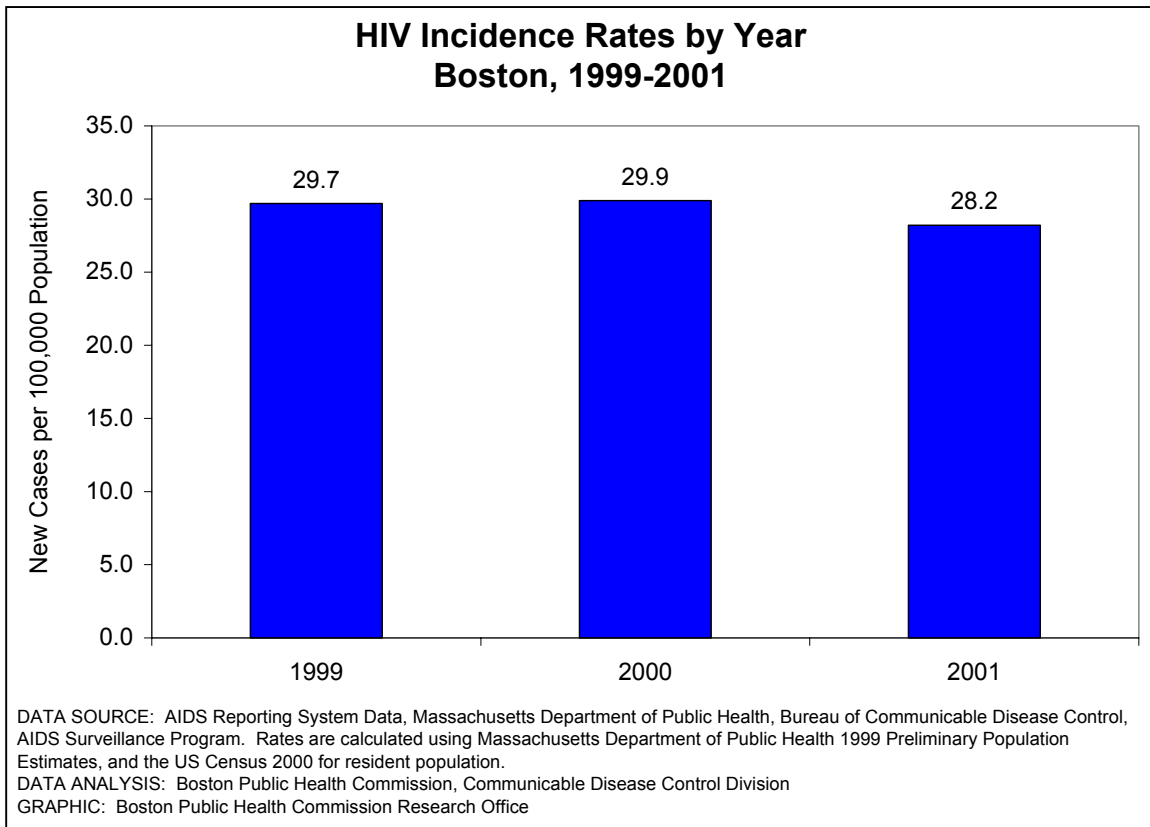
As of January 1, 2003, 362,827 persons living with AIDS cases have been reported to the federal CDC. Of these cases, seventy-eight percent were among men, twenty-one percent among women, and one percent among children. Of persons living with AIDS, forty-two percent were Black, thirty-seven percent were White, and twenty percent were Latino. In Massachusetts, there were 7,770 adults and adolescents living with AIDS. Of these 73.7% were males and 26.3% were females. Of Massachusetts residents living with AIDS, 46.5% were White, 27.6% were Black, and 24.5% were Latino. (3)

For persons currently living with AIDS and HIV, the recent increase in average life expectancy resulting from improved treatment is often accompanied by a number of challenges. Among them are the difficulty and expense of complying with multiple and complex drug regimens, medication side effects that may result in a decrease in the quality of life, and antiretroviral drug resistance. (6)

A total of 146 new cases of AIDS among Boston residents were reported in 2001. As of January 2003, there were 2,325 Boston residents living with AIDS.

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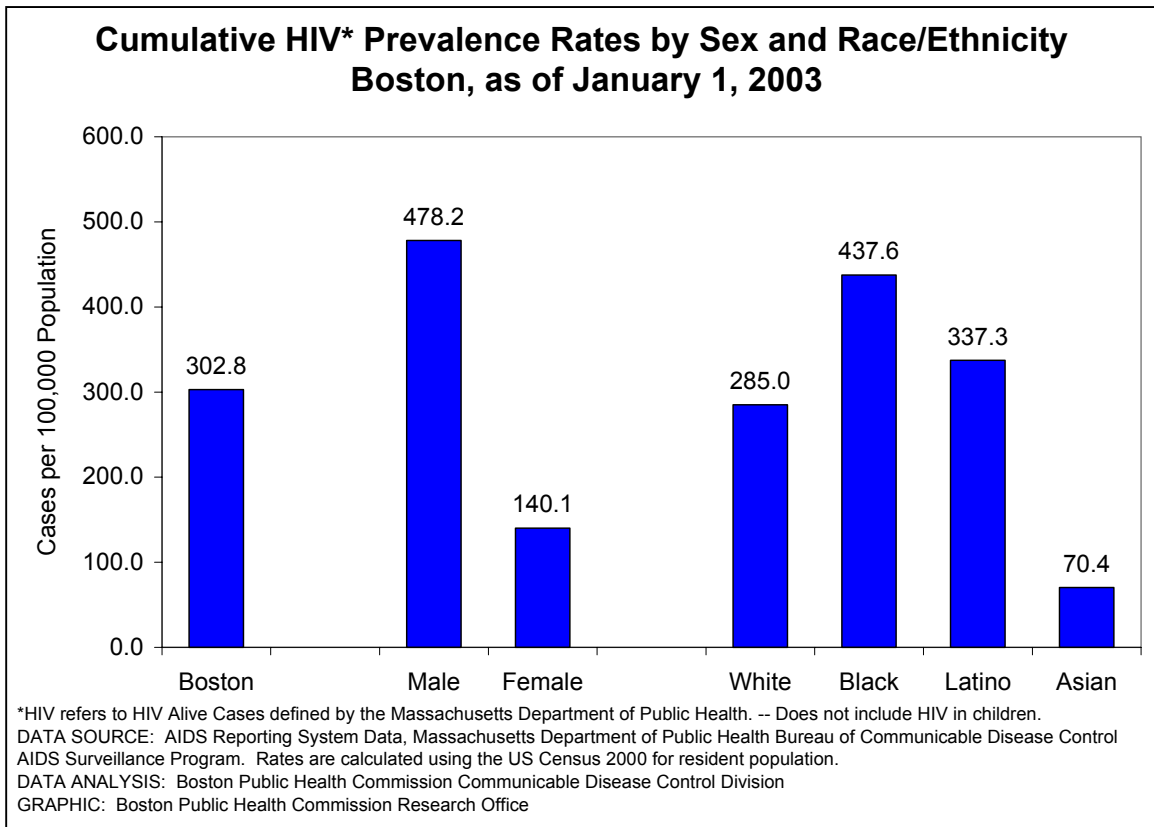
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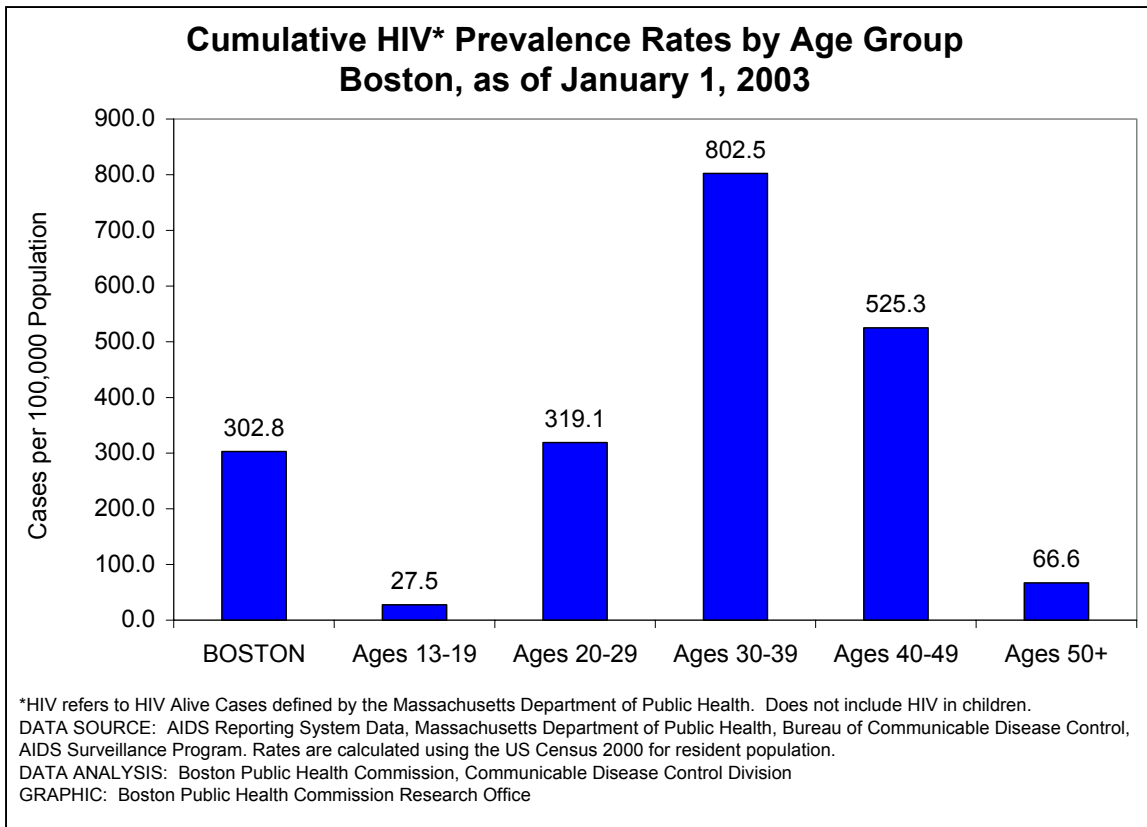
NOTE: Does not include HIV in children

- The incidence of reported HIV (without AIDS) declined 5.7% between 2000 and 2001. In part, this decline may reflect decreases in HIV counseling and testing services.
- The overall Boston incidence of reported HIV (without AIDS) cases was 28.2 new cases per 100,000 population in 2001.

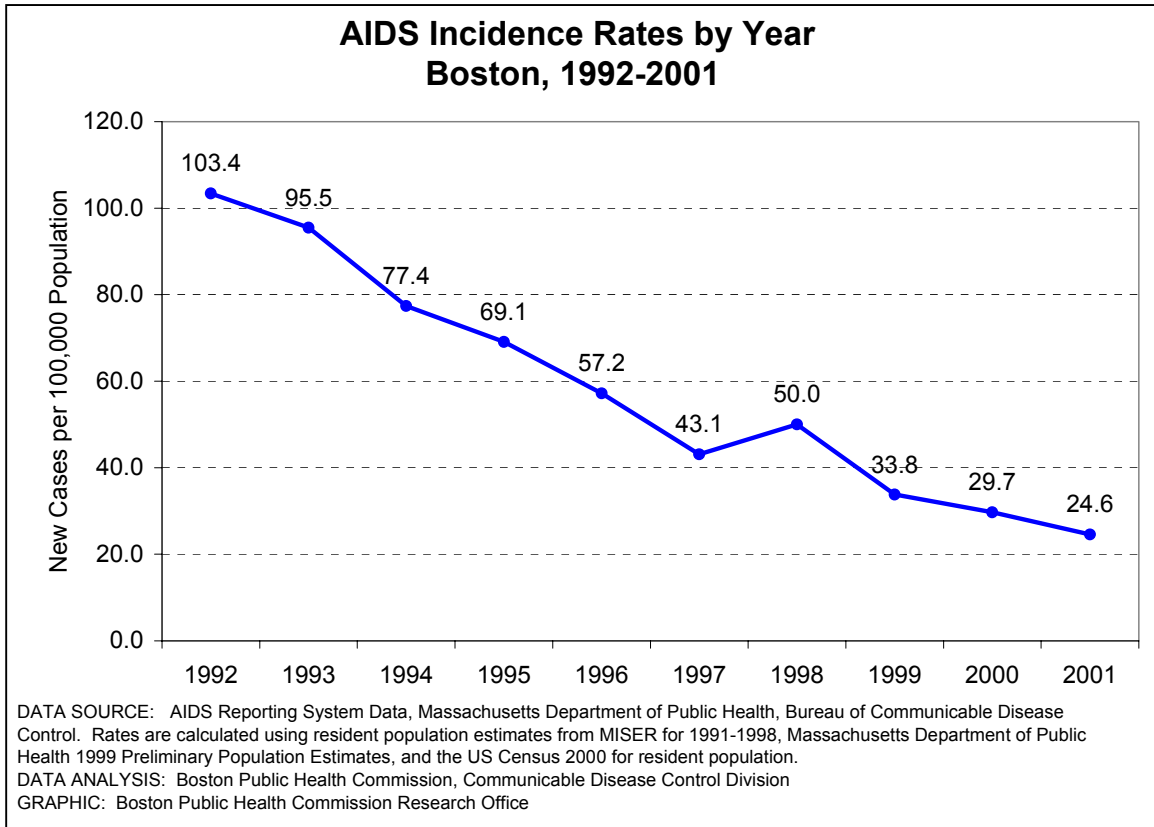




- The prevalence rate for Boston residents living with HIV (without AIDS) was 302.8 cases per 100,000 population.
- The prevalence rate for males living with HIV was 3.4 times that of females. Black Boston residents had the highest prevalence of persons living with HIV, 1.4 times that of the Boston rate. The rate for Latinos was 11.4% greater than the overall Boston rate.

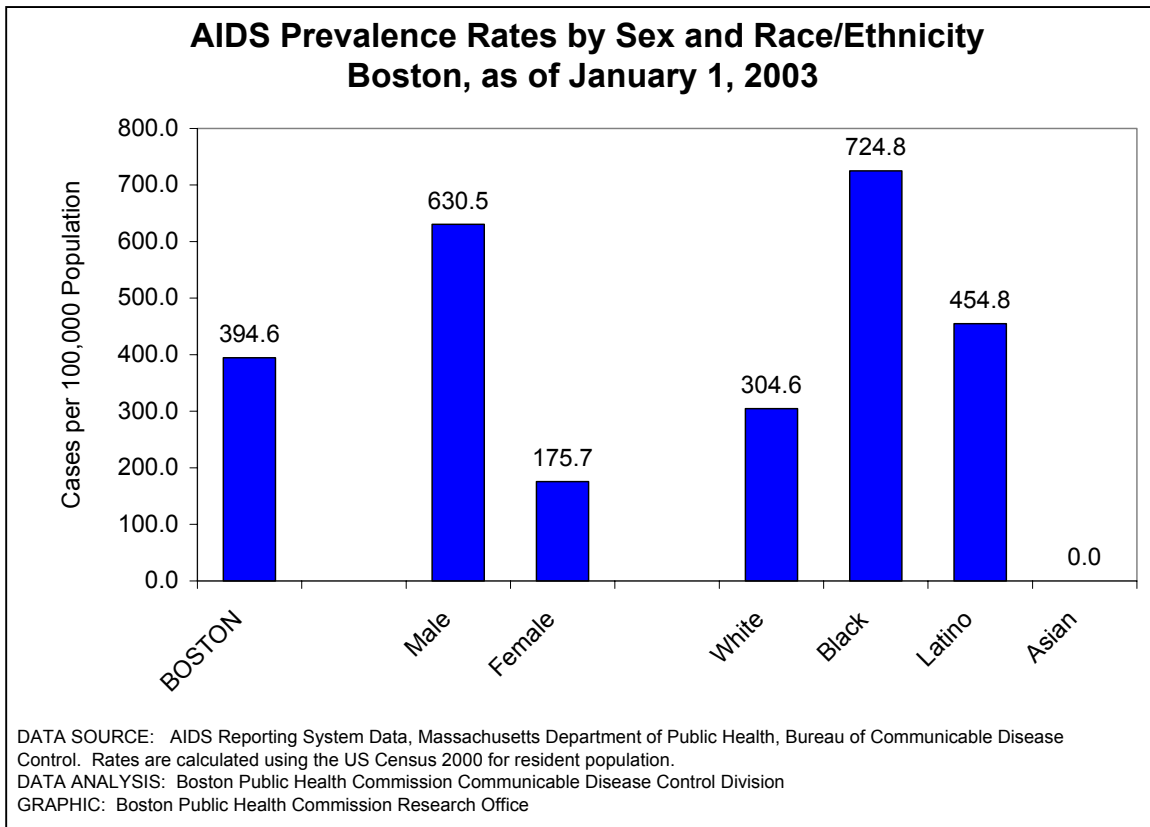


- The highest prevalence of persons reported living with HIV was among those ages 30-39, with a rate 2.7 times that of Boston overall. Those ages 40-49 had a rate 1.7 times that of the Boston rate, and those ages 20-29 had a rate 1.1 times that of the Boston rate.



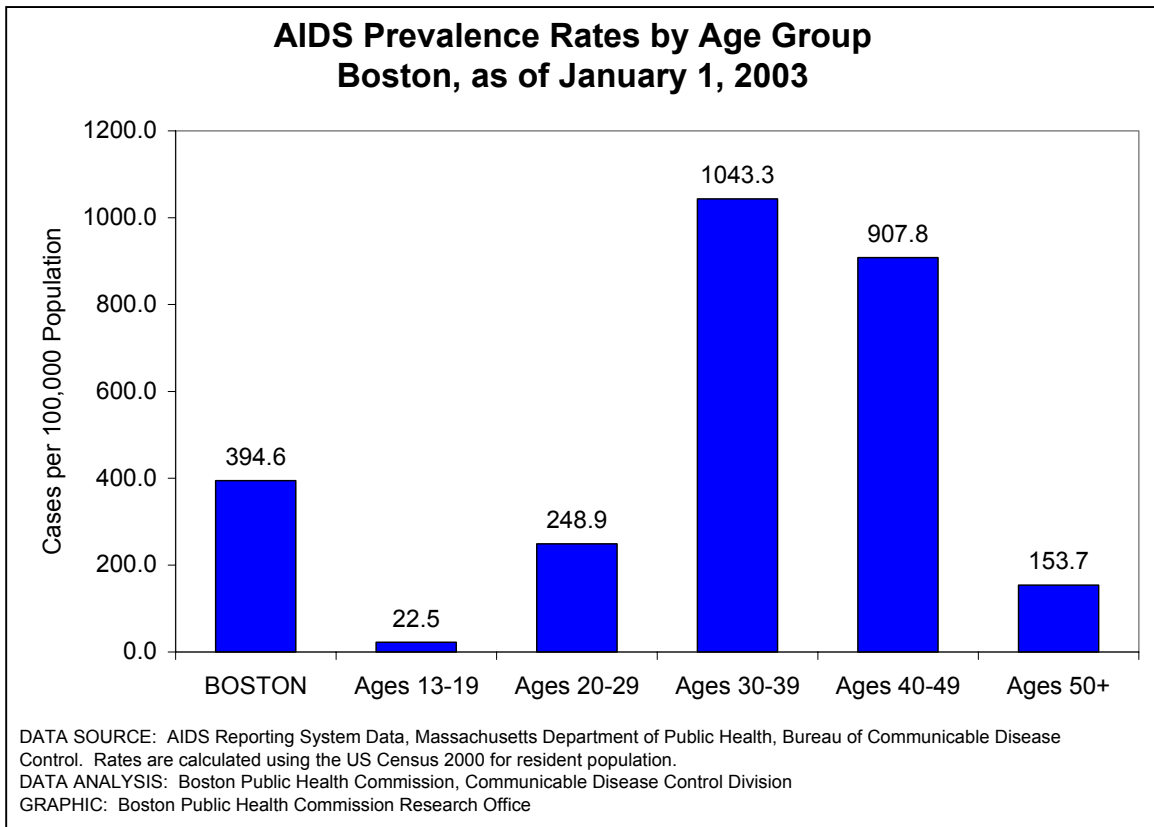
NOTE: Does not include AIDS cases in children

- Between 1992 and 2001, the incidence rate for new AIDS cases in Boston declined 76.2%, from 103.4 new cases per 100,000 population in 1992 to 24.6 new cases per 100,000 in 2001. This decline is believed to be attributed primarily to more effective treatments that delay the onset of AIDS infection.



NOTE: Does not include AIDS cases in children

- As of January 1, 2003 there were 2,325 Boston residents living with AIDS. The prevalence of Boston residents living with AIDS was 394.6 per 100,000 population.
- The prevalence of males living with AIDS was 3.6 times that of females. Black Boston residents had the highest prevalence of persons living with AIDS, 1.8 times that of the Boston rate. The rate for Latinos was 15.3% greater than the overall Boston rate.



NOTE: Does not include AIDS cases in children

- The highest prevalence of persons reported living with AIDS was among those ages 30-39, with a rate 2.6 times that of Boston overall. Those ages 40-49 had a rate 2.3 times that of the Boston rate.

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## **VIOLENCE**

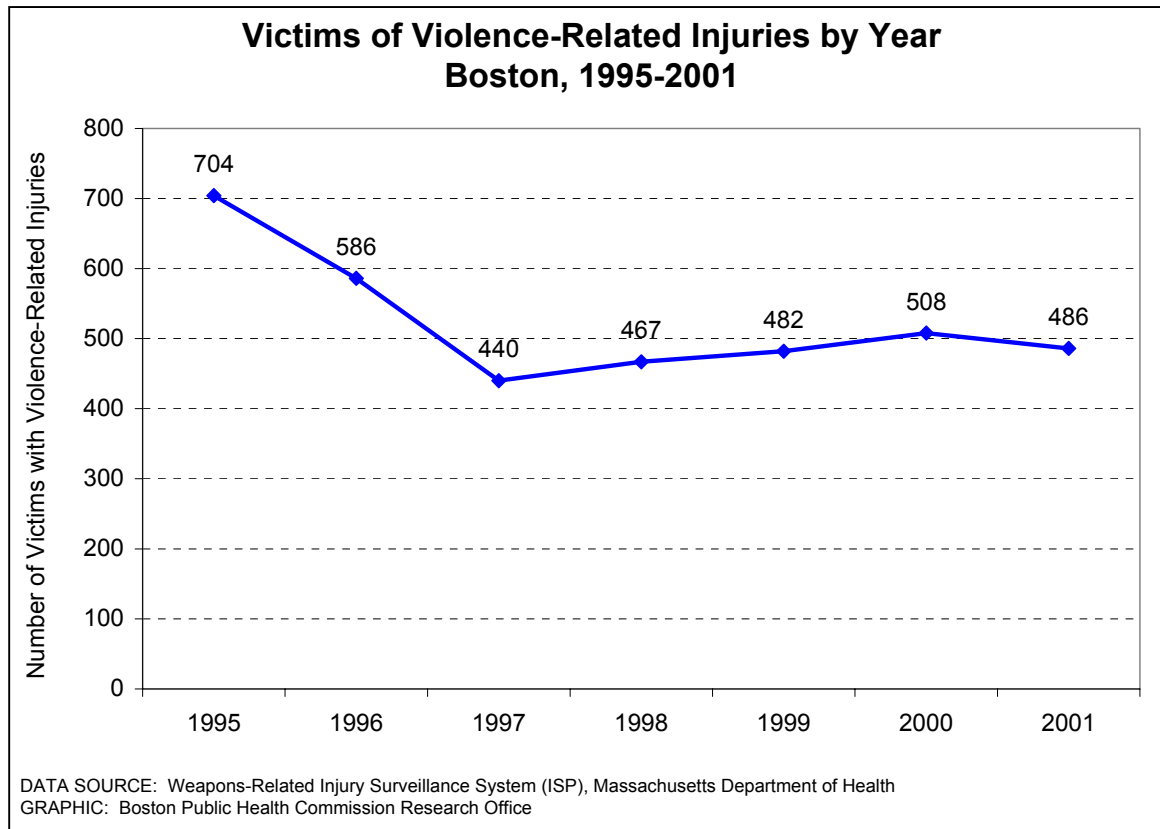
Violence takes many forms—armed or unarmed assault, physical abuse within intimate relationships, workplace violence, and sexual assault and rape. Violence-related injuries discussed in this report are defined as intentional injuries inflicted by one person on another person and exclude self-inflicted or accidental injuries. Violence is widespread; approximately 10 million US residents ages 12 years and older are victims of violence each year. (1) In 2001, over 1.8 million residents of all ages sustained nonfatal injuries as a result of violence. (2) Such injuries range from mild cuts and bruises to severe internal injuries requiring extensive hospitalization and/or resulting in permanent damage. Of the 1.8 million injured victims in 2001, over 42,000 suffered gunshot injuries and more than 3,000 sustained BB and pellet gun injuries. (2)

Rates of violence-related injuries are not consistent across all populations. Age, gender, race and ethnicity, income, and degree of urbanization are demographic factors related to rates of violence-related injuries. In 2001, rates were higher among younger age groups, peaking at 1,687 injuries per 100,000 population for persons ages 20-24. (2) The rate of injury among men (804 per 100,000) was higher than the rate among women (519 per 100,000). (2) During 1992-1998, Blacks, Latinos, and American Indians had higher rates than Whites and Asian/Pacific Islanders. (1) Low household income (less than \$20,000 per year) was also a risk factor for injury during this time period. (1) Urban dwellers had a higher rate of violence-related injuries than persons who resided in suburban or rural areas. (1)

In 2001, 486 Boston residents were victims of violence-related injuries caused by gunshot or sharp instruments.
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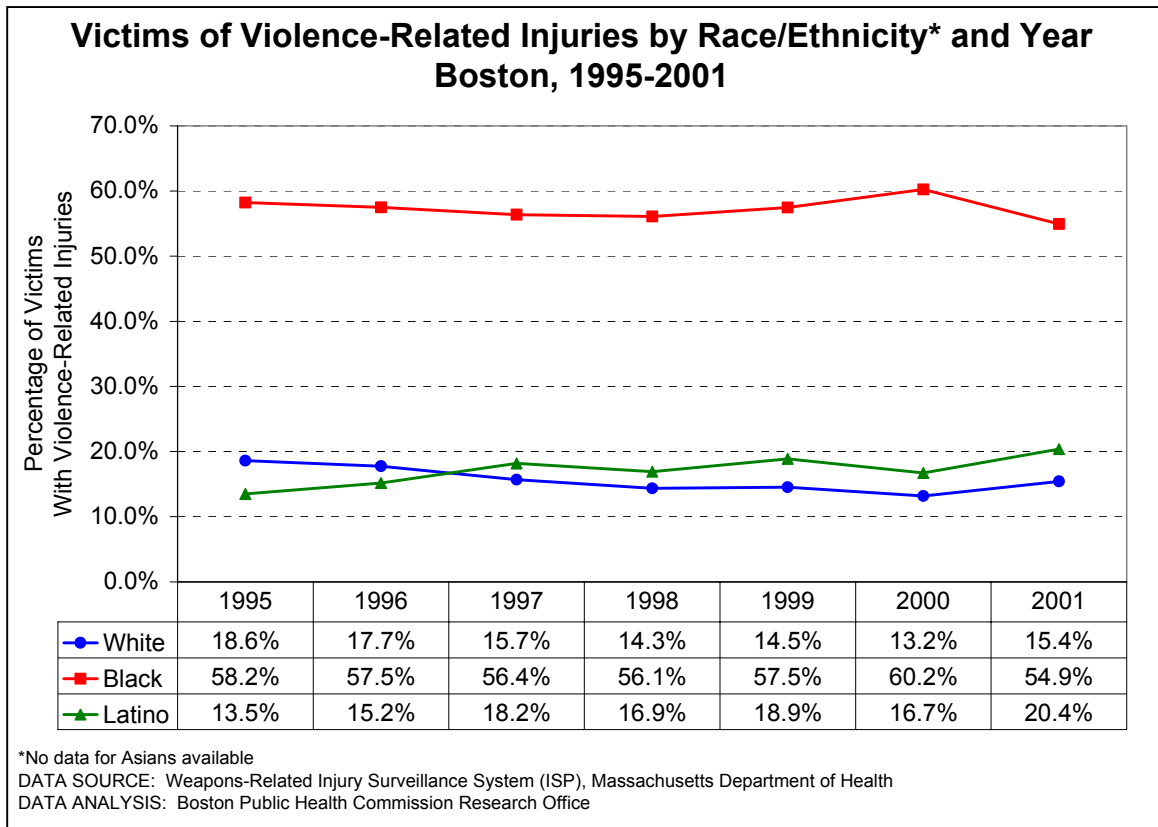
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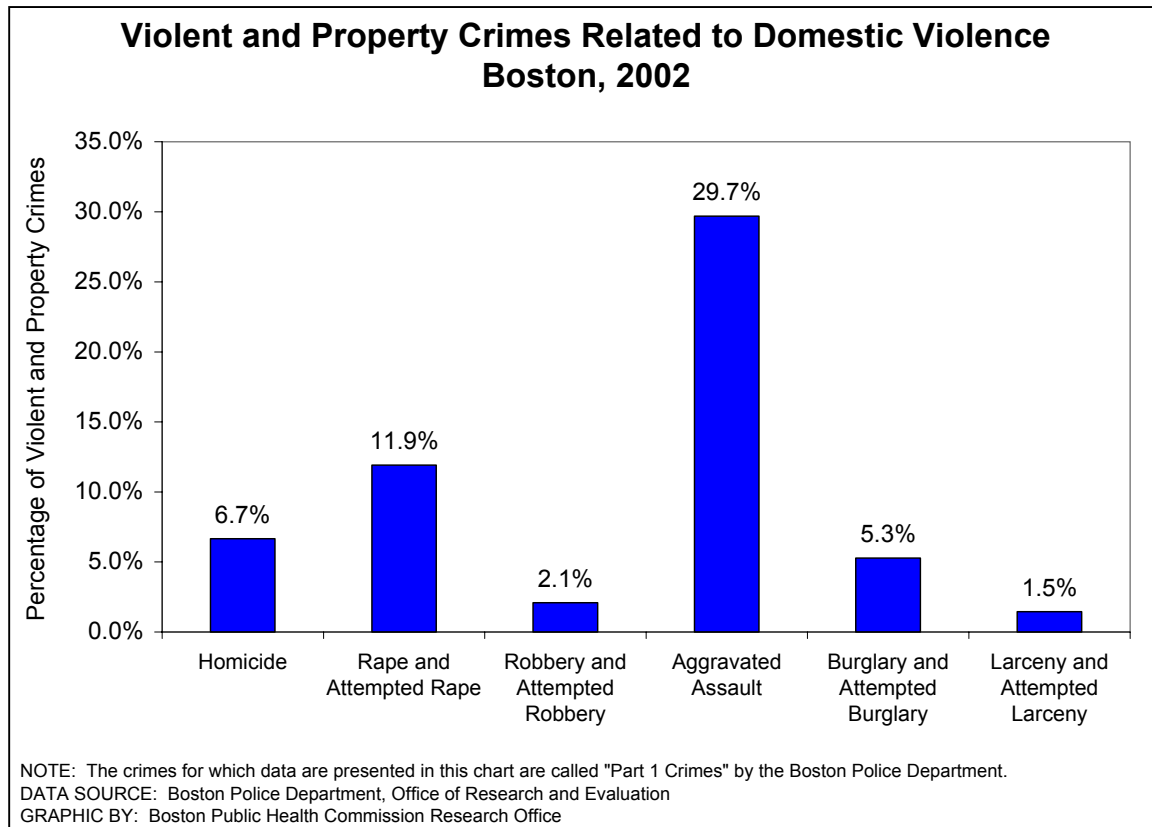


- In Boston in 2001, there were 486 victims of violence-related injuries caused by gunshot or sharp instruments, a one-year 4.3% decline. Over the seven-year period 1995-2001, the number of Boston victims of violence-related injuries fell 31.0%.





- For each of the years shown, a higher percentage of Black residents of Boston than of members of other races/ethnicities reported receiving violence-related injuries.
- More than half of victims in 2001 were Black residents, who comprised only 23.8% of the Boston population. One-fifth of Boston victims were Latino, and the rest were White or of other races/ethnicities.
- Since 1995, the percentage of victims who were Black has remained between fifty-five percent and sixty percent. The proportion that were Latino rose from 14% to 20% and the proportion that were White declined from 19% to 15%.



- Domestic violence includes intimate partner violence and violence by other family members.
- There were 1,748 violent and property crimes related to domestic violence in Boston during 2002. This was 10% less than during 2001.
- Of all aggravated assaults in Boston documented by the Boston Police Department in 2002, almost a third were related to domestic violence.
- Of all Boston rapes and attempted rapes, about 12% were related to domestic violence.
- Of all Boston homicides, about 7% were domestic-violence related.

## MORTALITY

Improvement in health, overall high standard of living, and the impact of various public health policies and programs have been major contributors to declines in US mortality. (1) With a few exceptions, the age-adjusted death rate for the US has been declining since 1900. (2) About 2.4 million deaths occurred in the US during 2001, representing an age-adjusted rate of 855.0 deaths per 100,000 population. That rate was approximately 2% lower than in the previous year. (2)

Heart disease, cancer, stroke, chronic lower respiratory diseases such as bronchitis, asthma, and emphysema, and unintentional injuries were the 5 leading causes of death in 2001. These were the same leading causes of death as in 2000. (2,3)

Between 2000 and 2001, age-adjusted death rates declined 4% for heart disease, 2% for cancer, and 5% for stroke. However, the greatest decline occurred for influenza/pneumonia, 7%. (2)

HIV/AIDS is still the 6<sup>th</sup> leading cause of death for people ages 25-44, but the age-adjusted death rate for HIV/AIDS declined almost 4% between 2000 and 2001. From 1995 through 2000, HIV/AIDS mortality declined about 70%. (2)

There were increases in rates for some leading causes of death such as kidney disease, hypertension, and Alzheimer's disease. The homicide rate increased 17%, largely due to the deaths from the September 11, 2001 terrorist attack. The infant mortality rate (IMR) of 6.9 infant deaths per 1,000 live births was the same as in 2000. (2)

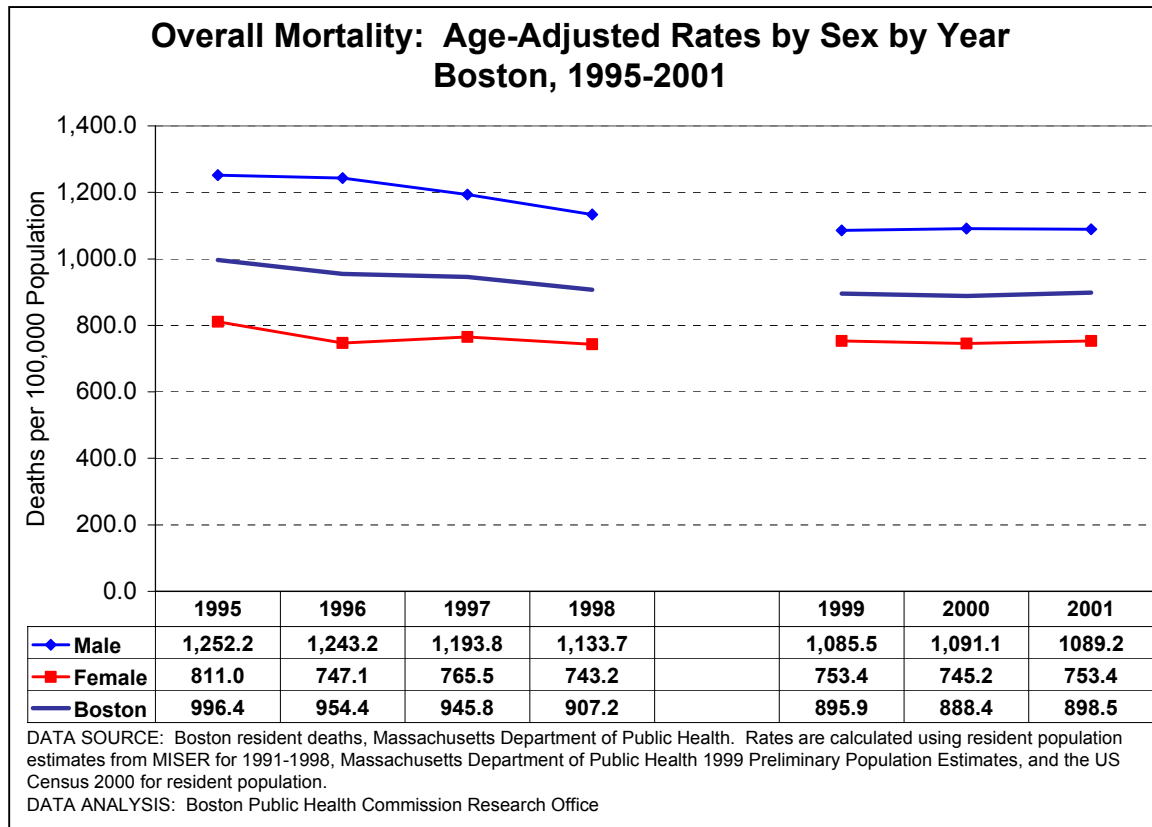
Despite the progress made in reducing overall mortality, racial/ethnic and gender disparities persist, although the gap in life expectancy between Blacks and Whites and men and women has been closing. (1) Life expectancy rose to a high of 77.2 years in 2001, from 76.9 years in 2000. The preliminary estimate of life expectancy in 2001 was 75.0 years for White men and 68.6 years for Black men; 80.2 years for White women and 75.5 years for Black women; and 74.4 years for men and 79.8 years for women. (2)

Mortality rates in 2001 declined among most racial and ethnic groups and for both men and women. However, rates were highest for non-Latino Blacks (1,114.0 deaths per 100,000 population) and lowest for Asians or Pacific Islanders (488.5 deaths per 100,000). Rates were 844.2 deaths per 100,000 for non-Latino Whites, 654.6 per 100,000 for Latinos, and 688.8 per 100,000 for American Indians. (2)

In Boston in 2001, there were 4,575 deaths from all causes, 2,141 of which were among men and 2,434 of which were among women.

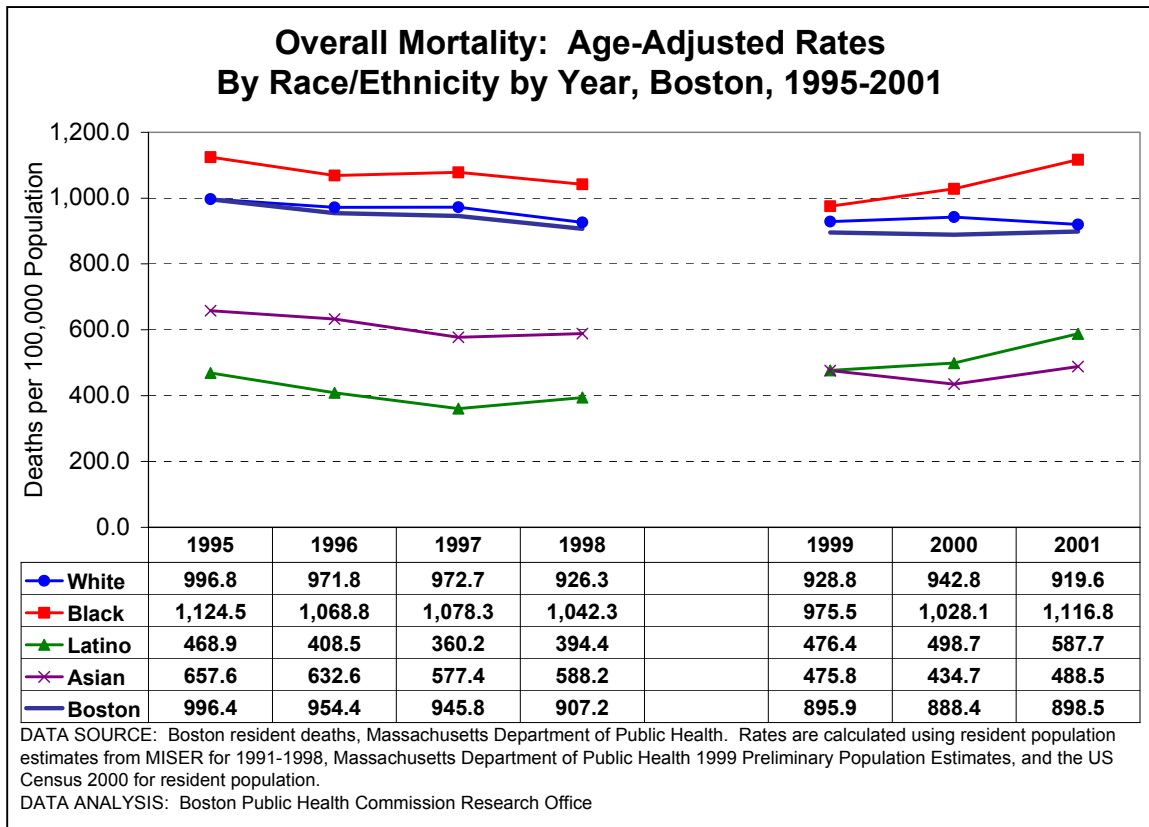
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For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- The overall age-adjusted mortality rate for Boston residents was 996.4 deaths per 100,000 population in 1995. Between 1995 and 1998, the rate declined to 907.2 deaths per 100,000, a statistically significant decrease of 9.0%. The rate for 1999 was 895.9 deaths per 100,000 and for 2001, 898.5 deaths per 100,000, an increase of less than one percent.
- Males had a significantly higher mortality rate than females for each year between 1995 and 2001. Their overall mortality rate was forty-four percent to sixty-six percent higher than the rate for females. Between 1995 and 1998, the overall-mortality rate for males declined 9.5% and for females, 8.4%. The decline was significant for both. However, from 1999 to 2001, the rate for females did not change, and the rate for males increased less than one percent.



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- During each year of 1995-2001, age-adjusted mortality rates for Blacks were significantly higher than those for members of other racial/ethnic groups. Overall age-adjusted mortality rates for Latinos and Asians were significantly lower than those for Whites for every year between 1995 and 2001.
- Between 1995 and 1998, overall mortality age-adjusted rates declined for all races/ethnicities. However, none of the declines were significant, except for Whites (7.1%). The declines were greatest for Latinos (15.9%) and for Asians (10.6%).
- From 1999 to 2001, overall mortality age-adjusted rates increased for Blacks, Latinos, and Asians, but decreased for Whites. Latinos experienced the greatest increase, 23.4%. These changes were statistically significant for Blacks (14.5%) but not for Whites, Latinos, and Asians.

**Leading Causes of Death: Age-Adjusted Mortality Rates  
Boston, 2000 and 2001**

2000		2001	
Leading Causes	Deaths per 100,000 Population	Leading Causes	Deaths per 100,000 Population
Cancer (All)	226.9	Heart disease	220.1
Heart Disease	211.1	Cancer (All)	209.4
Stroke	52.9	All injuries combined	50.0
All Injuries Combined	38.0	Stroke	49.4
COPD	34.5	COPD	36.6
Pneumonia/Influenza	31.1	Pneumonia/Influenza	32.4
Nephritis/Nephrosis	25.1	Nephritis/Nephrosis	23.3
Septicemia	23.7	Substance Abuse	22.9
Diabetes	19.8	Diabetes	21.4
Substance Abuse	19.6	HIV/AIDS	12.4

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health. Rates are calculated using the US Census 2000 for resident population.  
DATA ANALYSIS: Boston Public Health Commission Research Office

For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- Most of the ten leading causes of death among Boston residents were the same for 2000 and 2001 but there were changes in the order. For example, cancer and heart disease were the first and second causes of death for Boston residents in 2000. However, in 2001, heart disease was the first cause of death and cancer, the second.
- Stroke dropped from the third leading cause of death in 2000 to the fourth leading cause in 2001. Septicemia, which appeared among the leading causes of death in 2000, did not appear among the leading causes of death in 2001.
- The highest age-adjusted mortality rates continue to be for heart disease and cancer, with rates four to eighteen times higher than other leading causes.
- Between 2000 and 2001, age-adjusted mortality rates increased for some causes of death but decreased for others. The greatest increases were for all injuries combined (31.6%) and substance abuse (16.8%). Cancer decreased 7.7% and nephritis/nephrosis, 7.2%. However, among these causes only the increase for all injuries combined was statistically significant.

**Leading Causes of Death: Age-Adjusted Rates  
By Race/Ethnicity, Boston, 2001**

White		Black	
Leading Causes	Deaths per 100,000 Population	Leading Causes	Deaths per 100,000 Population
Heart Disease	238.1	Cancer (All)	254.2
Cancer (All)	220.4	Heart Disease	239.6
All Injuries Combined	46.8	All Injuries Combined	74.1
Stroke	46.4	Stroke	73.4
COPD	41.9	Nephritis/Nephrosis	49.9

Latino		Asian	
Leading Causes	Deaths per 100,000 Population	Leading Causes	Deaths per 100,000 Population
Cancer (All)	155.4	Cancer (All)	112.1
Heart Disease	123.9	Heart Disease	85.0
All Injuries Combined	40.2	All Injuries Combined	37.4
Stroke	31.8	Pneumonia/Influenza	33.0
COPD	28.0	COPD	24.9

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health. Rates are calculated using the US Census 2000 for resident population.  
DATA ANALYSIS: Boston Public Health Commission Research Office

For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- The five leading causes of death in 2001 were similar across racial/ethnic groups in Boston. Cancer was the leading cause of death for Blacks, Latinos, and Asians, and heart disease the leading cause for Whites. Cancer and heart disease were first or second leading causes for all races or ethnicities.
- Blacks had significantly higher age-adjusted mortality rates for cancer and heart disease than did Latinos and Asians, and significantly higher rates for injuries and HIV/AIDS (data not shown) than did Whites. They also had significantly higher rates for stroke than did Whites and Asians (data not shown).
- The cancer mortality rate for Blacks was 15.3% higher than for Whites (not statistically significant), 63.6% higher than for Latinos (statistically significant), and 126.8% higher than for Asians (statistically significant). Cancer mortality rates for both Blacks and Whites were higher than rates for Latinos and Asians. The cancer mortality rate for Whites was significantly higher than the rate for Asians but not significantly higher than the rate for Latinos.
- The heart disease mortality rate for Blacks was 93.4% higher than for Latinos and 181.9% higher than for Asians, both of which were statistically significant. The heart disease mortality rate for Whites was also significantly higher than the rates for Latinos and Asians.

### Leading Causes of Death: Age-Adjusted Rates By Neighborhood, Boston, 2001

Neighborhood	Leading Cause	Deaths per 100,000 Population	Neighborhood	Leading Cause	Deaths per 100,000 Population
<b>Allston/Brighton</b>	Heart Disease	186.3	<b>North Dorchester</b>	Heart Disease	234.6
	Cancer (all sites combined)	175.8		Cancer (all sites combined)	207.3
	Stroke	41.1		All Injuries Combined	57.8
	COPD	40.7		Stroke	53.2
<b>Back Bay</b>	Pneumonia/Influenza	39.0	<b>North End</b>	Pneumonia/Influenza	35.0
	Cancer (all sites combined)	161.5		Heart Disease	251.6
	Heart Disease	138.1		Cancer (all sites combined)	172.9
	All Injuries Combined	23.5		All Injuries Combined	51.3
<b>Charlestown</b>	Stroke	20.6	<b>Roslindale</b>	Substance Abuse	45.0
	Cancer (all sites combined)	263.2		Stroke	37.5
	Heart Disease	231.6		Heart Disease	251.6
	COPD	67.9		Cancer (all sites combined)	157.4
<b>East Boston</b>	Alzheimer's Disease	40.7	<b>Roxbury</b>	Stroke	67.2
	Pneumonia/Influenza	40.2		Pneumonia/Influenza	55.2
	Cancer (all sites combined)	248.2		Septicemia	43.2
	Heart Disease	245.4		Heart Disease	202.2
<b>Fenway</b>	All Injuries Combined	68.3	<b>South Boston</b>	Cancer (all sites combined)	181.9
	Substance Abuse	54.6		Stroke	67.0
	COPD	35.6		All Injuries Combined	54.9
	Heart Disease	171.6		Nephritis/Nephrosis	37.6
<b>Hyde Park</b>	Cancer (all sites combined)	144.2	<b>South Dorchester</b>	Heart Disease	321.9
	Diabetes	47.7		Cancer (all sites combined)	300.8
	All Injuries Combined	39.7		COPD	90.0
	Heart Disease	239.0		All Injuries Combined	67.9
<b>Jamaica Plain</b>	Cancer (all sites combined)	231.3	<b>South End</b>	Pneumonia/Influenza	40.2
	All Injuries Combined	55.5		Cancer (all sites combined)	211.3
	Stroke	39.4		Heart Disease	191.4
	COPD	34.9		All Injuries Combined	72.1
<b>Mattapan</b>	Heart Disease	293.1	<b>West Roxbury</b>	Stroke	70.0
	Cancer (all sites combined)	211.5		Diabetes	33.4
	Stroke	95.2		Cancer (all sites combined)	162.2
	Alzheimer's Disease	68.3		Heart Disease	147.9
<b>West Roxbury</b>	COPD	64.4	All Injuries Combined	72.2	
	Cancer (all sites combined)	247.4	Stroke	32.2	
	Heart Disease	213.4	COPD	31.6	
	Stroke	70.2	Cancer (all sites combined)	197.3	
	Diabetes	70.2	Heart Disease	170.5	
	All Injuries Combined	57.5		Stroke	44.3
				COPD	42.5
				All Injuries Combined	35.2

DATA SOURCE: Boston resident deaths, Massachusetts Department of Public Health. Rates are calculated using the US Census 2000 for resident population.  
DATA ANALYSIS: Boston Public Health Commission Research Office

For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.



- In 2001, heart disease and cancer were responsible for about half of all deaths of residents in most of Boston's 16 neighborhoods and were ranked either first or second as the leading cause of death in every neighborhood.
- Cancer was the leading cause of death for 7 Boston neighborhoods. Among those, Charlestown had the highest age-adjusted mortality rate (263.2 deaths per 100,000 population) and East Boston and Mattapan the second and third highest rates (248.2 and 247.4 deaths per 100,000).
- One neighborhood for which cancer was the second leading cause of death (South Boston) had the highest age-adjusted cancer mortality rate of all 16 neighborhoods (300.8 deaths per 100,000). This rate was 43.6% higher than the overall Boston rate of 209.4 deaths per 100,000, a difference that was statistically significant.
- Heart disease was the leading cause of death for 9 neighborhoods, with age-adjusted rates ranging from 321.9 deaths per 100,000 in South Boston to 138.1 deaths per 100,000 in the Back Bay. The rate for South Boston was 46.3% higher than the Boston rate of 220.1 deaths per 100,000, a difference that was statistically significant, and the rate for Back Bay, 37.3% lower than the Boston rate, a difference that was also statistically significant.
- Stroke, pneumonia/influenza, COPD, and injuries (intentional and unintentional) were also among the leading causes of death for many Boston neighborhoods. Substance abuse was among the 5 leading causes for East Boston and for the North End.

## Cardiovascular Disease

Cardiovascular disease (CVD) is a group of disorders that affect the heart and blood vessels. The American Heart Association estimates that over 61 million Americans have a form of CVD, such as high blood pressure, coronary heart disease (CHD), stroke, congestive heart failure, and congenital heart defects. (1) Cardiovascular disease has been the leading cause of death almost every year beginning in 1901, with the exception of 1918, during which the influenza epidemic occurred. (1) In 2001, the overall age-adjusted US CVD mortality rate was 326.4 per 100,000 population. (3) Of these CVD deaths, fifty-four percent were due to coronary heart disease. (1,3)

Coronary heart disease is a form of cardiovascular disease caused by the narrowing of arteries, resulting in myocardial infarction (heart attack), angina pectoris (chest pain), or both. (1) The American Heart Association estimates that 12.9 million Americans have CHD. In 2001, the national age-adjusted CHD mortality rate was 177.6 deaths per 100,000. (3) Despite a 25.0% decline in coronary heart disease mortality since 1990, CHD remains a leading cause of death for men and women of every race and ethnicity.

Black men and women have higher rates of CHD mortality than White men and women. (4) In 2000, the age-adjusted CHD mortality rate for Black men in the US was 268.8 deaths per 100,000 population, compared to 241.6 deaths per 100,000 for White men. (4) Among Black women, the rate was 191.7 deaths per 100,000, compared to 146.8 deaths per 100,000 among White women. (4) Latino males experienced an age-adjusted CHD death rate of 237.7 deaths per 100,000, putting them at higher risk than White males, but at lower risk than Black males. (4) Similarly, Latino females experienced a rate (147.9 deaths per 100,000) higher than that of White females but lower than that of Black females. (4) Across all racial and ethnic groups, the age-adjusted CHD mortality rate is higher among men (237.7 deaths per 100,000) than among women (147.9 deaths per 100,000). (2,4) CHD mortality rates also increase with age for both men and women. (2)

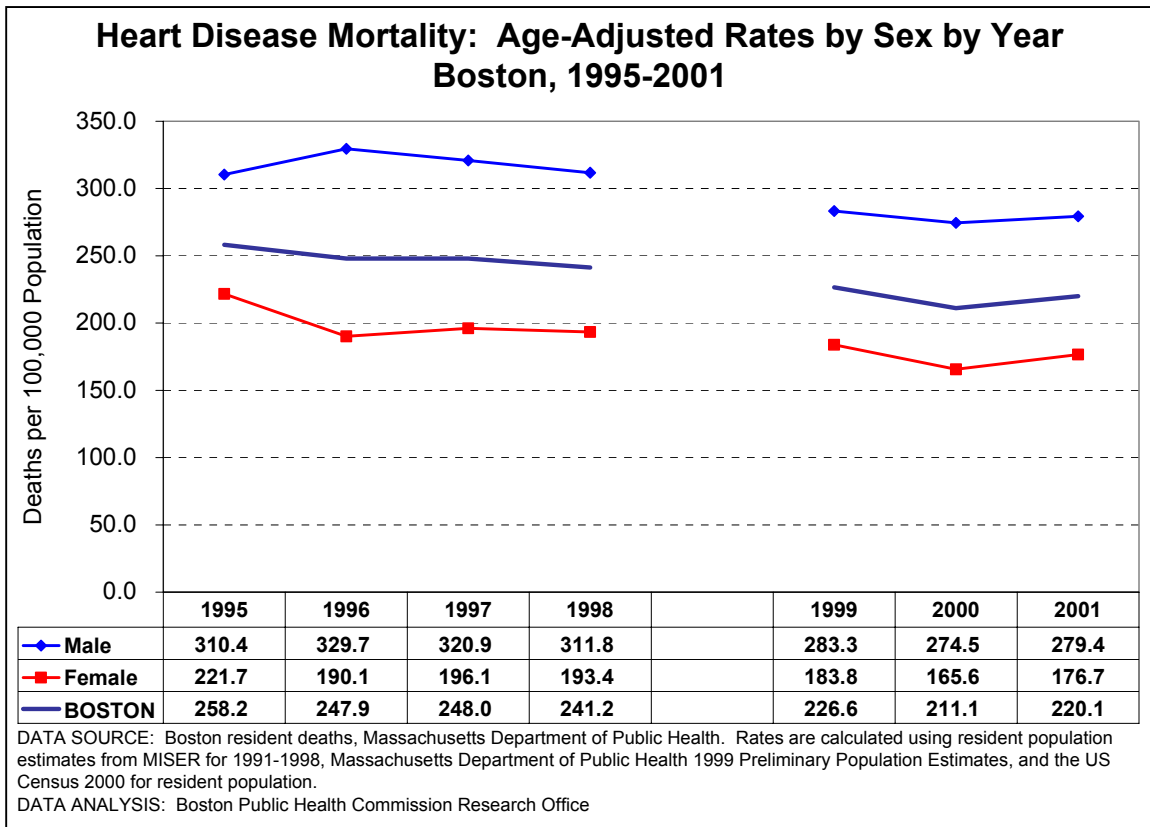
The two major independent risk factors for CHD are hypertension (high blood pressure) and high blood cholesterol. (2) Age, gender, race and ethnicity, tobacco smoke exposure, poor nutrition, physical inactivity, increased weight, and diabetes mellitus are also associated with CHD risk; differences in CHD risk exist among different racial/ethnic groups. (1,2) The modification or reduction of controllable risk factors decreases the overall risk of developing CHD. Approximately fifty percent of men and sixty-three percent of women who die suddenly of CHD have no symptoms prior to the attack. (1) These statistics highlight the need for prevention efforts to target underlying conditions and behaviors that are known to contribute to an increased risk of CHD.

In 2001 in Boston, there were 1,112 deaths due to cardiovascular disease. The number of deaths for other years can be found in Appendix 1.
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## References

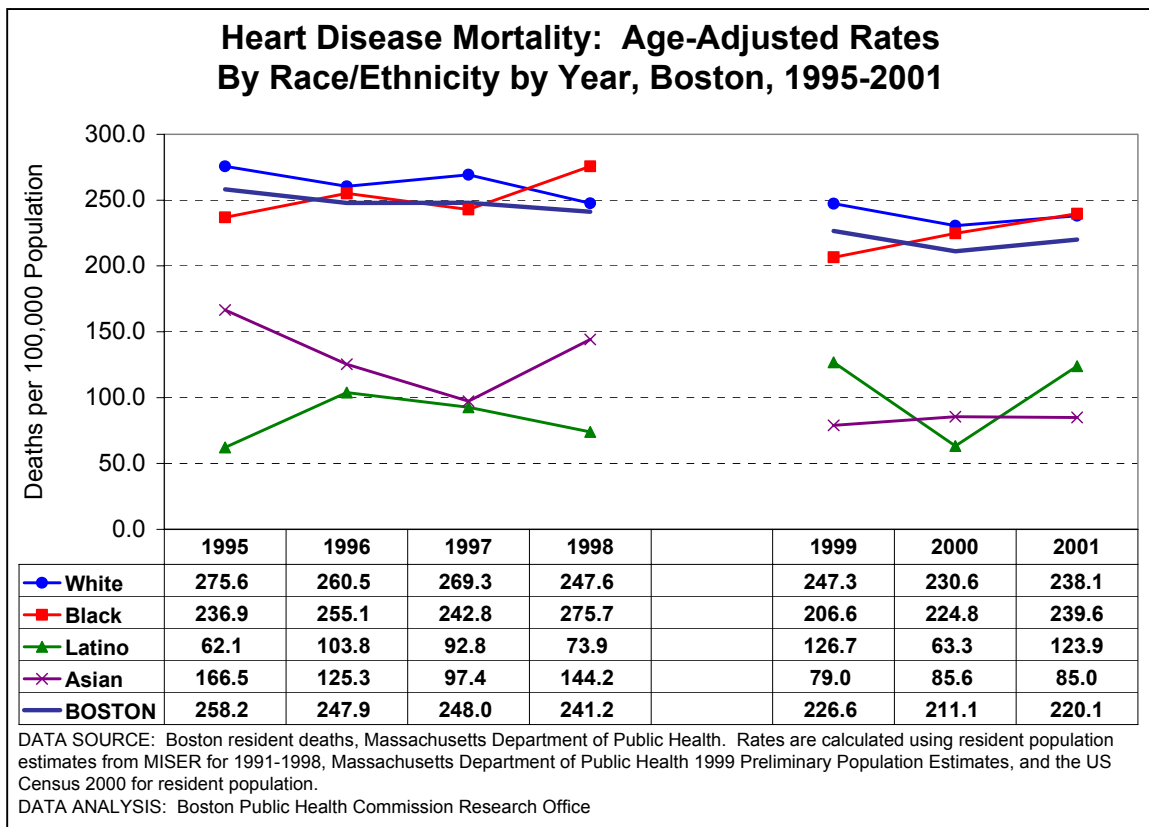
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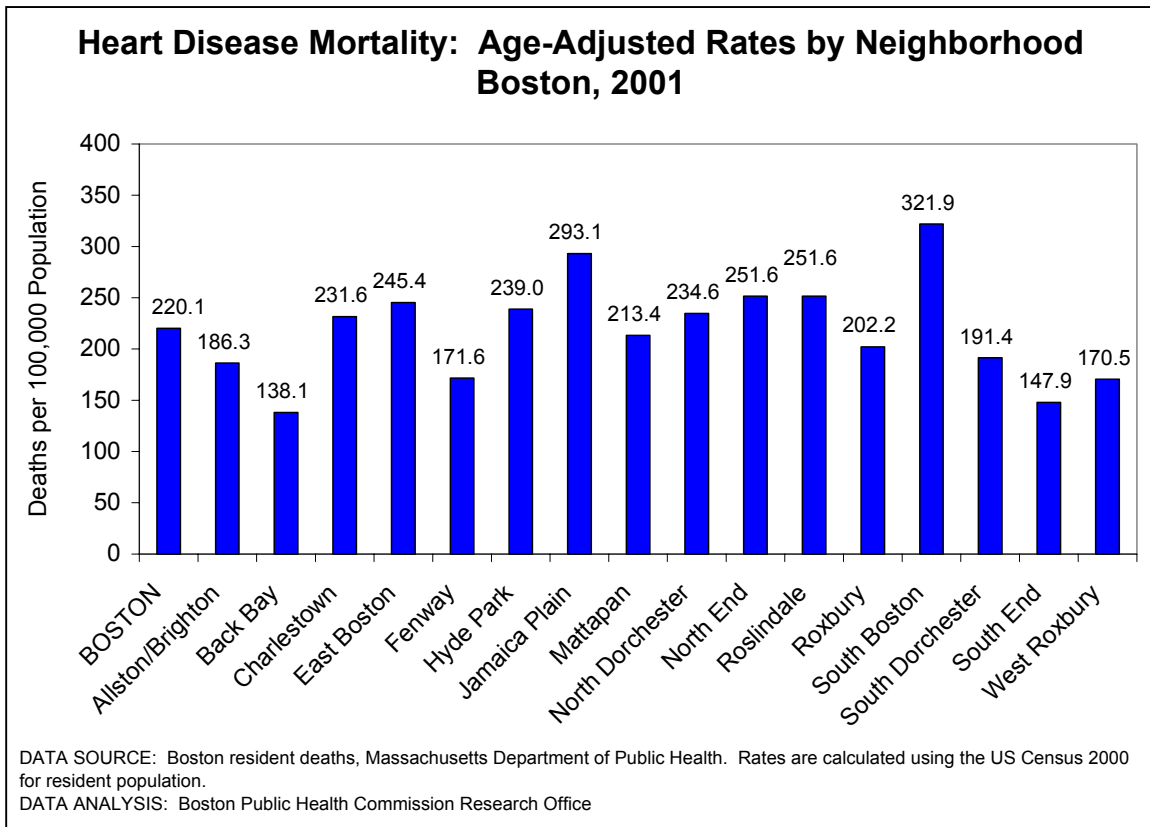
For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- Between 1995 and 1998, Boston’s heart disease mortality rate declined 6.6%. Males experienced an increase of less than one percent, while females experienced a decrease of 12.8%. None of these changes were statistically significant.
- From 1999 to 2001, the heart disease mortality rate declined 2.9% for Boston overall, 1.4% for males, and 3.9% for females. However, none of these changes were statistically significant.
- For all the years shown, males consistently had higher heart disease mortality rates than females. The rate for males was 1.4 to 1.7 times as high as the rate for females.



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- In each of the years 1995-1998, except 1998, heart disease mortality rates were significantly higher for Whites than for Blacks, Latinos, and Asians. For each year during 1999-2001, rates for Whites and Blacks were significantly higher than rates for Latinos and Asians. However, the rates for Whites were not significantly higher than those for Blacks.
- Heart disease mortality rates for Latinos and for Asians were significantly lower than for Whites and Blacks.
- From 1999 to 2001, heart disease mortality rates declined 3.7% for Whites and 2.2% for Latinos; they increased 16.0% for Blacks and 7.6% for Asians. None of these changes in rates were statistically significant.



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- In 2001, heart disease was the leading cause of death for Boston residents (cancer was second), accounting for a quarter of total deaths.
- The neighborhoods of South Boston, Jamaica Plain, Roslindale, North End, East Boston, North Dorchester, and Charlestown had heart disease mortality rates that were higher than for Boston overall. In 2001, the rate for South Boston was the highest among Boston’s neighborhoods, 46.3% higher than the overall Boston rate (statistically significant).
- Jamaica Plain had the second highest rate, 33.2% higher than the Boston rate. Roslindale and the North End followed with rates 14.3% higher than the Boston rate. However, none were statistically significant.
- The Back Bay and the South End had the lowest heart disease mortality rates. They were 37.3% and 32.8% lower than the Boston rate (statistically significant).

## Cancer

Cancer is a chronic disease involving uncontrollable growth and spread of abnormal cells. (1) It was the second leading cause of death, after heart disease, among the US population in 2000 and in 2001. (2,3)

The American Cancer Society estimates that about 1.3 million people in the US will be diagnosed with cancer in 2003. Some racial/ethnic groups are expected to represent a disproportionate number of those cases, especially African Americans. (1) Lung, breast, colorectal, and prostate cancers are among the leading cancers for most races/ethnicities. (1,4,5,6)

In the US, death rates for all cancers combined continue to decline. The number of cancer cases, however, is expected to increase due to the growth and aging of the US population. (7)

Prevention, screening, and treatment have contributed to the decline in new cases of cancer as well as the decline in deaths from cancer. According to the National Cancer Institute, there were an estimated 8.9 million cancer survivors in the US, as of January 1999. (8) Stage of disease at diagnosis, access to appropriate and timely treatment, socioeconomic status, and health insurance coverage affect survivability. (9)

Lung cancer remains the leading cause of cancer death in the US, accounting for about one-third of cancer deaths among men and about a fourth among women. (7) Lung cancer death rates for men have declined since 1990, but they have continued to increase for women. More die from lung cancer than breast cancer, and this has been the case since 1987. (10) After lung cancer, the leading causes of cancer death are colorectal, breast, and prostate cancer. (7)

Blacks are more likely than other races/ethnicities to die of cancer. (1,10,11) For 1992-1999, the average annual death rate per 100,000 population for all cancers combined was 267.3 for Blacks, 205.1 for Whites, 129.2 for Latinos, and 128.6 for American Indians /Alaska Natives and also for Asian Pacific Islanders. (11) Generally, Latinos and Asian/Pacific Islanders have lower incidence rates and death rates for all cancers combined than Whites and Blacks. (4,11)

Among the risk factors for cancer are tobacco use; exposure to chemicals, radiation, infectious organisms and sunlight; heredity, hormones, immune conditions, metabolic mutations, and age. (9, 10)

Many cancer deaths are preventable. According to the American Cancer Society, about a third of the 556,500 cancer deaths expected for 2003 will be related to nutrition, physical inactivity, obesity, and other lifestyle factors. More than 180,000 of the estimated cancer deaths in 2003 will be due to tobacco use. (9, 11)

Regular cancer screening is promoted as an effective tool for detecting of certain cancers at earlier stages. Cancers detected by screening represent about half of all new cancer cases. (9)

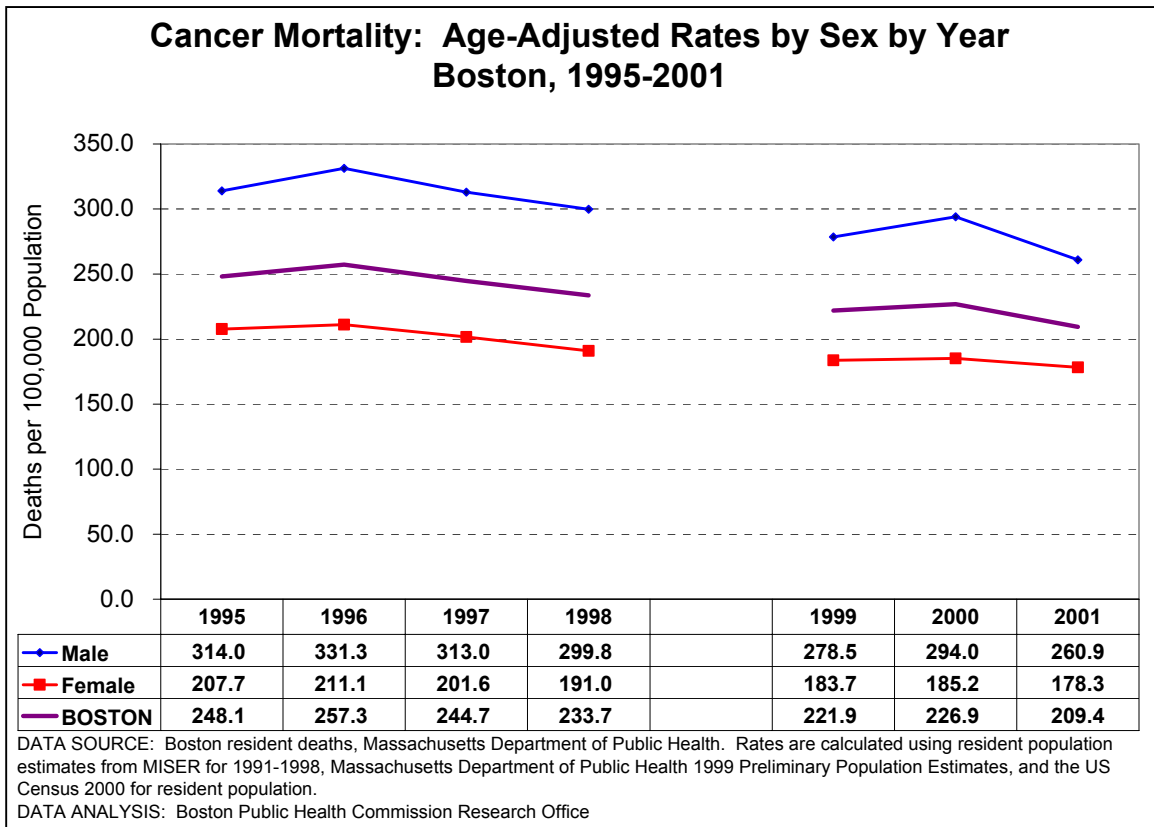
In 2001 in Boston, there were 1,030 deaths due to cancer. The number of deaths for other years can be found in Appendix 1.

# The Health of Boston 2003.....

## References

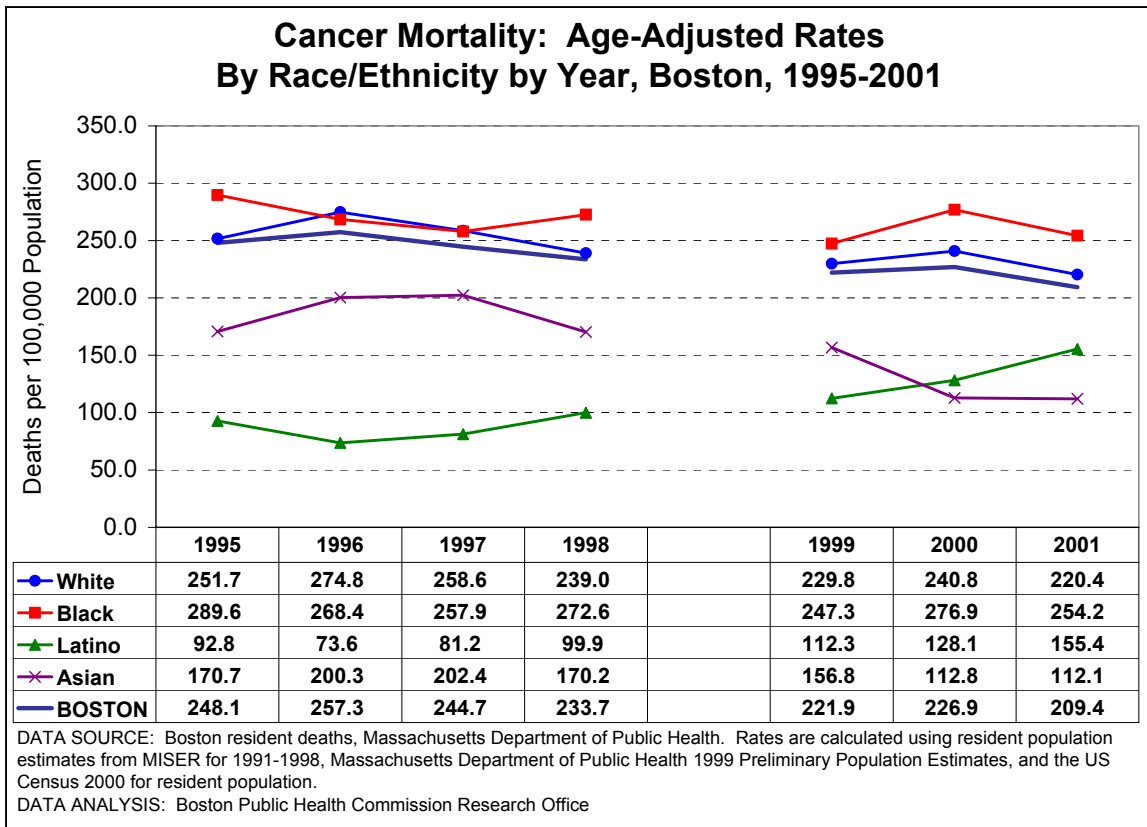
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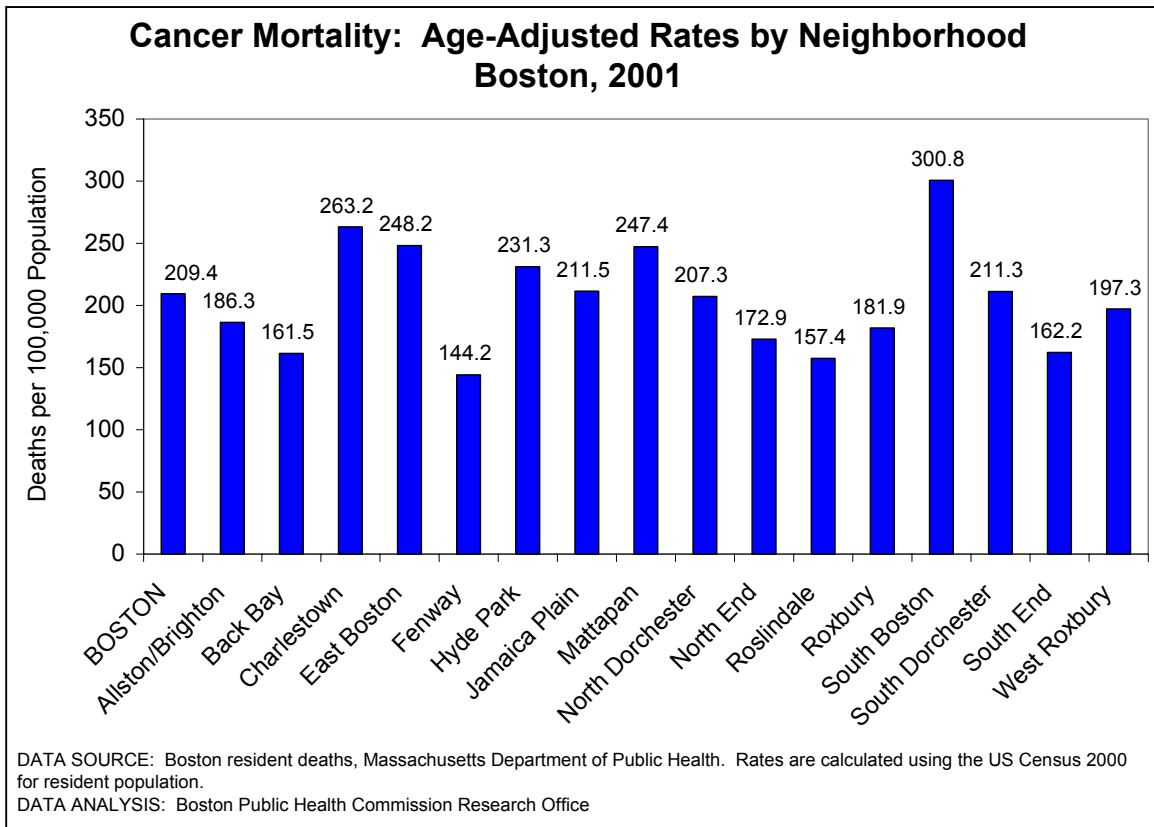
For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- The age-adjusted cancer mortality rate for Boston residents in 1995 was 248.1 deaths per 100,000 population. Between 1995 and 1998, the rate declined 5.8% to 233.7 deaths per 100,000. This change was not statistically significant. In 2001, the rate was 209.4 deaths per 100,000, a decrease of 5.6% from 1999 (not statistically significant) and 31.9% above the Healthy People 2010 target of no more than 158.7 deaths per 100,000.
- During each year of 1995-2001, age-adjusted cancer mortality rates for males were significantly higher than the rates for females. The rates for males were about one-and-a-half times the rates for females, and these differences were statistically significant.
- Rates for males and females declined between 1995 and 1998. The decline was greater for females (8.0%) than for males (4.5%); neither was statistically significant. From 1999 to 2001, overall cancer mortality rates decreased 6.3% for males and 2.9% for females but these decreases were not statistically significant.



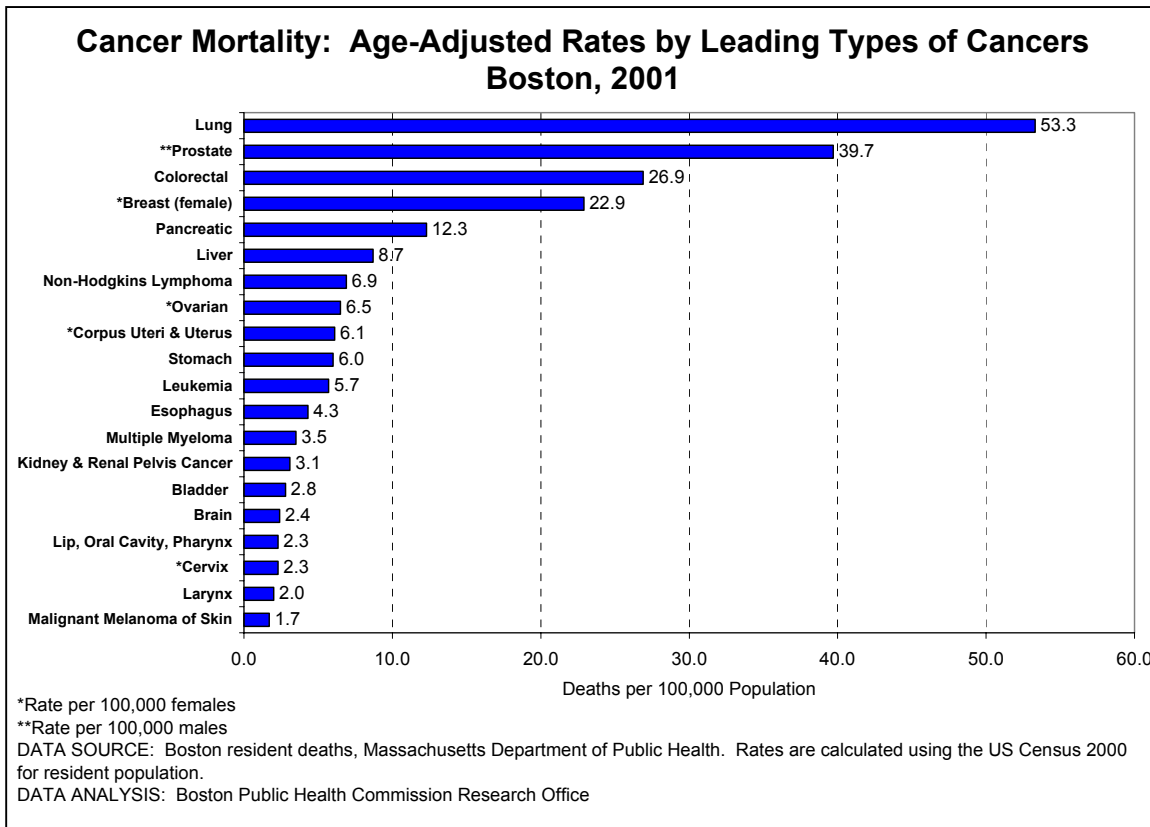
For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- For each year shown, cancer mortality rates were highest for Blacks and Whites. Latinos had significantly lower cancer mortality rates than either Blacks or Whites in every year shown, except in 2001 for Whites, while Asian rates were significantly lower than the rate for Blacks in every year shown, except 1996 and 1997. Their rates were also significantly lower than those for Whites in 1999, 2000, and 2001.
- From 1999 to 2001, cancer mortality rates increased 2.8% for Blacks and 38.4% for Latinos, but decreased 4.1% for Whites and 28.5% for Asians. None of these changes in cancer mortality rates were statistically significant.



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- In 2001, cancer was the leading causes of death for Boston residents. It was the first or second leading cause of death for each of Boston’s 16 neighborhoods.
- Age-adjusted cancer mortality rates for several Boston neighborhoods were higher than the rate for Boston overall. South Boston had the highest rate among the 16 neighborhoods, and Charlestown, East Boston, and Mattapan, the second, third, and fourth highest. Their rates were 43.6%, 25.7%, 18.5%, and 18.1% higher than the rate for Boston but only the rate for South Boston was statistically significant.
- Hyde Park, Jamaica Plain, and South Dorchester also had cancer mortality rates that were higher than the rate for Boston. Those rates ranged from 10.5% higher for Hyde Park to less than one percent higher for South Dorchester.
- The Fenway and Roslindale had the lowest cancer mortality rates of all Boston neighborhoods. Their rates were 31.1% and 24.8% lower than the Boston rate. However, these differences were not statistically significant.



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- Many types of cancer contributed to the overall cancer mortality rate for Boston residents in 2001. Age-adjusted mortality rates for almost all of them were higher than the Healthy People 2010 targets.
- Lung cancer, which is to some degree preventable, accounted for the highest cancer mortality rate for Boston residents. The Boston mortality rate for lung cancer was 1 to 31 times the rates for other types of cancer among Boston residents, and 19.0% above the Healthy People 2010 target of no more than 44.8 lung cancer deaths per 100,000 population. Approximately 85% of lung cancer cases are directly attributable to smoking.
- The cancers with the second and third highest mortality rates were prostate and colorectal cancer. The age-adjusted mortality rate for prostate cancer was 38.3% above the Healthy People 2010 target of no more than 28.7 prostate cancer deaths per 100,000 population. The colorectal cancer mortality rate exceeded by 94.0% the Healthy People 2010 target of no more than 13.9 colorectal cancer deaths per 100,000.
- Female breast cancer accounted for the fourth highest cancer mortality rate, 3.2% higher than the Healthy People 2010 target of no more than 22.2 deaths per 100,000.

## Stroke

Cardiovascular disease (CVD) is a group of disorders that affect the heart and blood vessels. The American Heart Association estimates that over 61 million Americans have a form of CVD, such as high blood pressure, coronary heart disease (CHD), stroke, congestive heart failure, and congenital heart defects. (1)

Stroke is a form of cardiovascular disease that is defined as impairment in function as a result of decreased blood flow to a part of the brain. Each year, about 500,000 people experience a new stroke and 200,000 suffer a recurrent stroke. (1) In 2001, the national age-adjusted stroke mortality rate was 57.9 deaths per 100,000 population. (3) From 1990 to 2000, the stroke mortality rate declined by 12.3%. (1) The impact of stroke is measured not only by mortality rates, but also by rates of disability. (1) Stroke is the leading cause of serious, long-term disability in the US. (1) In 1999, more than 1.1 million Americans reported difficulty with functional limitations as a result of stroke. (1)

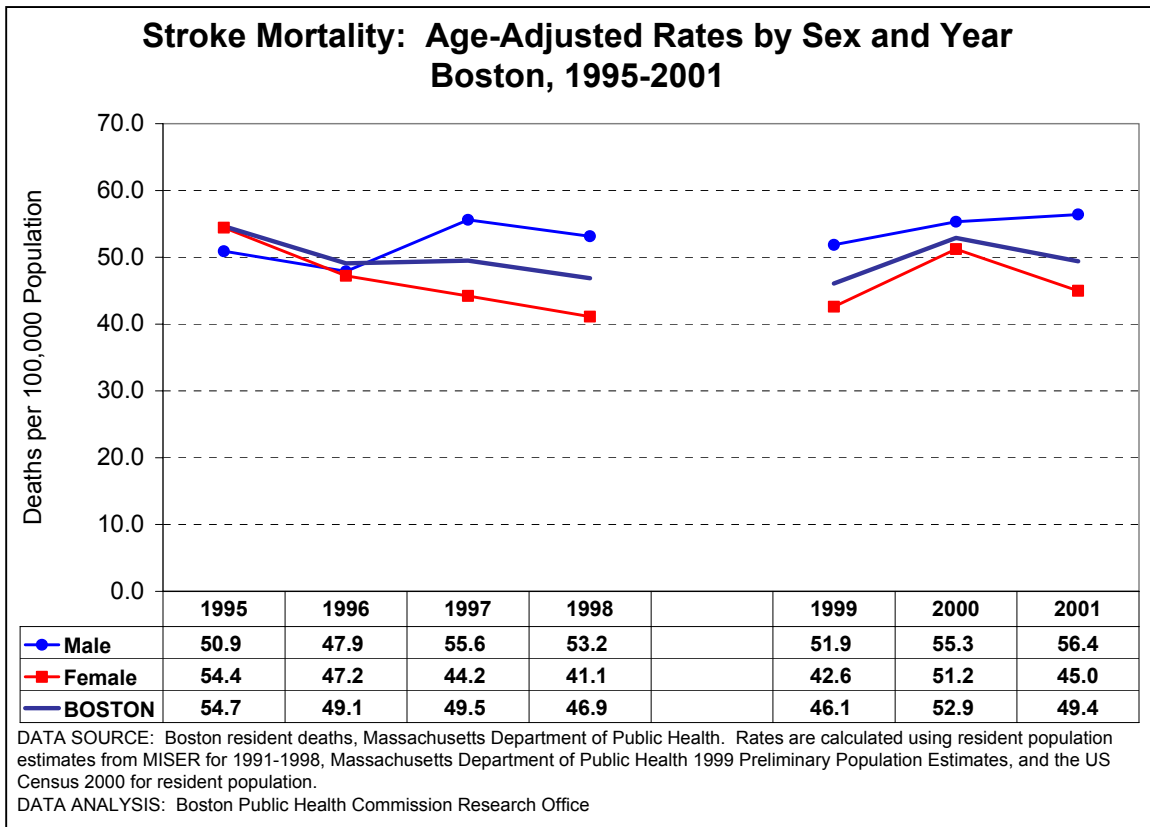
In 2000, the national age-adjusted stroke mortality rate among Black men was 89.5 deaths per 100,000. (4) This rate was higher than that for White men (59.2 deaths per 100,000). (4) Black women also experienced a higher stroke mortality rate (80.1 deaths per 100,000) than White women (58.6 deaths per 100,000). (4) Latinos experienced lower rates of stroke mortality than both Blacks and Whites. The age adjusted stroke mortality rates for Latino males and females were 42.4 and 36.4 deaths per 100,000 respectively. (4)

Stroke shares the same risk factors as other cardiovascular diseases: age, gender, tobacco smoke, poor nutrition, high blood cholesterol, high blood pressure, physical inactivity, increased weight, and diabetes mellitus, and sometimes striking differences exist among different racial/ethnic groups. (1,2) Family history of stroke and a personal history of coronary heart disease also increase the risk of stroke. (2) A decrease in mortality and disability caused by stroke can be achieved through changes in lifestyle and reductions of risk factors.

In 2001 in Boston, there were 251 deaths from stroke. The number of deaths for other years can be found in Appendix 1.
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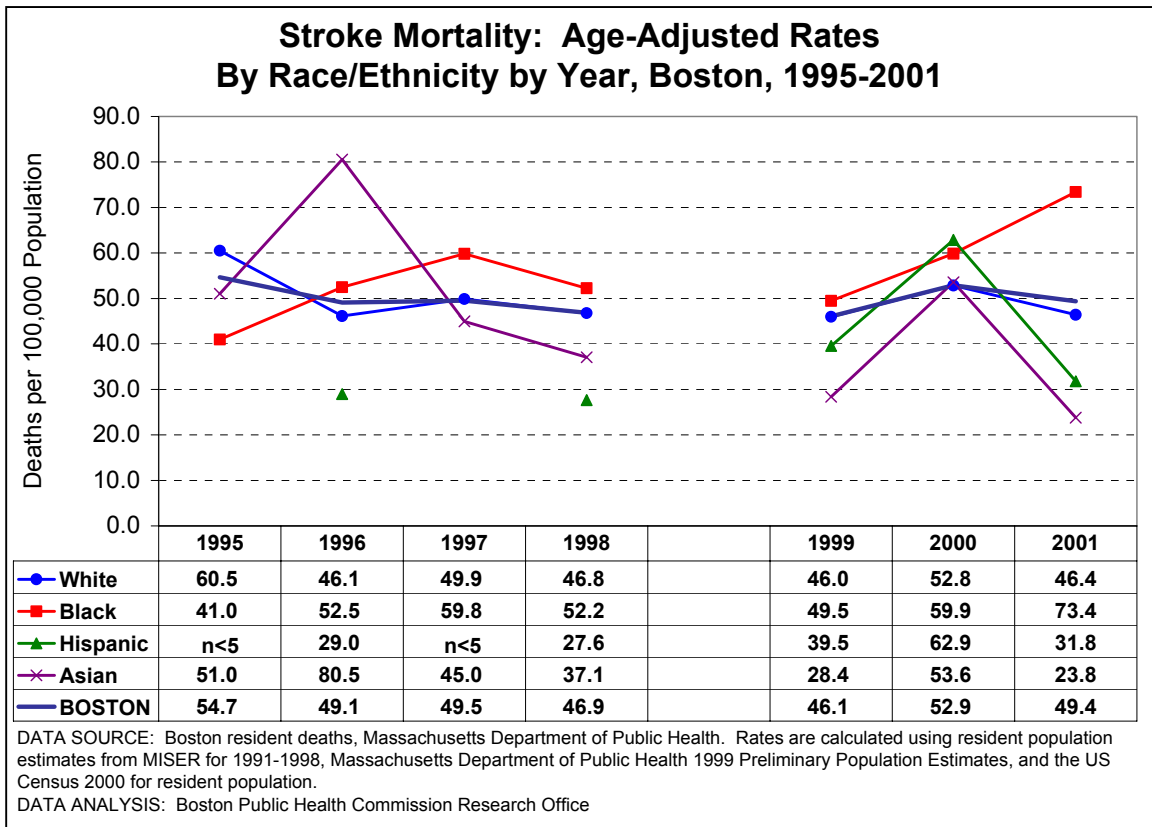
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For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- The stroke mortality age-adjusted rate among Boston residents declined 14.3% between 1995 and 1998, which was not a statistically significant change.
- In each of the years shown, except 1995, males had a higher stroke mortality rate than females. In 2001, the stroke mortality rate for males was 25.3% higher than for females, but this difference was not statistically significant.
- Between 1999 and 2001, the stroke mortality rate increased for both males and females as well as for Boston overall. The increase among males was 8.7% and among females 5.6%. Boston’s overall increase in stroke mortality was 7.2%. None of these changes in rates were statistically significant.



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- For each of the years shown except 1995, 1996, and 2000, Blacks had the highest stroke mortality rates. In 2001, the stroke mortality rate was highest among Blacks whose rate was significantly higher than the rates for Whites and Asians but not for Latinos. While the stroke mortality rate for Blacks was 48.6% higher than the Boston rate, the rates for Latinos, Asians, and Whites were 35.6%, 51.8%, and 6.1% respectively lower than the Boston rate.
- Between 1999 and 2001, the stroke mortality rate increased 48.3% for Blacks and almost one percent for Whites. However, it decreased 19.5% for Latinos and 16.2% for Asians. None of these changes in rates were statistically significant.

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## Diabetes

Diabetes is a chronic metabolic disease characterized by high levels of blood glucose resulting from inadequate insulin production. There are two major types of diabetes: Type 1 (formerly referred to as insulin-dependent diabetes or juvenile-onset diabetes) and Type 2 (formerly referred to as non-insulin-dependent diabetes or adult-onset diabetes). (1,2) This second type of diabetes is no longer considered only an adult disease since it is now also being diagnosed among children and adolescents. (3)

As of the year 2000, an estimated 17 million people in the US, or 6.2% of the population, had diabetes. This estimate includes 11.1 million people who have been diagnosed with diabetes and another 5.0 million who are unaware that they have diabetes. (4) Among US adults, those with diagnosed diabetes increased 49% between 1990 and 2000.(3)

More than 200,000 people die annually in the US from diabetes-related complications. (3) Based on preliminary data for 2001, diabetes was the sixth leading cause of death in 2001. (5)

Diabetes can result in a number of complications. Among them are heart disease, stroke, high-blood pressure, blindness, kidney disease, amputations, dental disease, and complications of pregnancy. (1,3, 6)

Slightly more women (9.1 million or 8.9% of all US women) than men (7.8 million or 8.3% of all US men) have diabetes. (4)

The occurrence of diabetes increases with age and is higher among some racial and ethnic populations. (7) While 151,000 people under the age of 20 in the US have diabetes, 16.9 million people over the age of 20 have diabetes; and 7 million people ages 65 and over have the disease. (4)

Many people in African-American, Latino-American, American Indian, and some Asian-American and Pacific Islander populations are at high risk for diabetes, particularly for Type 2 diabetes. (1) Fifteen percent (105,000) of American Indians and Alaska Natives, 13.0% (2.8 million) of all non-Latino Blacks, 10.2% of Latinos (2.0 million), and 7.8% (11.4 million) of non-Latino Whites, and who receive care from the Indian Health Services have diabetes. (4) Data are limited for subpopulation groups within the Asian, Native Hawaiian, and Pacific Islander groups.

Type I diabetes accounts for 5% to 10% and Type 2 diabetes accounts for about 90% to 95% of all diagnosed cases of diabetes. (1) Risk factors for Type 2 diabetes include being of older age, obesity, family history, prior history of gestational diabetes, and physical inactivity; large differences in the incidence of diabetes also exist across racial/ethnic groups. (1,3)

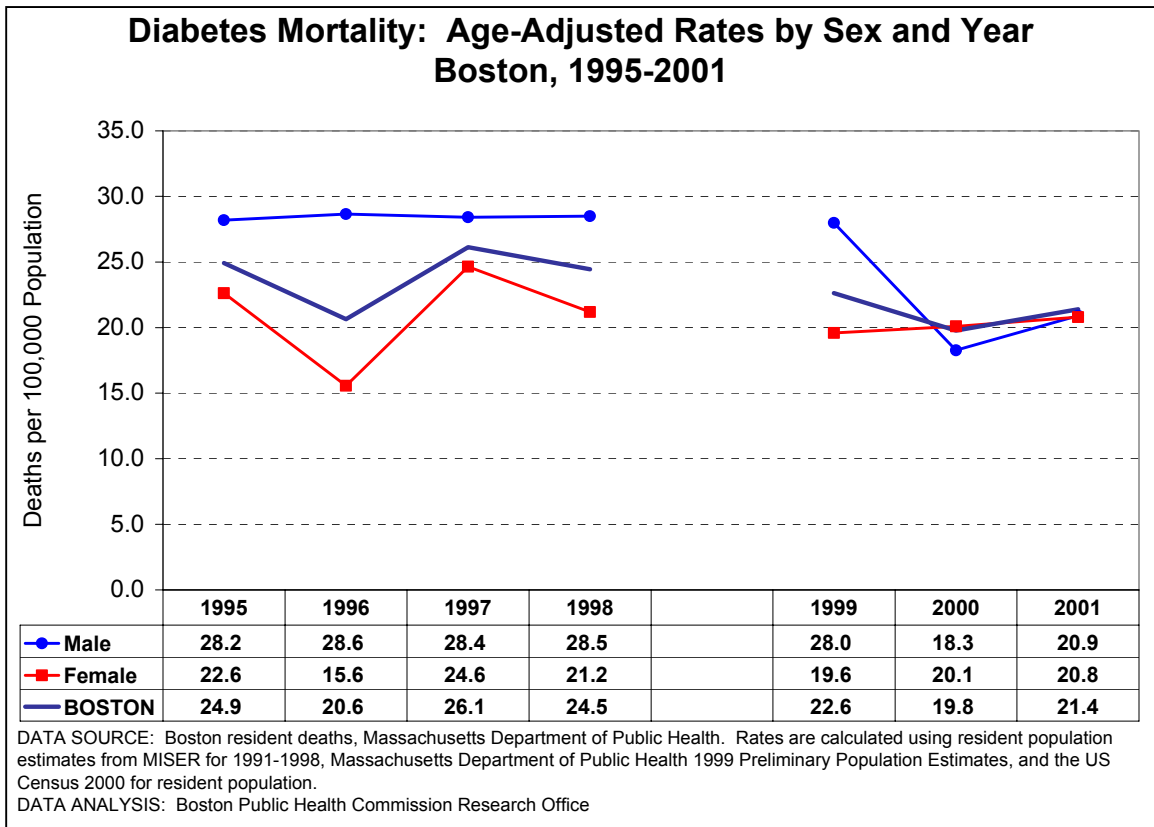
In Boston in 2001, there were 107 deaths due to diabetes. The number of deaths for other years can be found in Appendix 1.

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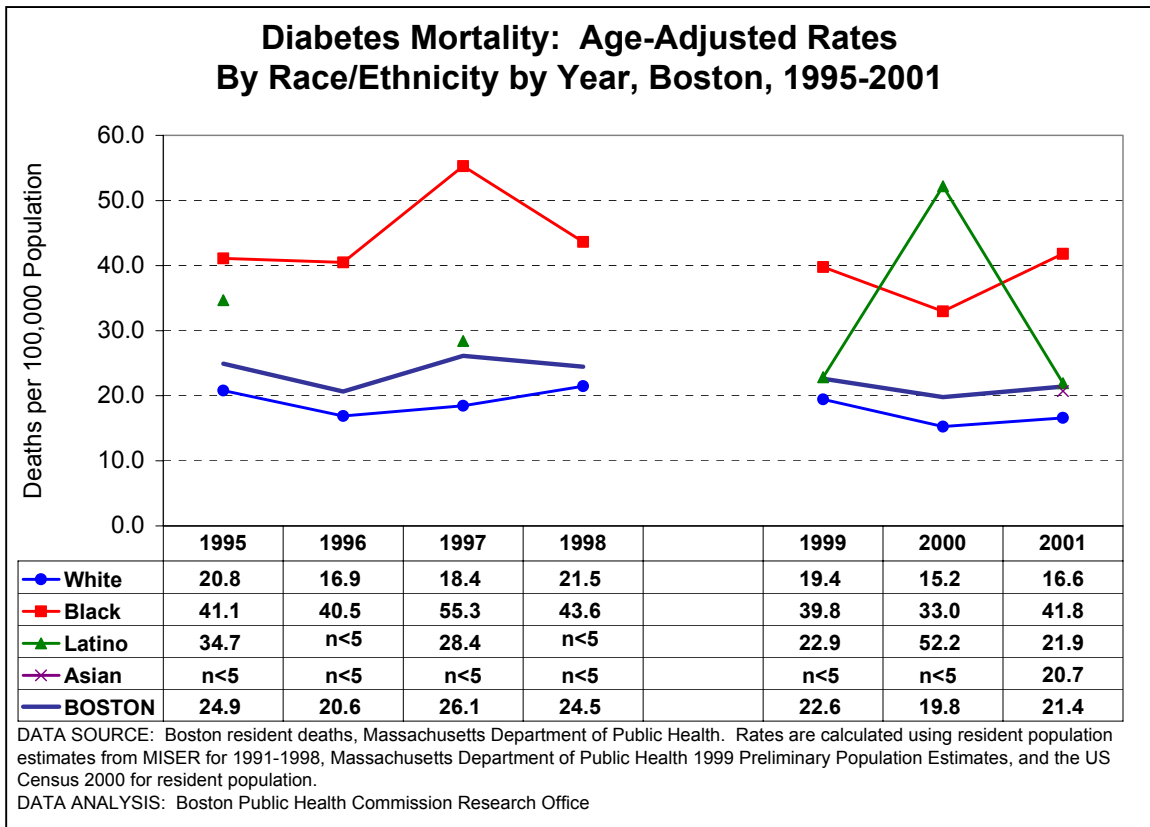
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7. American Diabetes Association. Economic Costs of Diabetes in the U.S. in 2002. Diabetes Care 26:917-932, 2003.



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- In 2001, the diabetes mortality rate for Boston residents (21.4 deaths per 100,000 population) was 8.1% higher than in 2000 (not statistically significant) and 52.4% below the Healthy People 2010 target of no more than 45.0 deaths per 100,000.
- For most of the years shown, diabetes mortality rates were consistently higher among males than among females. However, in 2000, the diabetes mortality rate for males was 9.0% lower than for females, a difference that was not statistically significant. By 2001, the rate for males was about the same as for females.
- From 1999 to 2001, the diabetes mortality rate declined 25.4% among males but increased 6.1% among females. Neither change in rate was statistically significant.



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- The diabetes mortality rate was highest for Blacks in all the years shown except 2000. In 2001, the rate for Blacks was significantly higher than the rate for Whites, and while the rate for Blacks was higher than the rate for Latinos and Asians, but these differences were not statistically significant. Latinos had the next highest rate for most of the years shown.
- Between 2000 and 2001, rates for Whites and Blacks increased 9.2% and 26.7% respectively but decreased about sixty percent among Latinos. However, none of these changes were statistically significant. Among Asians, there were too few deaths from diabetes to permit a rate calculation except in 2001.

**Substance Abuse**

The use and abuse of alcohol and drugs affect both personal and public health, and may result in a range of outcomes that include addiction, lost productivity, crime, physical and mental illness, and premature death. (1)

***Drug Abuse***

According to the Substance Abuse and Mental Health Services Administration (SAMHSA), in 2001 approximately 15.9 million Americans ages 12 and over, or 7.1% of the population in that age range, were current users of illicit drugs. (2) This reflects a 7% increase over 1999 findings, when approximately 14.8 million Americans were estimated to be current drug users.

The rates of current illicit drug use nationally varied among racial/ethnic groups, with 7.2% of Whites, 6.4% of Latinos, 7.4% of Blacks, and 2.8% of Asians reporting past month use in 2001. Rates of dependence or abuse of illicit drugs also varied nationally with 1.8% of Whites, 2.3% of Blacks, 2.3% of Hispanics, and 0.7% of Asians reporting behavior that met criteria for dependence or abuse. (2)

In 2001, rates of current illicit drug use increased over the previous year among both men and women; however, a higher percentage of men than women reported past month use of illicit drugs (8.7% and 5.5% respectively). (2)

In 2001, SAMHSA data found that current use of illicit drugs tended to increase with age among young persons, peaking among those ages 18 to 20, with 22.4% reporting past month use, and then declining steadily after that with increasing age. (2) This survey also found that a higher percentage of adults who first used drugs at a younger age were classified with dependence on or abuse of drugs than adults who initiated drug use at a later age. (2) A 2001 survey of US high school students showed that at least two out of five students reported ever having used an illicit drug in their lifetime. (3)

In Boston in 2001, there were 88 drug-related deaths. The number of deaths for other years can be found in Appendix 1.

***Alcohol Abuse***

In 2001, almost half (48.3%) of all Americans ages 12 and over were current drinkers of alcohol. (2) Approximately one fifth (20.5%) of persons ages 12 and over had participated in binge drinking in the past month, consuming five or more drinks on the same occasion at least once. (2)

Among racial/ethnic groups, a higher percentage of Whites reported current use of alcohol than any other group in 2001, with 52.7% reporting past month use. Additionally, a higher percentage of Whites reported binge drinking than the other major racial/ethnic groups. (2)

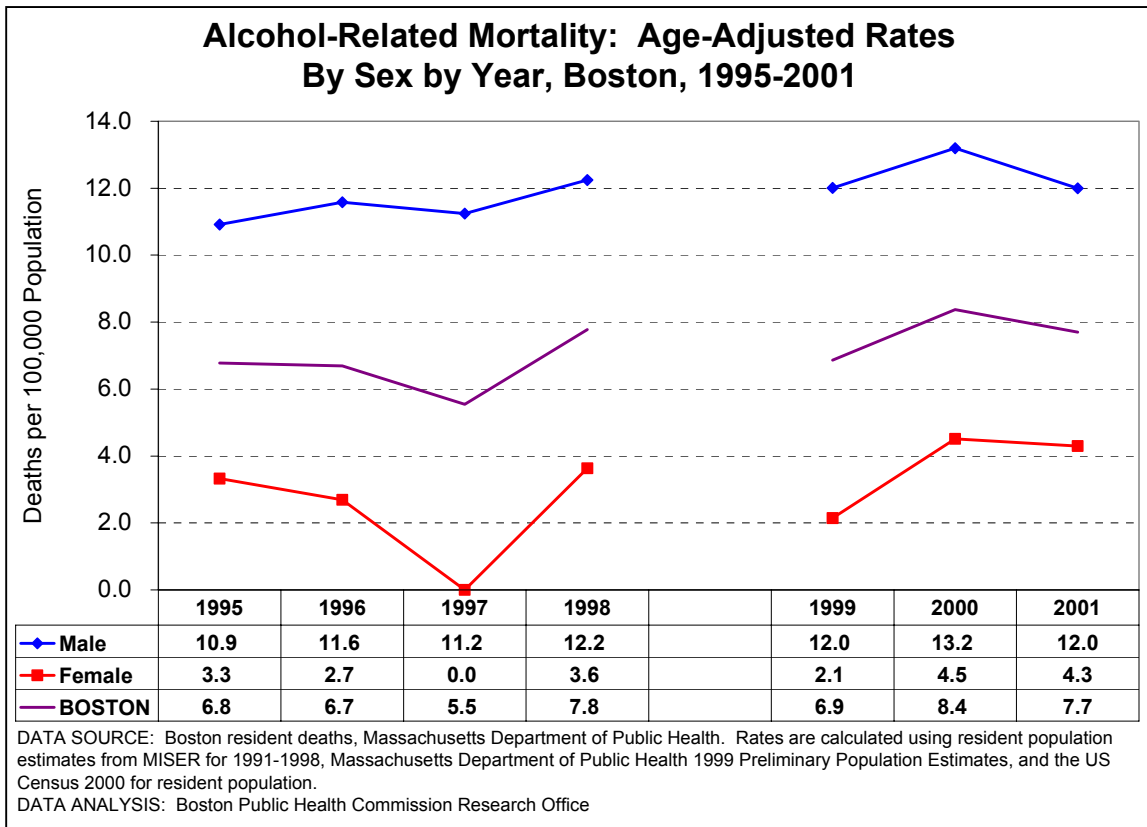
In 2001, a national survey of high school students found that 47.1% had used alcohol in the 30 days preceding the survey and that 29.9% had had five or more drinks of alcohol on at least one occasion in the preceding 30 days. (3) White and Latino high school students were significantly more likely than Black high school students to report these types of alcohol use. (3)

In Boston in 2001, there were 39 alcohol-related deaths. The number of deaths for other years can be found in Appendix 1.

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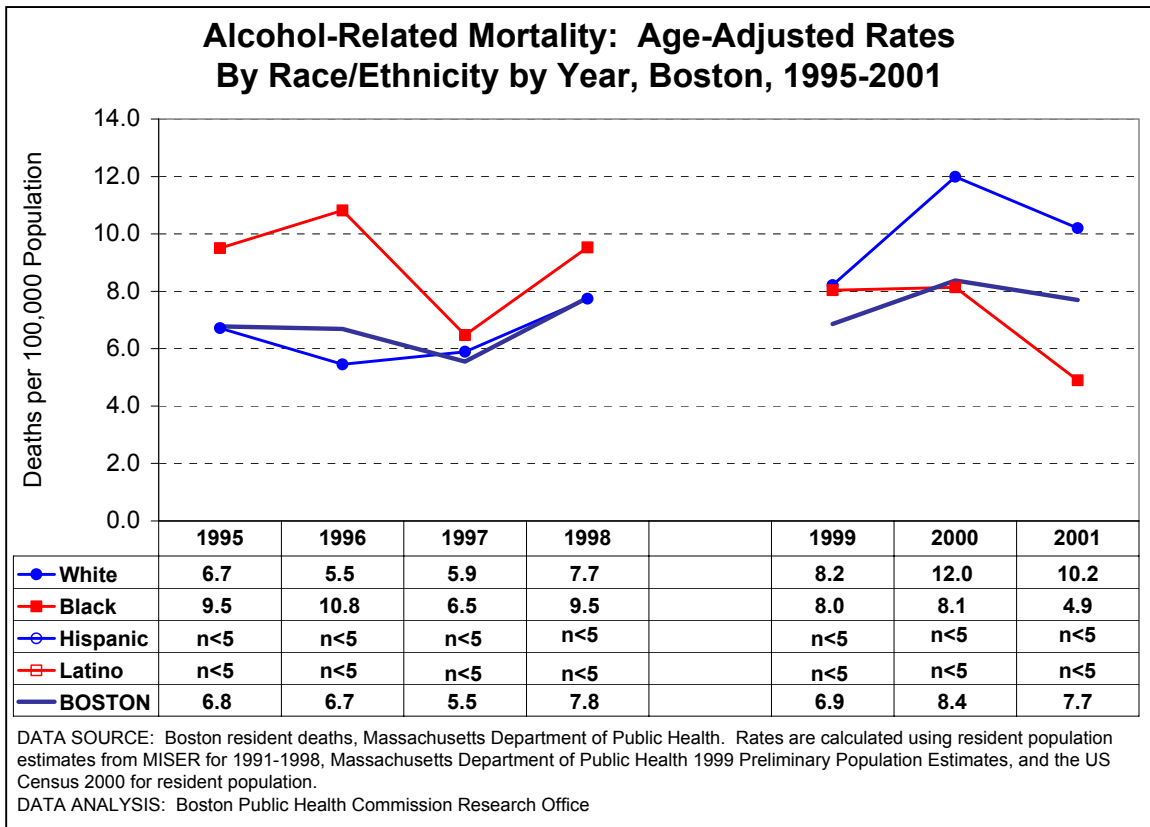
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For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

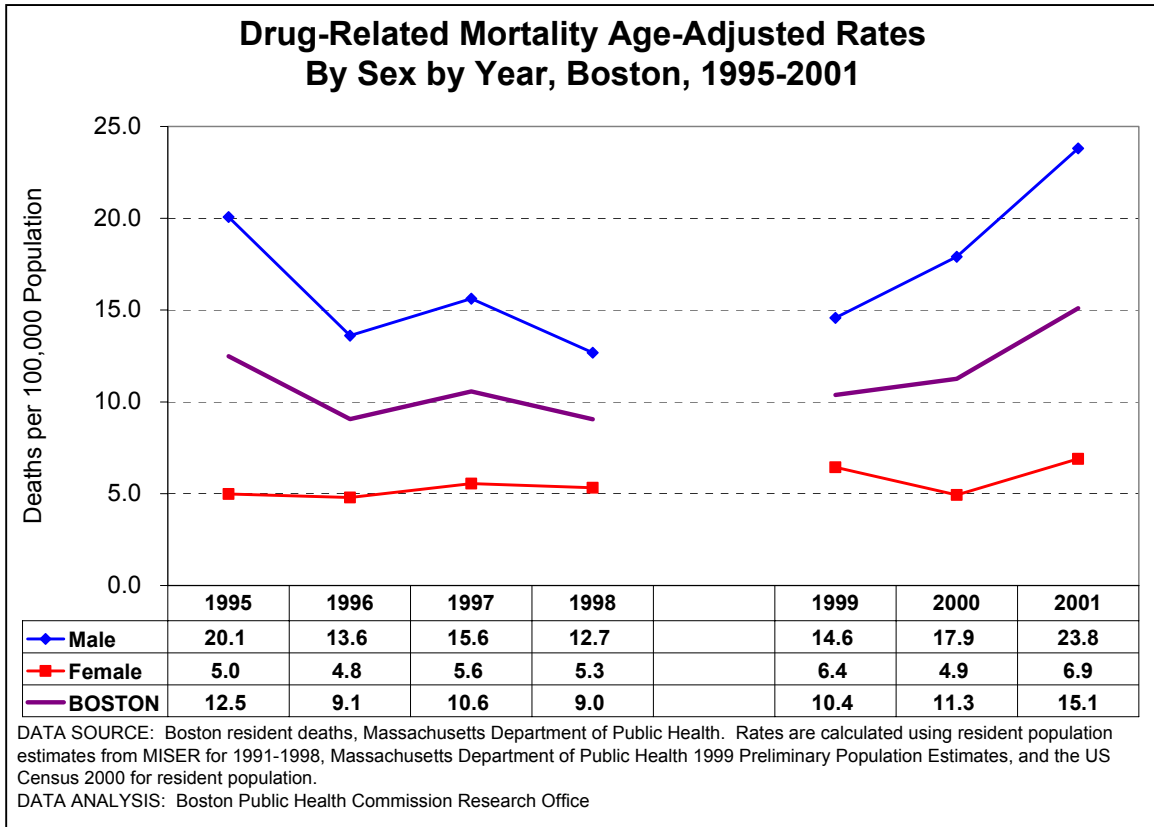
- During each year of 1995-2001, except 1997, alcohol-related mortality rates for males were three to six times higher than those for females. The differences in rates by sex were statistically significant in every year shown except 1995 and 1997.
- From 1995 to 1998, the alcohol-related mortality rate increased 14.7% for Boston overall, 11.9% for males, and 9.1% for females. These differences were not statistically significant.
- Between 1999 and 2001, rates stayed the same for males, and increased 104.8% for females and 11.6% for Boston overall. However, neither increase was statistically significant.



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

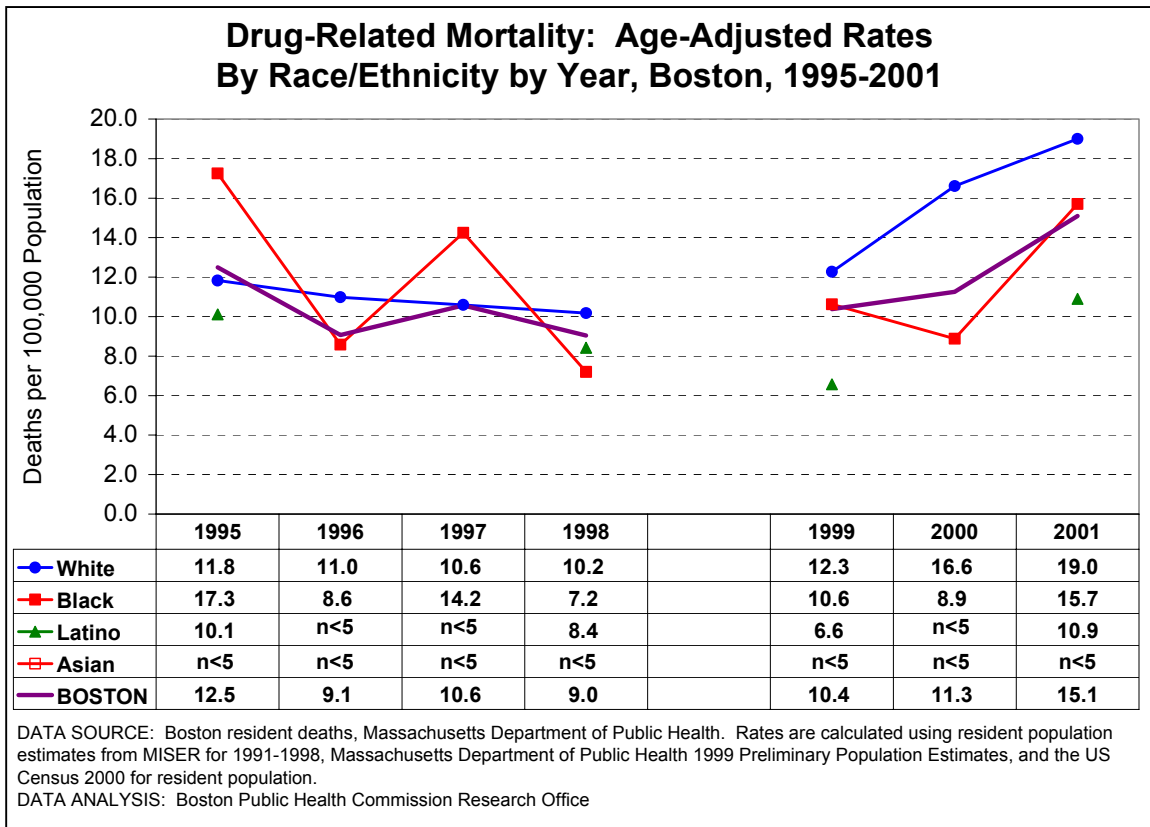
- Alcohol-related mortality rates for Blacks were higher than for Whites during each year between 1995 and 1998 (these differences were not statistically significant). During each year between 1999 and 2001, rates for Blacks were lower than for Whites, again not statistically significant differences. In 2001, the alcohol-related mortality rate for Blacks was 52.0% lower than the rate among Whites, not a statistically significant difference.
- From 1999 to 2001, the rate increased 24.4% for Whites but decreased 38.8% for Blacks. Neither change in rate was statistically significant. There were too few alcohol-related deaths among Latinos and Asians to calculate alcohol-related mortality rates for those groups.





For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- For each year shown, drug-related mortality rates for males were two to four times higher than those for females, differences that were statistically significant.
- From 1995 to 1998, the drug-related mortality rate decreased 28.0% for Boston overall, a decrease that was not statistically significant. The 36.8% decline for males and the 6.0% increase for females were also not statistically significant. Between 1999 and 2001, rates increased 63.0% for males and 7.8% for females. Neither increase in rates was statistically significant.



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- Drug-related mortality rates were higher for Whites than for Blacks in all of the years shown except 1995 and 1997. However, these differences were not statistically significant. After declining every year during 1995-1998, rates for Whites began increasing in 1999. Between 1999 and 2001, they increased 54.5%, but the difference in rates was not statistically significant.
- Rates for Blacks have fluctuated, making a trend less discernable. In the two years (1995 and 1997) where the rate for Blacks was higher than for Whites and for Boston overall, the differences were not statistically significant. In three of the four years for which rates were available for Latinos, they were lower than those of Whites and Blacks. No rates are shown for Asians because they had fewer than 5 drug-related deaths in each of the years.
- Between 1999 and 2001, drug-related mortality rates increased 45.2% for Boston overall, 54.5% for Whites, and 48.1% for Blacks. None of these changes were statistically significant.

## **Homicide and Suicide**

Homicide was the thirteenth leading cause of death overall in the United States in 2001. The overall age-adjusted homicide rate was 6.9 deaths per 100,000 population, an increase of 16.9% from 2000. However, if the terrorist-related homicides (September 11, 2001) were not included, the 2001 rate would have declined by 1.7%. The most recent comparison data (2000) show homicide rates are higher than the overall rate of 6.1 per 100,000 population for Blacks (22.3 per 100,000), Latinos (9.0 per 100,000), males (9.5 per 100,000), and for adolescents and young adults (12.9 per 100,000) for ages 15-24 and 11.1 per 100,000 for ages 25-34). In 2001, homicide was the second leading cause of death among those ages 15-24 and the leading cause of death among Black males ages 15-34. (1)

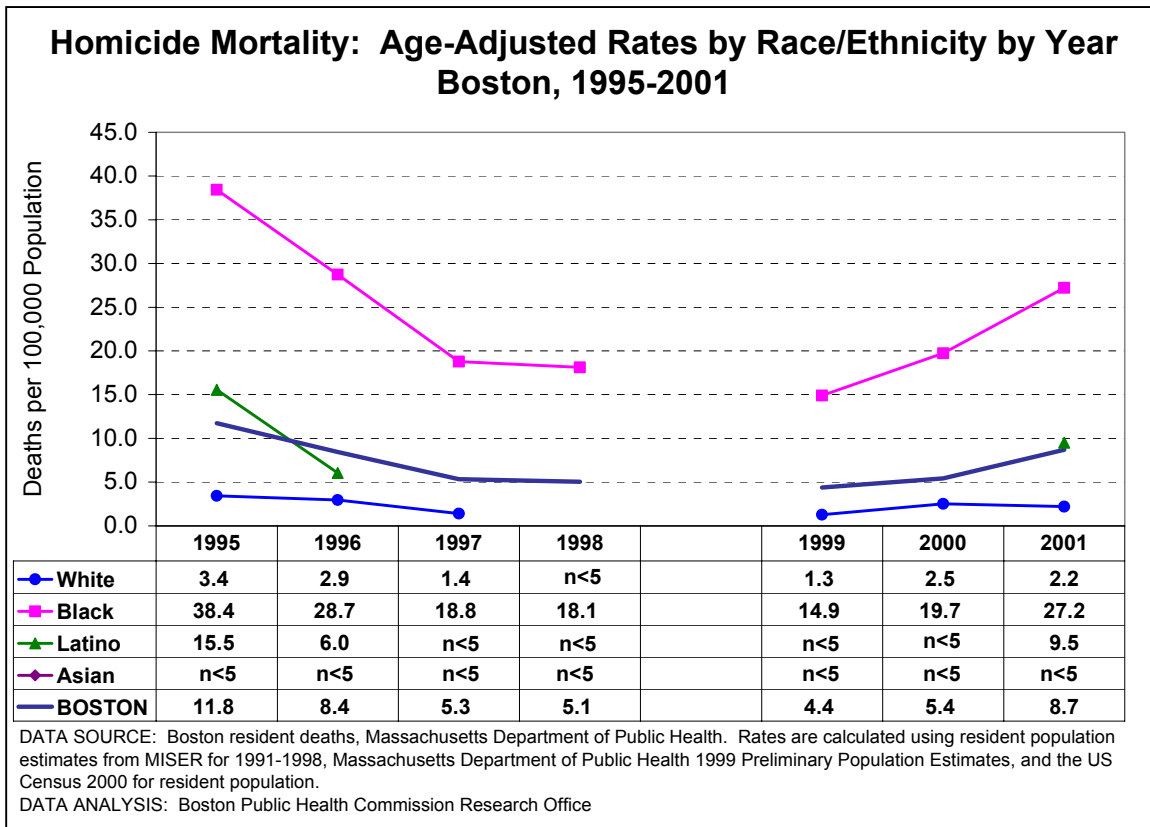
In 2001, suicide was the eleventh leading cause of death overall in the United States and among the top four leading causes of death for those ages 10-44. The 2001 suicide rate of 10.3 per 100,000 remained steady from 2000. The most recent comparison data (2000) show suicide rates are higher than the overall rate of 10.7 per 100,000 for Whites (11.7 per 100,000) and males (17.5 per 100,000). (1)

In the United States, the number of deaths from suicide was about 75% greater than the number of deaths from homicide. But in Boston, there were nearly twice as many deaths from homicide as from suicide. (1)

In 2001 in Boston, there were 62 deaths from homicide and 32 from suicide. The number of deaths for other years can be found in Appendix 1.
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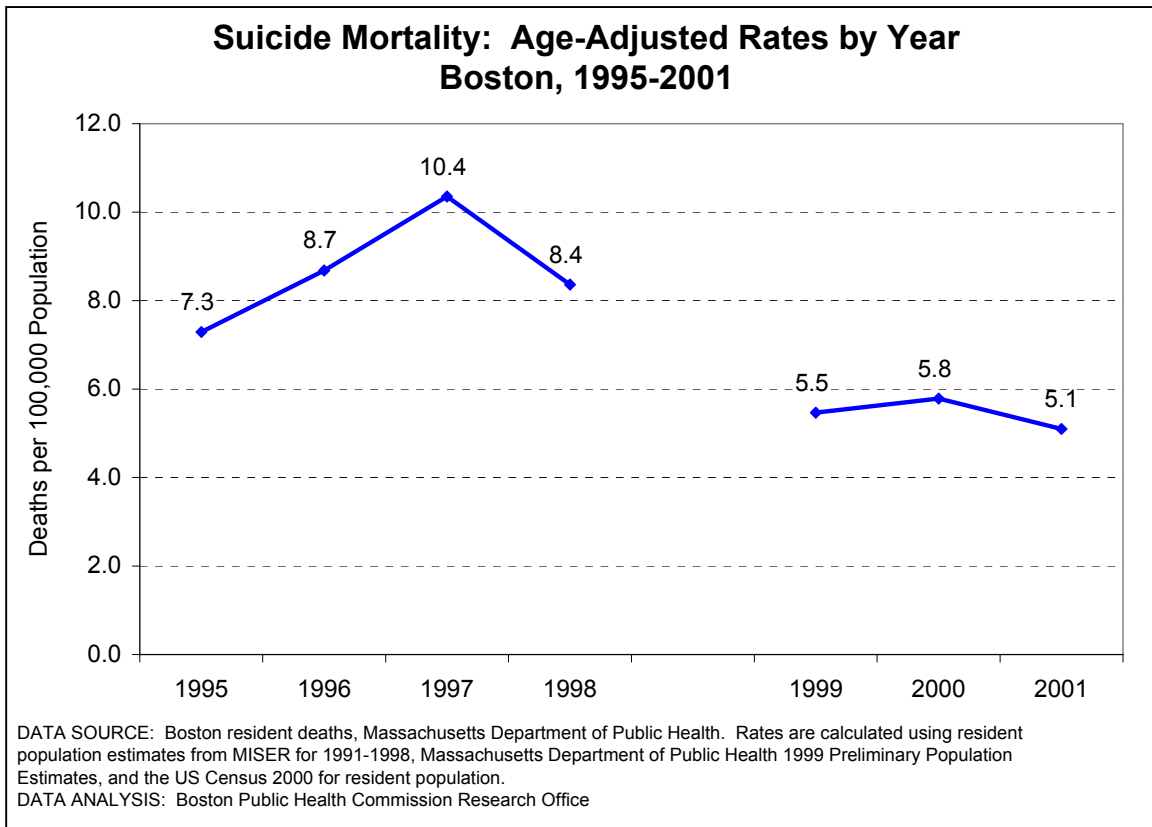
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1. Arias E, Smith B. National Vital Statistics Reports, Deaths: Preliminary Data for 2001, Vol. 51, #5. Centers For Disease Control And Prevention, National Center For Health Statistics; March 14, 2003



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- Between 1995 and 2001, there were 341 homicide deaths in Boston.
- Homicide rates for Boston overall and for Blacks declined between 1995 and 1998, statistically significant differences. The rate for Blacks declined 52.9%.
- Between 1999 and 2001, homicide mortality rates increased nearly 100% (97.7%) for Boston overall. The overall 2001 Boston homicide rate was 26% higher than the national homicide rate of 6.9 deaths per 100,000 population.
- The rate for Blacks increased 82.6% between 1999 and 2001. However, this was not a statistically significant difference.
- In 2001, the homicide mortality rate for Black residents was more than 3 times the overall Boston rate, more than 12 times the White rate and almost 3 times the Latino rate. The rate for Blacks was significantly different from Boston overall, Whites, and Latinos. Similarly, the Latino rate was more than 4 times the White rate. However, it was not significantly different than the rate for Whites.



For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- During the seven-year period 1995-2001, there were 290 suicides among Boston residents.
- Although the Boston suicide rate increased 15.1% between 1995 and 1998, this change was not statistically significant.
- In 2001, the suicide mortality rate for Boston residents was 5.1 deaths per 100,000, a decrease of 12.1% from the rate in 2000. Between 1999 and 2001, the suicide mortality rate declined 7.3%, but the change in rate was not statistically significant.

The Health of Boston 2003.....

## **HIV/AIDS**

### **Introduction**

Acquired Immune Deficiency Syndrome (AIDS) is caused by Human Immunodeficiency Virus (HIV). Over a period of years, most people who are infected with HIV develop AIDS as the virus damages the immune system. People are classified as having AIDS when their immune system shows significant damage by HIV, based upon blood tests (T-cell or CD4 counts) or when they develop certain infections or tumors related to infection with HIV.

### ***HIV***

At the end of 2001, 161,976 adults and children in the US were living with HIV infection. (1) New drug combinations to treat HIV have delayed the progression from HIV infection to AIDS for many HIV-positive Americans. (2)

### ***AIDS***

As of December 2001 in the US, 362,827 persons in the US were living with AIDS. Of those cases, 77% were among men, 21% among women, and 3% among children. (1)

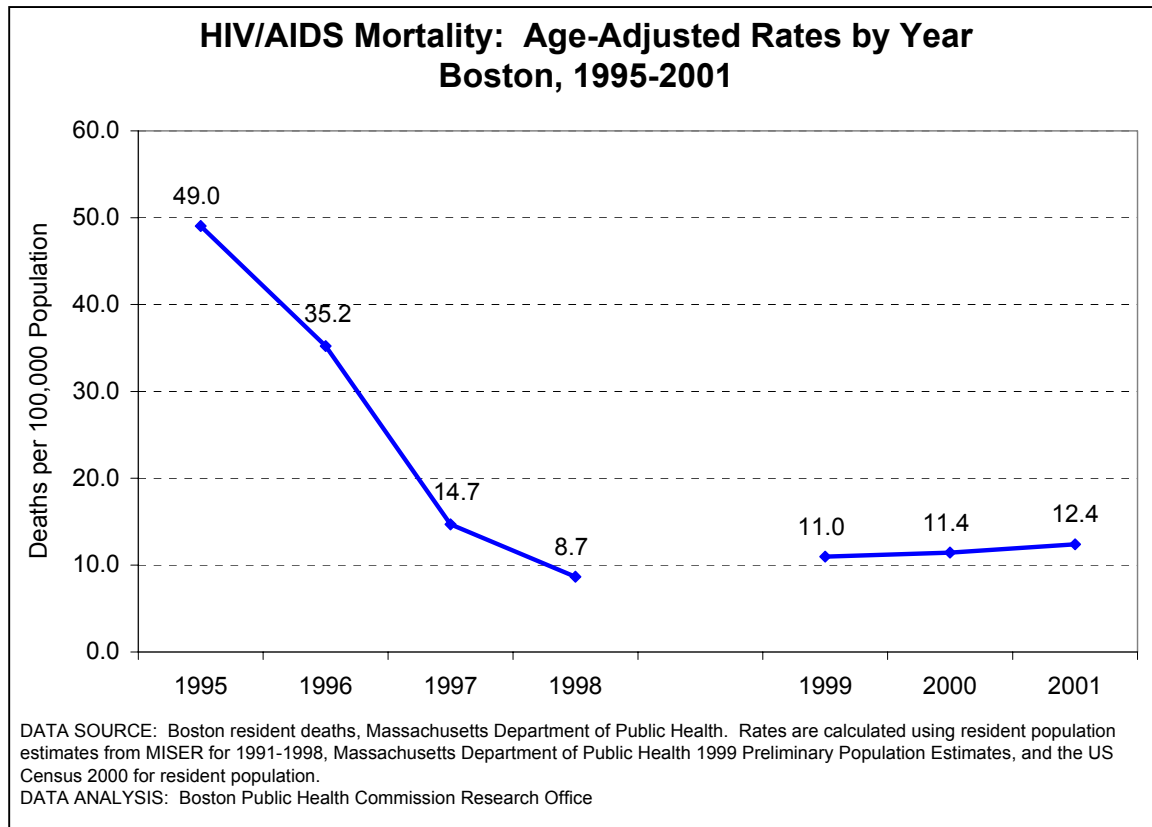
Racial and ethnic disparities exist, and the pattern of infection has changed. Although during the early 1980s the majority of AIDS cases occurred among White men, AIDS cases among Blacks, Latinos, and women have increased over time.

During 2001, 41,311 persons in the US were reported with AIDS. Black persons accounted for 50% of these cases, Whites 28%, Latinos 20%, and Asian/Pacific Islanders and Native American/Alaska natives, 2%. (1) Of the cumulative cases of AIDS reported through 2001, 42% were White, 38% were Black, and 18% were Latino. (3)

There were 64 HIV/AIDS deaths in Boston in 2001. The number of deaths for other years can be found in Appendix 1.

### **References**

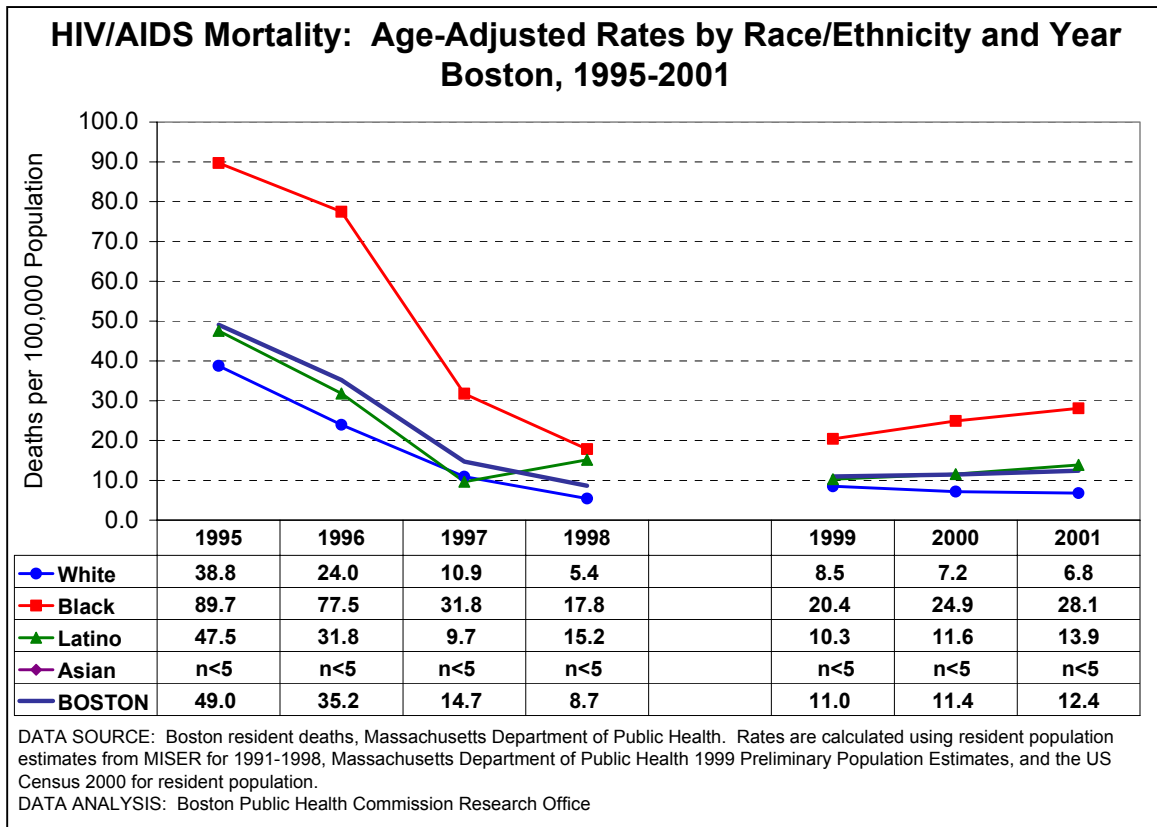
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For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- During 2001, there were 64 HIV/AIDS deaths (five deaths more than in 2000), and HIV/AIDS was among the ten leading causes of death for Boston residents, unlike in 2000.
- HIV/AIDS mortality age-adjusted rates for Boston have declined 74.7% since 1995. Between 1995 and 1998, the rate dropped from 49.0 deaths per 100,000 population to 8.7 deaths, a statistically significant change.
- The year 2001 HIV/AIDS mortality rate was 12.4 deaths per 100,000, an increase of 12.7% over the 1999 rate. The change in rates between 1999 and 2001 was not statistically significant.





For important information necessary to interpret the rates in this chart, see cautionary notes in Data Issues of the Introduction and Technical Notes in Appendix 2.

- Boston’s highest HIV/AIDS mortality rates were among Blacks, whose rates were significantly higher than that of Whites for each year between 1995 and 2001.
- In 2001, the rate for Blacks was 4 times the rate for Whites (statistically significant) and double the rate for Latinos (not statistically significant).
- Like the declining trend seen for Boston overall, between 1995 and 1998 there was a steep decline in HIV/AIDS mortality rates among all racial and ethnic groups. The 86.1% decline for Whites and the 80.2% decline for Blacks were statistically significant; the 68.0% decline for Latinos was not.
- From 1999 to 2001, HIV/AIDS mortality rates rose for Blacks and Latinos, but declined for Whites. The increase was 37.7% for Blacks and 35.0% for Latinos, and the decrease for Whites was 20.0%. However, none of these changes were statistically significant.
- For Asians, there were fewer than five deaths from HIV/AIDS for each year; therefore rates could not be calculated.

The Health of Boston 2003.....

## ADOLESCENT HEALTH

### Introduction

To safeguard and improve the health of young people, it is important to understand the health issues that affect them. Alcohol and drug abuse, cigarette smoking, suicide, injury, sexually transmitted diseases, a lack of physical activity, obesity, and poverty present many risks to the lives and health of young people in Boston, both now and as they grow older.

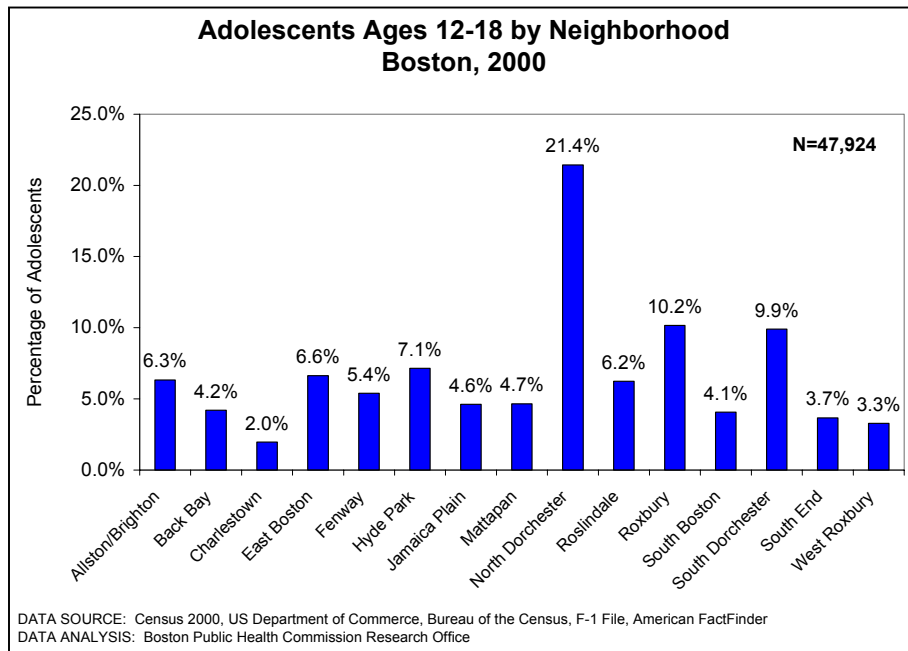
Risky behaviors, which contribute to the leading causes of death and of illness among youth and adults, are often established during youth and extended into adulthood. Research shows that young people who participate in one risky behavior are likely to participate in others. (1)

Any discussion of adolescent health would be incomplete without mentioning characteristics that enable young people to make healthy choices and avoid high-risk behavior. Academic achievement, a significant relationship with a parent, caregiver or teacher, extracurricular activities, and involvement in community service have all been shown to decrease participation in risky behavior. (2)

### Demographics

In 2000, there were 47,924 adolescents ages 12-18 living in Boston, making up 8.1% of the city’s population. Of the total, 41.5% live in just three neighborhoods—Roxbury, South Dorchester, and North Dorchester. (3)

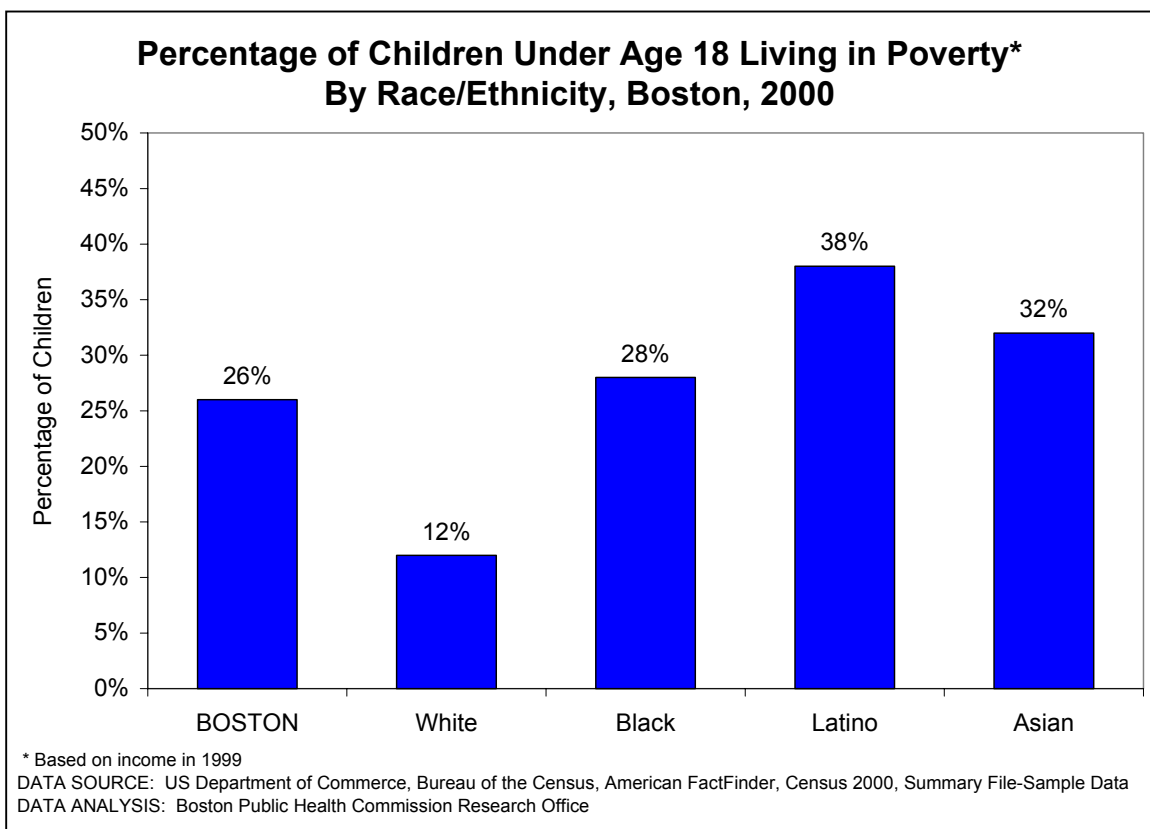
Boston’s youth population ages 12-18 is 34.9% Black, 30.1% White, 20.9 % Latino, 7.4% Asian/Pacific Islander, and 6.6% Other or Multiracial. (3) The youth population reflects Boston’s growing immigrant population. During 1990-1997, Boston ranked among the top ten cities in the country as an immigrant destination. (4) One in four of the city’s residents are foreign-born. (3)



# The Health of Boston 2003.....

Over a quarter of Boston’s children and youth live in poverty. (5) While 19.5% of all Bostonians had incomes at or below the poverty line in 2002, 22.2% of female-headed families with children and 37.4% of single-parent families with children did so. (5) The percentage of Boston’s children and youth living in poverty has declined slightly during the last decade, from 28.0% in 1990 to the 2000 rate of 25.6%. (5) The decline in poverty among female-headed single-parent households with children under 5 was larger: from 54.6% in 1990 to 45.6% in 2000. (5) There are significant income disparities by race/ethnicity. (5) Thirty-eight percent of Latino children and youth ages 0-18 live in poverty, as do 32% of Asian/Pacific Islanders and 28% of Blacks; among Whites, the rate is 12%. (5)

Family and childhood poverty affects health and educational outcomes and the growing rates of family homelessness and hunger. In 2002 in Boston, 1,367 children were homeless, compared to 800 in 1992, a 71% increase. (1) The Boston Indicators Report 2002 indicates that “over the past year, the number of homeless families in shelters and in domestic violence and transitional housing programs increased from 2,149 to 2,328 (8%).” (1)



## **Education**

Of Boston's 82,300 school-age children (grades kindergarten-12), 62,400 (75.8%) attend public schools. (6) The remainder attend private or parochial schools (14,100), suburban schools through the METCO Program (3,100), charter schools (2,700), or private special education schools (700). (6) The city's public schools are predominantly Black (48%) and Latino (28%). (6) Almost 9,800 Boston public school students, sixteen percent of the total, are enrolled in bilingual programs, with Spanish being the first language for over sixty percent of those students. (6) National child poverty rates have been broken down by school district. Of the hundred largest school districts in the US, Boston's was 13<sup>th</sup> in 1999, the most recent year for which there is data. Boston was 29<sup>th</sup> in 1995. (7) Over seventy-one percent of public school students qualify for the city's free or reduced price lunch program (6)

Academic achievement for Boston's public school students is difficult to measure. The Massachusetts Comprehensive Assessment System (MCAS) measures students against predetermined standards. On December 2002, the MCAS requirements were fully met by more than 78% of the Class of 2003 (2,778 students), almost twice the percentage who met the requirements when the test was first administered to this same class of students in 2001. (8)

There has also been a decline in dropout rates for grades 9-12, from 9.4% in 1999 to 8.4% in 2001. (6)

Most Boston public school students continue their education after high school. A survey completed by 80% of the Class of 1998 found that 32% of those responding were enrolled in a 1, 2, or 4-year school, 37% were both in school and working, 21% were working, 4% were looking for work, 2% were in the military, and 3% reported not looking. (6)

## **Health Issues**

Among the most important health issues facing Boston adolescents are injury and violence, substance use, mental health, reproductive health, and physical fitness and obesity.

### ***Intentional Injury***

Violence is a continuing concern for Boston's young people, as it is for young people across the state. Sixteen percent of the city's high school students reported carrying a gun, knife, or club during the previous month. (9) Almost 10% reported that they had missed school in the previous month because of concerns about their personal safety, and 9% reported that they had been threatened or injured on school property during the previous month by a student with a weapon. (9) The percentage of Boston high school students who reported carrying a weapon is higher than for students statewide (13.2%), although the percentages reporting personal safety concerns and threats or injuries on school property approximately mirrors the statewide numbers (8.1% and 8.2% for both). (9) Significantly fewer White students than Black, Latino, and Asian students report missing school due to safety concerns. (10)

According to the CDC's Web-based Injury Statistics Query and Reporting System, in the US in 2000, homicide was the second leading cause of death for adolescents ages 15-19 and 20-24 years old. For adolescents ages 10-14, homicide was the fourth leading cause of death. Disparities in homicide rates are

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seen between racial/ethnic groups for each age group. For Black males ages 10-14, homicide was the second leading cause of death, while for Latino males it was third and for White males, fifth. Among adolescents ages 15-19 years and 20-24 years, homicide was the leading cause of death for Black males, the second leading cause for Latino males, and the fourth leading cause among White males. (11)

Dating violence is also an important concern, both nationally and locally. (Unfortunately, national data cannot be reported here because US and Boston statistics are not comparable. National dating violence statistics indicate the percentage of all students who have experienced physical or sexual dating violence, while Boston statistics are calculated as a percentage of only those students who reported dating.)

Almost sixteen percent of Boston's female high school students who reported dating in the past year reporting having been physically or sexually hurt on a date. (10) Among students who reported dating, one in nine students experienced some form of dating violence. (10) About one in thirty students experienced only sexual violence, one in sixteen experienced only physical violence, and one in forty experienced both sexual and physical violence. (10)

## *Unintentional Injury*

Unintentional injury is a leading cause of death for Boston adolescents, and it is estimated that 90% of these injuries are preventable. (13) These injuries include fires, falls, unintentional poisonings, motor vehicle crashes, and pedestrian injuries from motor vehicles. (12) Between 1995 and 1999, males ages 0-19 accounted for 80% of Boston's injury fatalities among those age 0-19. (12) Overall, male children and adolescents experienced twice the number of injury hospitalizations as female children and adolescents. (12) The overall annual injury hospitalization rate for children living in Boston is almost twice the statewide rate. (12) Among Boston residents under age 20, those ages 15-19 experienced the highest number of injury hospitalizations. (13) Adolescents are at higher risk of traffic injuries than other age groups, caused in part by failure to wear seatbelts, speeding, and lack of driving experience. Between 1995 and 1999, adolescents ages 15-19 accounted for 88% of the city's motor vehicle deaths. (12)

## *Substance Use*

Adolescents may use legal and illegal substances to enhance school or athletic performance, alleviate physical or emotional pain, help them sleep, lose weight, or because of many other emotional triggers. While fewer Boston adolescents report using cigarettes and most drugs than do their counterparts statewide, (9) substance use remains a serious health risk for adolescents in Boston.

**Drugs:** Overall, fewer Boston high school students report using illegal drugs than do their counterparts statewide. Statewide adolescent use of heroin, marijuana, methamphetamines, inhalants, cocaine, and illegal steroids is 26% to 131% greater than in Boston. (9) Among illegal drugs, marijuana is the most commonly reported substance used by Boston adolescents, with 2 in 5 reporting any lifetime use and approximately 1 in 5 reporting use during the previous month. (10)

**Drug Use Among High School Students  
By Sex, Boston, 2001**

Illicit Drug Use	Boston Overall	Sex	
		Female	Male
Cocaine, any lifetime use	3.6%	2.6%	4.5%
Heroin, any lifetime use	1.5%	0.7%	2.1%
Marijuana, any lifetime use	40.1%	38.0%	42.4%
Marijuana, current use*	21.7%	18.4%	25.0%
Inhalants, any lifetime use	6.1%	5.1%	6.9%
Ecstasy, any lifetime use	7.0%	4.8%	9.0%
Methamphetamines, <sup>†</sup> any lifetime use	3.5%	2.0%	4.7%
Other illegal drugs, <sup>‡</sup> any lifetime use	6.1%	4.4%	7.6%
Steroids, any lifetime use	3.1%	2.4%	3.7%

\*Defined as any past month use.

<sup>†</sup>Includes speed, crystal, crank, and ice. The term 'speed' is customarily used to describe all amphetamines rather than methamphetamine exclusively.

<sup>‡</sup>Includes LSD (acid), PCP, Mushrooms, Special K, and other substances.

DATA SOURCE: Youth Risk Behavior Survey, 2001, Massachusetts Department of Education and Boston Public Schools

DATA ANALYSIS: Boston Public Health Commission Research Office

The percentage of Boston adolescents reporting any lifetime use of other drugs is much lower than the percentage reporting marijuana use: 7.0% for the club drug ecstasy, 6.1% for inhalants, 3.6% for cocaine, 3.1% for illegal steroids, and 1.5% for heroin. (10) For most illegal drugs, lifetime use is greater among males than among females. (10) For heroin, ecstasy, and methamphetamines, the gender differences are significant. (10)

For some but not all drugs, there are substantial differences in reported use by race and ethnicity among young people. For example, higher percentages of White (48.4%) and Black adolescents (43.8%) reported any lifetime marijuana use than did Latino (34.3%) or Asian adolescents (17.8%). (10) Significantly more White youth have had any lifetime experience with inhalants, ecstasy, and steroids than Black or Latino youth. (10) Additionally, significantly fewer Black youth than others have used ecstasy in their lifetime. (10)

There are also differences in reported use of illegal drugs by sexuality. For example, there are higher percentages of reported use of cocaine by LGBQ adolescents (15.8%) than by heterosexual adolescents (2.9%), of inhalants (14.8% by LGBQ and 6.2% by heterosexual adolescents), of methamphetamines (13.4% by LGBQ and 13.4% by heterosexual adolescents), of steroids (11.8% by LGBQ and 2.3% by heterosexual adolescents), and of other illegal drugs (26.9% by LGBQ and 4.8% by heterosexual adolescents).

**Lifetime Drug Use Among High School Students  
By Sexual Orientation, Boston, 1999 and 2001**

Illicit Drug Use	Boston Overall	Sexual Orientation	
		Heterosexual	Lesbian/Gay/ Bisexual/Questioning
Cocaine, any lifetime use	3.7%	2.9%	15.8%
Heroin, any lifetime use	1.4%	1.0%	8.0%
Marijuana, any lifetime use	39.2%	39.8%	42.2%
Marijuana, current use*	21.1%	21.0%	24.0%
Inhalants, any lifetime use	6.6%	6.2%	14.8%
Ecstasy, <sup>†</sup> any lifetime use	7.0%	6.1%	20.2%
Methamphetamines, <sup>‡</sup> any lifetime use	3.2%	2.7%	13.4%
Other illegal drugs, <sup>§</sup> any lifetime use	6.1%	4.8%	26.9%
Steroids, any lifetime use	2.8%	2.3%	11.8%

\*Defined as any past month use.

<sup>†</sup>Calculated using 2001 data only.

<sup>‡</sup>Includes speed, crystal, crank, and ice. The term 'speed' is customarily used to describe all amphetamines rather than methamphetamine exclusively.

<sup>§</sup>Includes LSD (acid), PCP, Mushrooms, Special K, and other substances.

DATA SOURCE: Youth Risk Behavior Survey (YRBS), 1999 and 2001, Massachusetts Department of Education and Boston Public Schools

DATA ANALYSIS: Boston Public Health Commission Research Office



**Alcohol:** Abuse of alcohol is linked with a wide range of health risks, including motor vehicle injury, depression and anxiety, and suicidal thinking. (2) According to a survey in 1999, Massachusetts high school students who reported recent alcohol use were more than twice as likely as their peers to have attempted suicide in the previous 12 months. (2) Furthermore, the survey demonstrated that adolescents who begin drinking before age 13 are four times more likely to become alcohol dependent than adolescents who don't begin drinking until at least age 21. (2) There are no Boston data on this issue.

In 2001, two in five Boston high school students reported using alcohol in the month prior to being surveyed. (10) Almost 1 in five Boston high school students reported binge drinking in the previous month, defined as five or more drinks within a couple of hours. (10) While these numbers indicate that a significant portion of the city's high school students drink to get drunk, they are lower than the statewide rate of 1 in 3 reporting binge drinking. (9) Significantly more male than female Boston students reported binge drinking. (10) The rate was higher among White students than among those in the other racial and ethnic categories. (10)

Although the rates of alcohol use were higher among lesbian, gay, bisexual, and questioning (LGBQ) adolescents in Boston, these differences were not statistically significant.

**Alcohol Use Among High School Students  
By Sex, Boston, 2001**

Alcohol Use	Boston Overall	Sex	
		Female	Male
Alcohol, current use*	41.7%	41.7%	41.9%
Binge-Drinking, <sup>†</sup> current*	18.1%	15.6%	20.6%

\*Defined as use within the previous month

<sup>†</sup>Defined as 5 or more drinks within a couple of hours

DATA SOURCE: Youth Risk Behavior Survey, 2001, Massachusetts Department of Education and Boston Public Schools

DATA ANALYSIS: Boston Public Health Commission, Research Office

**Alcohol Use Among High School Students  
By Race/Ethnicity, Boston, 2001**

Alcohol Use	Boston Overall	Race/Ethnicity			
		White	Black	Hispanic	Asian
Alcohol, current use*	41.7%	65.4%	34.6%	45.2%	26.0%
Binge-Drinking <sup>†</sup> , current*	18.1%	42.3%	11.1%	19.6%	4.7%

\*Defined as use within the previous month

<sup>†</sup>Defined as 5 or more drinks within a couple of hours

DATA SOURCE: Youth Risk Behavior Survey (YRBS), 2001, Massachusetts Department of Education and Boston Public Schools

DATA ANALYSIS: Boston Public Health Commission, Research Office

**Alcohol Use Among High School Students  
By Sexual Orientation, Boston, 1999 and 2001**

Alcohol Use	Boston Overall	Sexual Orientation	
		Heterosexual	Lesbian/Gay/ Bisexual/Questioning
Alcohol, current use*	39.4%	41.1%	41.8%
Binge drinking,† current*	17.7%	18.2%	23.8%

\*Defined as use within the previous month

†Defined as 5 or more drinks within a couple of hours

DATA SOURCE: Youth Risk Behavior Survey (YRBS), 2001, Massachusetts Department of Education and Boston Public Schools

DATA ANALYSIS: Boston Public Health Commission, Research Office

**Cigarettes:** The younger people are when they start smoking, the greater the permanent lung damage and the more likely they are to become addicted. (2) Most people who smoke began doing so when they were adolescents. (2) Among adolescents in Massachusetts, the rate of smoking has declined faster since 1996 than at any other time since records have been kept, from over 20% in 1993 to less than 15% in 2001. (1) Smoking is much less common among Boston adolescents than among adolescents statewide. The percentage of Boston adolescents that reported past month cigarette use in 2001 was 1.7 times less than that of their counterparts statewide; the percentage reporting frequent use in the past month was 2.7 times less. (9) Fifteen percent of Boston’s high school students reported smoking in the past month, though only one in twenty high school students was a frequent smoker, defined as smoking on 20 or more days within the past month. (10) White adolescents in Boston were more likely to report past month or regular smoking than youth in the other racial and ethnic categories. (10) There were no significant differences between male and female adolescents in cigarette use. Data from 1999 and 2001 demonstrate that the difference between current smoking among lesbian, gay, bisexual, and questioning (LGBQ) adolescents (31.6%) and heterosexual adolescents (15.5%) was also significant. (10) Significantly more lesbian, gay, bisexual or questioning adolescents (19.4%) reported frequent past month cigarette use than heterosexual adolescents (4.9%). (10)

**Cigarette Use Among High School Students  
By Sex, Boston, 2001**

Cigarette Use	Boston Overall	Sex	
		Female	Male
Cigarettes, current use*	15.4%	15.1%	15.6%
Frequent Cigarette Use,‡ past month	4.9%	4.2%	5.4%

\*Defined as use within the previous month

‡Defined as using cigarettes on 20 or more days during the past month

DATA SOURCE: Youth Risk Behavior Survey, 2001, Massachusetts Department of Education and Boston Public Schools

DATA ANALYSIS: Boston Public Health Commission, Research Office

**Cigarette Use Among High School Students  
By Race/Ethnicity, Boston, 2001**

Cigarette Use	Boston Overall	Race/Ethnicity			
		White	Black	Hispanic	Asian
Cigarettes, current use*	15.4%	26.7	12.1%	16.2%	7.9%
Frequent Cigarette Use <sup>†</sup> , past month	4.9%	12.1%	3.7%	3.2%	pnc

\*Defined as use within the previous month

<sup>†</sup> Defined as using cigarettes on 20 or more days during the past month

DATA SOURCE: Youth Risk Behavior Survey (YRBS), 2001, Massachusetts Department of Education and Boston Public Schools  
DATA ANALYSIS: Boston Public Health Commission, Research Office

**Cigarette Use Among High School Students  
By Sexual Orientation, Boston, 1999 and 2001**

Alcohol and Cigarette Use	Boston Overall	Sexual Orientation	
		Heterosexual	Lesbian/Gay/ Bisexual/Questioning
Cigarettes, current use*	16.6%	15.5%	31.6%
Frequent cigarette use, <sup>‡</sup> past month	5.8%	4.9%	19.4%

\*Defined as use within the previous month

<sup>‡</sup> Defined as using cigarettes on 20 or more days during the past month.

DATA SOURCE: Youth Risk Behavior Survey (YRBS), 2001, Massachusetts Department of Education and Boston Public Schools  
DATA ANALYSIS: Boston Public Health Commission, Research Office

***Mental Health***

Mental illness is not just a problem of adulthood. From violence in schools to the suicide clusters that crop up across the country, children and adolescents feel acutely the effects of stress, depression, and other mental health problems. As in other urban centers, children growing up in poverty in Boston are often disconnected from their communities and their schools. Their families are coping with multiple stressors that may include food shortages, homelessness, trauma, job issues, and loss.

In the US, suicide rates among young people have tripled since 1950. (2) In Massachusetts, suicide is the second leading cause of death among people ages 15-24. (2) A major cause of suicide is untreated depression, but only a small percentage of Americans who suffer from depression are accurately diagnosed and adequately treated.

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Many young people in Boston experience significant levels of depression. In 2001, thirty-three percent of Boston high school students reported feeling sad or hopeless for at least two weeks during the previous year. (10) A significantly higher percentage of females (40.5%) than males (24.9%) reported these feelings. (10)

In Boston, many high school students experience suicidal thoughts, and some make suicide plans or attempts. In 2001, approximately 1 in 6 Boston high school students seriously considered suicide in the previous year. (10) One in 8 high school students reported making a suicide plan, 1 in 9 attempt suicide and 1 in 20 received medical attention for a suicide attempt. (10)

Though a significantly higher percentage of female high school students than male high school students seriously considered suicide in the past year, there were not large differences between males and females in the percentages making a suicide plan, attempting suicide, or receiving medical attention for a suicide attempt. (10) Significantly more Latino high school students reported attempting suicide in the past year than did White or Asian high school students. (10)

Of those who reported attempting suicide in the past year: more than a third (35.0%) used illegal drugs in the past month, more than a quarter participated in binge drinking (26.3%), smoking cigarettes (26.9%), or carried a weapon (25.1%) in the past month.

## Mental Health Indicators Among High School Students By Race/Ethnicity, Boston, 2001

	Boston Overall	Race/Ethnicity			
		White	Black	Latino	Asian
Depressive symptoms for 2 weeks during past year	32.7%	31.7%	31.6%	35.7%	33.3%
Seriously considered suicide in past year	16.1%	21.2%	14.4%	15.4%	14.0%
Made a suicide plan in past year	12.9%	16.1%	11.7%	11.1%	13.5%
Attempted suicide in past year	11.5%	8.4%	12.1%	14.7%	7.6%
Received medical attention for suicide attempt in past year	5.0%	2.9%	5.6%	5.8%	4.9%

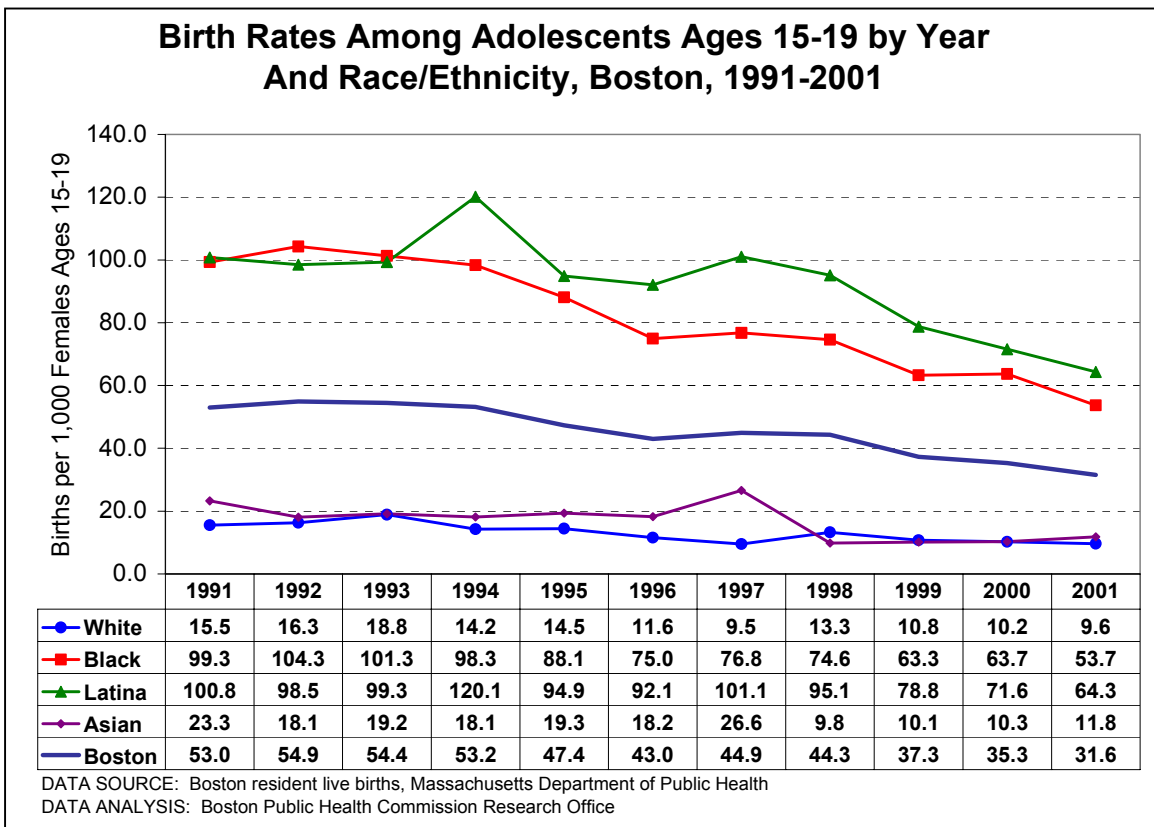
DATA SOURCE: Youth Risk Behavior Survey (YRBS), 2001, Massachusetts Department of Education and Boston Public Schools  
DATA ANALYSIS: Boston Public Health Commission Research Office

In a survey of Boston high school students, adolescents who identified themselves as gay, lesbian, or bisexual, or questioning (GLBQ) reported higher rates of suicidal thinking and behavior in the 12 months before the survey than their heterosexual peers. (12) The rates of suicide consideration, planning, attempt, and medical attention as a result of a suicide attempt among GLBQ youth were all approximately two to five times higher than the rates among heterosexual youth. Almost twice as many GLBQ students reported having seriously considered suicide. Receiving medical attention as a result of a suicide attempt was reported by twice as many GLBQ youth. The rate of attempted suicide was almost three times higher among GLBQ students and the rate of receiving medical attention as a result of a suicide attempt, almost five times higher than the rate among heterosexual students. (12)

The ability to communicate with a parent or other adult can be an important protective factor in the mental health of young people. In the 2001 Youth Risk Behavior Survey, 61.9% of Boston high school students indicated that there was at least one teacher or other adult at school with whom they could talk about a problem. (10) Eighty-three percent indicated that there was at least one adult outside of school with whom they could talk about important things. (10)

### Reproductive Health

Pregnancy: Fewer adolescent girls ages 15 to 19 in Boston are having babies than a decade ago. The city's adolescent birth rate declined 40.4% between 1991-2001 to 31.6 births per 1,000 female adolescents ages 15-19. (14) Between 1991 and 2001, rates declined for adolescents of all races and ethnicities, with the largest declines among Blacks and Whites. Birth rates among adolescents continue to be substantially higher for Latinas (64.3 births per 1,000) and Blacks (53.7 births per 1,000) than for Whites (9.6 births per 1,000) and Asians (11.8 births per 1,000). (14)



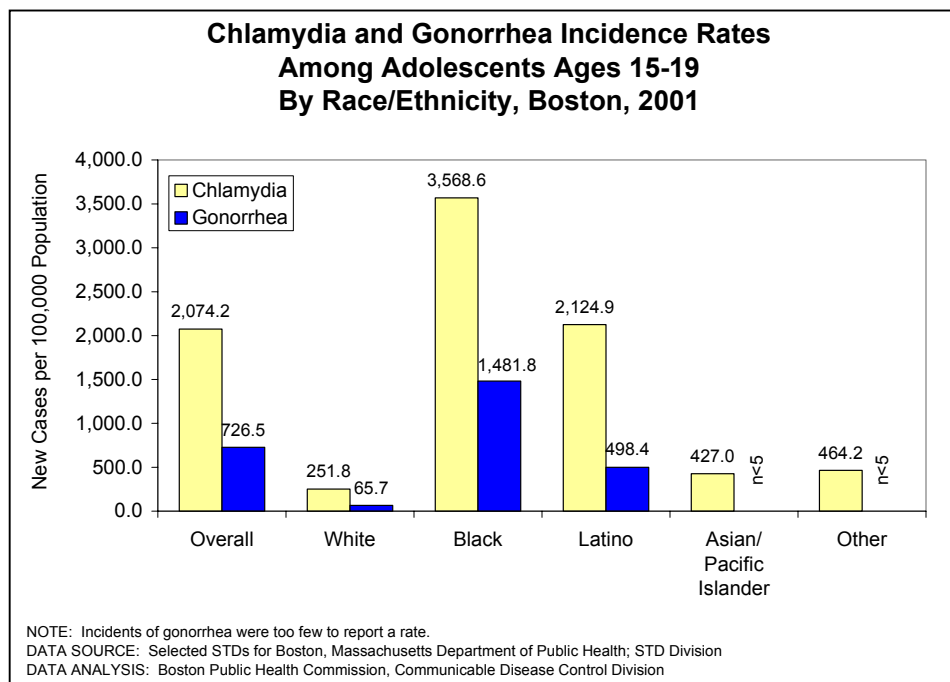
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Sexual activity and risk behavior: The percentage of Boston public school students who are not sexually active is increasing, and the percentage of students who report having intercourse in the last three months has declined steadily from 60.6% in 1993 to 51.6% in 2001. (15) Overall, 51.6% of high school students reported ever having sexual intercourse, (15) with the percentage ranging from 39.2% for ninth graders to 67.8% for twelfth graders. (15)

Of those adolescents reporting sexual activity, 75.2% reported condom use during last intercourse. (10) The city's lesbian, gay and bisexual (LGB) youth are more likely to report sexual risk behavior than are their heterosexual classmates, according to the Youth Risk Behavior Survey. (10) For example, 20.8% of LGB youth reported first having sexual intercourse at or before the age of 12, compared to 14.0% of heterosexual youth. Thirty-two percent of LGB youth reported not using condoms at last intercourse, compared to 17.6% of heterosexual youth. More than twice as many LGB youth reported having 4 or more sex partners in the past 3 months as heterosexual youth (10.3% versus 4.1%). (9)

Sexually transmitted diseases: Of the twelve million new STD infections each year, two-thirds occur among young persons under age 25, and approximately 3 million American teenagers acquire a sexually transmitted disease each year. (2) Adolescent females, for physiological reasons, are more susceptible to STDs than older women. Consequences may include pelvic inflammatory disease, ectopic pregnancy, infertility, and cervical cancer, and a person with an active STD is more likely than a person without STD to contract HIV if exposed. (2)

With a 2001 rate of 2,074.2 cases per 100,000 population, chlamydia is the most common STD among Boston adolescents ages 15-19. (16) After a more than twenty percent decline in the city's adolescent chlamydia rate between 1993 and 1995, the rate increased steadily between 1995 and 2001, approaching the rate in 1993, although the increase may be partially explained by expanded screening efforts, more sensitive diagnostic tests, and increased reporting. Gonorrhea rates for adolescents in Boston have also been on the rise, climbing over forty-five percent since 1995 to the 2001 rate of 712.8 per 100,000. Syphilis, though of growing concern for adults in Boston, is rare among adolescents.



## **Physical Fitness and Obesity**

Increasing physical activity reduces morbidity and mortality from chronic diseases and improves overall quality of life. Making physical activity a normal part of daily life is especially important for youth since research suggests that active children are likely to become active adults. (17)

Health providers are increasingly concerned about weight control and the sedentary lifestyle of many adolescents. In 2001, 8.0% of Boston high school students were considered overweight, and 15.3% were considered at risk of becoming overweight. (10) In addition, 21.4% of Boston students reported no vigorous exercise in the previous week, (see chart “High School Students Who Reported No Vigorous Exercise...” in the Healthy Lifestyles section) and 28.9% reported watching 4 or more hours of TV on the average school day (see chart “High School Students Watching TV for 4 or More Hours on an Average School Day...” in the Health Lifestyles section). (10)

A dwindling number of high school students participate in physical education classes. Statewide, 80% of public high school students were attending physical education class at least once a week before 1996. (17) In Boston, during that same period, 70% of public high school students attended weekly Physical Education class. (17) By 1999, following the state’s termination of a minimum physical education requirement, the percentages dropped to 53% statewide and 54% in Boston. (17) A 1997 report also indicated that young people in Boston had only one-third the opportunity for after-school physical activities of their counterparts in suburban communities. (17)

## **Multiple Risks Among Boston Adolescents**

Risk behavior by adolescents, e.g., substance abuse or sexual activity, often occurs in a pattern of multiple risks. The majority of Boston youth do not engage in any of the common types of risk-taking described below, but those who do are often involved in other types of risk behavior also. In this section, the occurrence of risks such as gang membership, tobacco use, or suicide attempts is presented in the context of sexual risk behavior. The frequencies of these risks among Boston youth who have never had sex are compared with the frequencies among youth (a) who have had sex, but not in the past three months or (b) who are currently sexually active.

The data are from the 2001 Youth Risk Behavior Survey, a representative sample of 1,543 Boston high school students. Among the respondents, 48.2% had never had sex, 15.3% had ever had sex but not in the previous three months, and 36.5% had had sex within the previous three months.

## Risk Behavior Among Adolescents by Sexual History Boston, 2001

Risk Behavior	Never Had Sex	Had Sex but not in Past 3 Months	Sexually Active in Past 3 Months
Carried weapon in past 30 days	7.6%	19.9%	26.1%
In physical fight in past year	24.3%	33.8%	43.3%
Member of gang in past year	6.6%	9.6%	13.7%
Seriously considered suicide in past year	13.5%	16.1%	17.3%
Made a suicide plan in past year	10.2%	16.6%	11.0%
Attempted suicide in past year	8.8%	11.4%	12.7%
Smoked in past 30 days	6.7%	17.8%	22.4%
Drank alcohol in past 30 days	28.3%	44.8%	59.3%
Binge drank alcohol in past 30 days	12.4%	15.5%	26.5%
Used marijuana in past 30 days	8.5%	30.3%	37.4%
Ever used inhalants	5.1%	8.2%	5.2%

DATA SOURCE: Youth Risk Behavior Survey (YRBS), 2001, Massachusetts Department of Education and Boston Public Schools  
 DATA ANALYSIS: Boston Public Health Commission Research Office

- Higher percentages of youth with prior sexual experience reported engaging in each of the other risk behaviors, compared with youth who had never had sex.
- Further, for every behavior except suicide plans and inhalant use, currently sexually active adolescents had higher levels of reported risk behavior than those with a more remote history of sexual activity.
- This pattern may reflect the influence of age as well as sexual risk because sexual activity is more common in older adolescents; 70.9% of 14 year-olds in the survey had never had sex, compared with 29.6% of those ages 18 or over. However, the data still accurately portray the frequency of these risks across groups.
- The risk behavior most common in all three groups was alcohol use, but more than twice as high a percentage (59.3%) of sexually active adolescents reported past-month alcohol consumption as did those who had never had sex (28.3%).
- Weapon carrying, tobacco use, binge drinking, and marijuana use were at least twice as frequently reported by currently sexually active adolescents as by those who had never had sex. Smaller differences existed for the remaining types of risk behavior.



## Conclusion

The adolescent health concerns described in this report—education and poverty, intentional and unintentional injury, substance abuse, mental health, reproductive health, and poor physical fitness and obesity—are regularly monitored by the Boston Public Health Commission and other organizations. BPHC works to improve the health of Boston adolescents through programs that promote wellness, increase health awareness, and improve access to health care.

School Based Health Centers (SBHCs). The Boston Public Health Commission, in collaboration with the Boston Public Schools and Boston Medical Center, operates eight school-based health centers in Boston Public Schools, seven in high schools and one in a middle school. The SBHCs serve over 3,000 students with over 11,000 encounters per year. Students are encouraged to “walk right in” for one of many on-site health services, such as treatment of injuries, nutritional counseling, medical, mental health and dental screenings, sports physicals, and assistance in obtaining health insurance. The SBHC’s are designed to overcome barriers that prevent young people from obtaining health care, including apprehension about discussing personal information with strangers, transportation problems, inconvenient appointment times, and cost.

Boston Area Health Education Center (BAHEC). For 23 years, BAHEC has been working to increase awareness of health professions and public health issues among Boston’s young people. Since its inception, over 9,500 students, predominantly Black and Latino, have participated in BAHEC programs, which include an introduction to community health at middle schools, after-school and summer programs for high school students, and an after-school program for educationally and developmentally disadvantaged high school students. BAHEC students have also produced public service campaigns on teen suicide and dating violence and developed Boston’s first Teen Health Report.

Adolescent Wellness Program (AWP). The Adolescent Wellness Program works with youth, schools, community health centers and other providers to promote wellness and empowerment among Boston adolescents. The program organizes health fairs, trains teachers and other service providers, and provides support for adolescents affected by substance abuse, gang violence, and teen pregnancy. AWP staff members and volunteers work to build community coalitions on vital issues such as mental health and run an innovative and effective program to reduce truancy among middle school students. They also have a Peer Leadership program, in which teens, selected through a comprehensive application process, learn how to exemplify wellness and serve as role models in the community.

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APPENDIX 1

NUMBERS OF DEATHS  
FOR SELECTED CAUSES

Numbers of deaths for selected causes by race/ethnicity and sex, Boston, 1995-2001

Causes of death	1995	1996	1997	1998	1999	2000	2001
<b>Heart disease</b>	1,247	1,196	1,201	1,185	1,138	1,067	1,112
White, non-Latino	999	933	948	887	888	802	834
Black, non-Latino	199	209	204	241	190	216	221
Latino	19	30	29	26	39	20	32
Asian/Pacific Islander	30	24	20	31	21	25	24
Other	0	0	0	0	0	n<5	n<5
Male	535	562	555	553	516	511	518
Female	712	634	646	632	622	556	594
<b>Cancer (all sites combined)</b>	1,128	1,158	1,094	1,058	1,057	1,109	1,030
White, non-Latino	820	861	801	742	740	764	698
Black, non-Latino	244	230	221	241	238	273	254
Latino	28	26	30	33	37	39	42
Asian/Pacific Islander	34	41	41	40	42	33	35
Other	n<5	0	n<5	n<5	0	0	n<5
Male	548	580	541	530	523	563	504
Female	580	578	553	528	534	546	526
<b>Stroke</b>	274	245	246	238	239	270	251
White, non-Latino	230	180	182	177	177	190	169
Black, non-Latino	33	41	51	44	43	52	66
Latino	n<5	8	n<5	9	12	13	8
Asian/Pacific Islander	9	15	9	8	7	15	7
Other	0	n<5	0	0	0	0	n<5
Male	86	80	97	94	91	97	100
Female	188	165	149	144	148	173	151
<b>All injuries combined</b>	290	230	262	215	225	226	295
White, non-Latino	139	128	155	134	148	130	150
Black, non-Latino	112	75	79	57	56	72	99
Latino	34	21	20	18	18	17	30
Asian/Pacific Islander	5	n<5	7	6	n<5	6	16
Other	0	n<5	n<5	0	0	n<5	0
Male	217	170	170	156	150	161	215
Female	73	60	92	59	75	65	80
<b>Homicide</b>	83	54	35	34	31	42	62
White, non-Latino	12	10	5	n<5	5	7	7
Black, non-Latino	60	39	25	26	23	31	41
Latino	11	5	n<5	n<5	n<5	n<5	10
Asian/Pacific Islander	0	0	n<5	0	n<5	n<5	n<5
Other	0	0	0	0	0	0	0
Male	70	44	28	31	23	35	55
Female	13	10	7	n<5	8	7	7

Number of deaths for selected causes by race/ethnicity and sex, Boston, 1995-2000

Causes of death	1995	1996	1997	1998	1999	2000	2001
<b>Suicide</b>	42	46	55	50	31	34	32
White, non-Latino	23	37	43	37	23	25	20
Black, non-Latino	12	n<5	8	5	n<5	5	5
Latino	5	n<5	n<5	n<5	n<5	n<5	n<5
Asian/Pacific Islander	n<5	n<5	n<5	5	n<5	0	4
Other	0	0	0	0	0	0	0
Male	31	38	41	38	22	26	23
Female	11	8	14	12	9	8	9
<b>COPD</b>	169	155	167	157	212	172	182
White, non-Latino	134	129	145	130	171	148	141
Black, non-Latino	26	17	18	16	20	17	26
Latino	6	n<5	n<5	5	7	n<5	8
Asian/Pacific Islander	n<5	5	n<5	6	n<5	6	7
Other	0	0	0	0	0	0	0
Male	81	71	79	75	95	65	85
Female	88	84	88	82	104	107	97
<b>Pneumonia/Influenza</b>	234	255	256	268	173	163	167
White, non-Latino	185	224	205	225	139	137	134
Black, non-Latino	35	26	38	26	20	19	20
Latino	5	n<5	5	5	5	n<5	n<5
Asian/Pacific Islander	9	n<5	7	11	9	n<5	9
Other	0	0	n<5	n<5	0	0	0
Male	98	104	115	98	64	72	68
Female	136	151	141	170	109	91	99
<b>Nephritis/Nephrosis</b>	94	78	84	81	119	125	117
White, non-Latino	58	50	63	61	70	70	65
Black, non-Latino	27	20	26	17	40	46	45
Latino	5	n<5	n<5	n<5	5	5	n<5
Asian/Pacific Islander	n<5	6	n<5	n<5	n<5	n<5	4
Other	0	0	0	n<5	n<5	n<5	0
Male	41	36	50	27	55	66	48
Female	53	42	44	54	64	59	69
<b>Septicemia</b>	95	94	100	112	104	118	119
White, non-Latino	67	67	64	88	68	74	85
Black, non-Latino	21	23	30	19	30	38	27
Latino	5	n<5	n<5	n<5	n<5	n<5	n<5
Asian/Pacific Islander	n<5	n<5	5	n<5	n<5	n<5	n<5
Other	0	0	0	0	0	0	0
Male	42	43	34	50	42	51	46
Female	53	51	66	62	62	67	73

Number of deaths for selected causes by race/ethnicity and sex, Boston, 1995-2000

Causes of death	1995	1996	1997	1998	1999	2000	2001
<b>Diabetes</b>	116	93	120	115	108	98	107
White, non-Latino	72	55	63	70	63	51	56
Black, non-Latino	32	34	47	38	36	31	40
Latino	9	n<5	8	n<5	7	14	5
Asian/Pacific Islander	n<5	n<5	n<5	n<5	n<5	n<5	6
Other	n<5	0	0	0	0	0	0
Male	49	49	49	52	52	36	41
Female	67	44	71	63	56	62	66
<b>Substance abuse</b>	96	80	80	80	90	108	127
White, non-Latino	55	50	53	51	62	81	85
Black, non-Latino	32	22	21	18	22	21	27
Latino	8	8	5	9	6	5	12
Asian/Pacific Islander	n<5	0	0	n<5	0	n<5	n<5
Other	0	0	n<5	0	0	0	0
Male	74	60	62	57	65	82	95
Female	22	20	18	23	25	26	32
<b>Alcohol-related</b>	29	30	24	30	31	42	39
White, non-Latino	18	15	17	17	21	31	28
Black, non-Latino	10	11	6	9	9	9	6
Latino	n<5	n<5	n<5	n<5	n<5	n<5	n<5
Asian/Pacific Islander	0	0	0	0	0	0	1
Other	0	0	0	0	0	0	0
Male	21	24	22	22	26	30	28
Female	8	6	n<5	8	5	12	11
<b>Drug-related</b>	67	50	56	50	59	66	88
White, non-Latino	37	35	36	34	41	50	57
Black, non-Latino	22	11	15	9	13	12	21
Latino	7	n<5	n<5	5	5	n<5	8
Asian/Pacific Islander	n<5	0	0	n<5	0	n<5	n<5
Other	0	0	n<5	0	0	0	0
Male	53	36	40	35	39	52	67
Female	14	14	16	15	20	14	21
<b>HIV/AIDS</b>	260	191	73	46	58	59	64
White, non-Latino	123	75	31	17	24	19	17
Black, non-Latino	109	93	36	22	27	33	37
Latino	27	22	6	7	6	7	10
Asian/Pacific Islander	n<5	n<5	0	0	0	0	0
Other	0	0	0	0	n<5	0	0
Male	220	149	63	39	43	42	49
Female	40	42	10	7	15	17	15

Number of deaths for selected causes by race/ethnicity and sex, Boston, 1995-2000

Causes of death	1995	1996	1997	1998	1999	2000	2001
<b>Total deaths</b>	4,833	4,612	4,546	4,446	4,491	4,500	4,575
White, non-Latino	3,489	3,350	3,310	3,205	3,232	3,177	3,115
Black, non-Latino	1,037	967	969	953	959	1,015	1,103
Latino	179	164	140	151	171	172	197
Asian/Pacific Islander	125	126	122	133	126	128	147
Other	n<5	5	5	n<5	n<5	8	13
Male	2,325	2,271	2,163	2,094	2,070	2,110	2,141
Female	2,508	2,341	2,383	2,352	2,421	2,390	2,434

NOTE: As a result of changes adopted by federal and state agencies, the total number of deaths for specific causes for 1999, 2000, and 2001 cannot be compared with those for the years before 1999. Cause of death data from 1995-1998 was determined by ICD-9 diagnostic coding, and for 1999-2001 by ICD-10 diagnostic coding. See Glossary for further information.

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

DATA ANALYSIS: Boston Public Health Commission Research Office





APPENDIX 2  
TECHNICAL NOTES

## TECHNICAL NOTES

The Technical Notes provide more detailed discussion of some of the technical terms, concepts, and sources used in *The Health of Boston 2003* than can be given in the graphics or in the glossary. Readers can call the Research Office at (617) 534-4757 for information on any of the subjects addressed here.

### A. Rates

### B. Statistical Significance

### C. Confidence Intervals

### D. Time Period Covered by this Report

### E. Population

### F. Population Estimates

### G. Racial and Ethnic Designations

### H. Racial Designations and the 2000 Census

### I. Significant Recent Changes in the Way Age-Adjusted Mortality Data Are Presented in *The Health of Boston*

#### Age-Adjusted Rates and Standard Population

#### Revisions of the International Classification of Disease (ICD)

### J. Neighborhoods

### K. Behavioral Risk Factor Surveillance System (BRFSS)

### L. Youth Risk Behavior Surveillance System (YRBSS)

### A. Rates

Four types of rates have been included in *The Health of Boston 2003*: *Crude Rates*, *Age-Specific Rates (ASR)*, *Age-Adjusted Rates (AARs)*, and *Incidence Rates*.

A *rate* is a measure of some event, disease, or condition in relation to a unit of population, in relation to a unit of time (typically one year).

*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 (ASRs)* are also used in this report. ASRs 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.

Unless otherwise indicated, the age-specific rates provided in *Health of Boston 2003* are average annual rates. Average annual rates are calculated by dividing the age-specific rates by the number of years in the time period the data represent.

*Age-Adjusted Rates (AARs)* 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, and in this report, the 2000 US standard population). AARs are used in this report for Boston mortality data for overall Boston, for overall Boston mortality data by sex, by race/ethnicity, by neighborhoods, and for hospitalization data.

*Incidence Rates* are used to present data relating to reported **new** cases of disease during a specified time period and are usually calculated on the basis of every 100,000 people. Incidence rates may or may not be age-specific.

## **B. Statistical Significance**

An array of statistical tools is available to determine whether findings, typically differences observed between groups or within a group over a period of time, are large enough that they are not likely to have been due to chance. Essentially, statistical significance testing provides an assessment of how reasonable it would be to conclude that an observed difference is real. It is not capable of overcoming other issues such as noncomparable samples or too few cases in a sample, but is a valuable guide to the interpretation of rates, proportions, and similar measures.

Statistical significance is only one measure of significance. There may be findings that have other important relevance clinically or for public health programs, regardless of statistical significance. An absence of statistical significance should not be used to imply an absence of other significance or to lessen the importance of any particular health care problem affecting Boston residents.

In this edition of *The Health of Boston*, 95% confidence intervals are used to assess the statistical significance of findings.

## **C. Confidence Intervals**

A confidence interval is a range of values used to describe uncertainty around a data point such as an age-adjusted mortality rate. Confidence intervals are a measure of variability in the data.

A confidence interval is calculated based on a stated probability (usually 95%) that the confidence interval includes the real value of a data point estimate. In an example using an age-adjusted mortality rate, a 95% confidence interval would be described as having a 95% probability of including the real age-adjusted mortality rate. Generally, if confidence intervals around age-adjusted cancer mortality rates of different racial/ethnic groups, for example, overlap, the rates would be considered not significantly different. If the confidence intervals *do not* overlap, then the rates would be considered significantly different. The finding would be called statistically significant.

Confidence intervals provide a way of reporting the reliability of, for example, a rate or proportion. They also account for the difference between a sample from a population and the population itself.

## **D. Time Period Covered by the Report**

In general, this report presents data from the years 1995 through 2001. Data for selected indicators may include a range of years or one year only, such as 2000 or 2001. Boston-specific mortality and selected morbidity data are presented for one year only, for part of the time span, or for the entire time span, either in aggregated form or year-by-year.

The selection of time periods to use depends largely on the availability and adequacy of the data. In analyzing subgroups within the Boston population, there must be enough events or occurrences, such as deaths or births, to provide interpretable rates. The BPHC Research Office does not calculate rates for fewer than five occurrences. The notation "n<5" in charts indicates there were fewer than five occurrences of a health condition, and therefore a rate was not considered calculable.

## **E. Population**

Health status reports often use population statistics for analyzing health data. These population statistics may be drawn from two sources. The first is the census of the population taken every ten years by the federal government, a literal count of all people living in the United States. The second is estimates of the population made by the US Census Bureau or some other source in the intervening years.

Each source has its own advantages, and there are distinct reasons for choosing each one. The census provides the best available actual count of the population. Another important strength of the census is that it presents data to the level of small areas called census tracts, each of which has only a few thousand residents. Census tracts can be combined to produce neighborhood-level analyses.

However, while the 1990 census was the best estimate of the population for the early 1990s, with each passing year it becomes more remote from the population it was intended to represent. Changes in the population in the years following the census cannot be taken into account when using old census data, so this report utilizes population estimates. In this report the 2000 census population for Boston as well as population estimates for the years between the censuses have been used.

Population projections, or estimates, of the population, are developed by the 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. And yet, for the purposes of this report, 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 their rates.

Readers should note that the Boston Public Health Commission has used the Massachusetts population estimates from Massachusetts Institute for Social and Economic Research (MISER) for calculating rates for the years 1991-1998, and a preliminary population estimate developed by Massachusetts Department of Public Health (MDPH) calculations of rates for 1999.

To provide data on people of Latino ethnicity, who may be of any race, this report uses the 2000 US census for Boston census tracts, produced by the Bureau of the Census, and MISER and Massachusetts Department of Public Health population estimates, for denominators for rate calculations that require population data. This avoids the double-counting which would result if Latinos were included in the White, Black, and Asian racial categories as well as in the Latino categories. However, for hospitalization data, Latinos may be reported in the White, Black, Latino or Asian category, depending on the individual hospital's reporting practice. Hospitalization rate calculations by race/ethnicity that require population data for denominators may consequently be affected by these inconsistencies in reporting.

## **F. Population Estimates**

Population estimates were used in calculating all crude, age-adjusted, and age-specific rates included in *The Health of Boston 2003* for years between the 1990 and 2000 US censuses. Two sources of population estimates for Boston were used, the population estimates from the Massachusetts Institute for Social and Economic Research (MISER) for 1991-1998 and those from the Massachusetts Department of Public Health for 1999.

### **Massachusetts Department of Public Health 1999 Boston Population Preliminary Estimate**

MDPH used linear interpolation between the 1998 Massachusetts Institute for Social and Economic Research (MISER) population estimates and the MDPH 2000 population estimates to create 1999 population estimates. The Massachusetts Department of Public Health considers the Population 1999 file to be a draft estimate.

The MDPH Population 2000 file is a draft estimate as well. It is based upon the Massachusetts US Census file, which contains data on population and housing for the 351 towns, the state, and county records for Massachusetts abstracted from the *Census 2000 SF1* file (US Census, 2001).

Rates using MDPH draft population estimates should be interpreted with caution. Final 1999 and 2000 population estimates will be released later this year.

## **G. Racial and Ethnic Designations**

Racial and ethnic designations are derived from the source of the data, including the US census, birth and death data from the Massachusetts Department of Public Health, and others. All racial or ethnic designations except death certificates are self-reported. In considering the racial or ethnic designations used in this report for Boston-specific data, several things should be kept in mind: (1) The concept of race has different meanings in different cultures. (2) Race is not a biological but a social construction. (3) The meanings of racial designations—White, Black, Asian/Pacific Islander—are subject to historical, cultural, and political forces. (4) Racial designations can be notably inaccurate in describing what they are called upon to describe. The term Black, for example, includes a variety of people who might describe themselves as African American, African, Caribbean, or Haitian.

In the charts which present data by race/ethnicity and in the text which discusses health problems among racial and ethnic populations, it should be kept in mind that race and ethnicity are not risk factors for disease—rather markers used to help understand risk factors. Race is often a proxy for such factors as socioeconomic status, inadequate access to health care, and racial discrimination. Information on race and ethnicity is included in this report because it can assist public health efforts in recognizing disparities between groups in health outcomes. See also “Race and Ethnicity” in the Introduction.

Boston-specific data in this report are presented for each racial and ethnic subgroup when data are available and 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/Pacific Islander."

The collection of race and ethnicity data varies with the data source. Some rely on observation and others on self-report. Some handle data on very small groups differently from others. Race and ethnicity on death certificates are usually reported by the funeral director, based on information provided by a relative or friend if available, while birth certificates are almost always based on self-report by the mother.

Since Latinos can be of any race, the federal sources often report data for Blacks and Whites, including Latinos in those categories. However, in *The Health of Boston 2003*, where references are made to race/ethnicity, the Boston data are presented with Latino ethnicity as a separate category, that is, Latinos are not put into the categories “Black” or “White.” Exceptions to this are the hospitalization and asthma hospitalization data by race/ethnicity.

## **H. Racial Designations and the 2000 Census**

There were two important changes in the US census 2000. The first was that, for the first time, people were given the opportunity to identify themselves by more than one race. With this new way of asking the question, the US census was able to provide information on the number of people who said they were of two or more races. This change reflects a growing understanding that the categories of race are not separate and genetically distinct groups of people, but are instead changeable approximations, formed by history and geography and other social factors, and that many persons can find a variety of "races" in their backgrounds.

The second major change was that racial categories and the wording of the question were modified. For example, the census added "Latino" to the question about Spanish or Latino origin. It also added the term "African American" to the "Black or Negro" category, and "Native Hawaiian or other Pacific Islander" was taken out of the "Asian" category. Since the way the data was collected and the categories are new, the Census Bureau does not recommend comparing the population by race in 1990 with the population by race in 2000.

See also elsewhere in the Technical Notes and the Glossary.

## **I. Significant Recent Changes in the Way Age-Adjusted Mortality Data Are Presented in *The Health of Boston***

### **Age-Adjusted Rates and the Standard Population**

*Age-Adjusted Rates (AARs)* 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. A standard population is an estimate of the population in which the age, race, and sex distributions are known. Previously, the 1940 or 1970 US standard populations were usually used in reports of this kind. However, effective with 1999 mortality data, the year 2000 standard US population has been adopted for use in *The Health of Boston*. This standard has now been adopted by most federal, state, and local health organizations and agencies.

AARs calculated with the year 2000 US standard population are used in this report for Boston mortality rates overall, for mortality rates by sex, by race/ethnicity, and by neighborhood, and for hospitalization rates overall, by sex, and by leading causes.

The change from use of an older standard population to use of the 2000 US standard population has the effect of making rates calculated with one standard not comparable to rates calculated with the other. No mortality or hospitalization rates in this report can be compared with mortality or hospitalization data in earlier BPHC reports or presentations.

## Revisions of the International Classification of Disease (ICD)

When this report refers to a particular disease, such as breast cancer, it assumes that all the sources of its data, and all those who read the report, agree on what "breast cancer" means. The International Classification of Disease (ICD) is a diagnosis coding system developed by the World Health Organization (WHO) and 10 international centers so that the meaning of medical terms on death certificates reported by physicians, medical examiners, and coroners can be standardized and grouped appropriately for statistical purposes. The purpose of the ICD and of WHO sponsorship is to promote the international comparability in the collection, classification, processing, and presentation of classification of diseases for all sorts of purposes, but specifically, in this report, for the purpose of mortality statistics. The effect of the ICD is to make Boston data, presented in this report, comparable to data from state and federal sources. New revisions of the ICD are implemented periodically so that the classification reflects advances in medical science. Nationally, in the past, International Classification of Disease codes, 9th revision (ICD-9), have been used to classify 1979-1998 data.

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, physician offices, and other treatment facilities. It should not be confused with the International Classification of Disease (ICD), 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 for 2001, issued earlier this year and used in *The Health of Boston 2003*, are the second release of data using the 10th revision of the ICD codes, or ICD-10. In consequence, and following the practice of the National Center for Health Statistics and the Massachusetts Department of Public Health, the Boston Public Health Commission must use the disease classification as defined by the ICD-10 codes in the presentation of mortality data for 2001.

The change from ICD-9 to ICD-10 means that causes of death classified according to the ICD-10 are not exactly comparable to causes of death classified according to ICD-9 and earlier revisions of the ICD. Mortality charts in this report present data for 1999, 2000, and 2001 as a line separated from data from earlier years.

In the Glossary, diseases presented in this report are defined with both ICD-9 and ICD-10 codes appended.

## J. Neighborhoods

Census tracts are so small that there are often not a sufficient number of health-related events—such as deaths—to calculate reliable rates, particularly for individual years. Therefore, census tracts are combined into neighborhoods for the presentation of the mortality data. Zip codes are combined into neighborhoods for the presentation of asthma hospitalization data by neighborhood.

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 are less distinct for historical, political, or geographic reasons.

A goal for this report was to select geographic areas that were small enough to show the variation of health patterns throughout the city while being large enough to be statistically reliable. Neighborhood definitions were determined in consultation with residents, health care providers, and advocates throughout Boston. Where neighborhood definitions vary by data source, they are noted in the text. The definitions are the same as those used in *Health of Boston 2002* and other BPHC reports.

## **K. Behavioral Risk Factor Surveillance System (BRFSS)**

The Behavioral Risk Factor Surveillance System was developed by the Centers for Disease Control and Prevention (CDC) to monitor a variety of health indicators and risk behaviors via a telephone survey among US adults. Participants are enrolled through random-digit-dialing and include a representative sample of non-institutionalized adults ages 18 years and older in households with telephones. This survey is conducted in all 50 states as a collaboration between the CDC and state health departments.

The Behavioral Risk Factor Survey includes core CDC questions and additional questions added by local entities. The BRFSS is an annual survey; however, in order to control for seasonal bias, continuous monthly sampling is conducted. The survey includes questions which address the following areas of health: cancer screening, alcohol use, mental health, health status, asthma, quality of life, chronic disease, access to care, exercise, nutrition, smoking, violence, disability, immunization, oral health, and HIV/AIDS.

The 2000 Massachusetts Behavioral Risk Factor Surveillance System included a sample of 1,157 Boston residents. Of these, 61.6% or 713 were female and 38.4% or 444 were male. The racial/ethnic distribution of the respondents included 684 (59.1%) Whites, 198 (17.1%) Blacks, 201 (17.4%) Latinos, and 41 (3.5%) Asians. Other races/ethnicities and unknown races/ethnicities accounted for the remaining 33 respondents (2.9%).

## **L. Youth Risk Behavior Surveillance System (YRBSS)**

The Youth Risk Behavior Surveillance System was developed by the Centers for Disease Control and Prevention (CDC) to monitor a variety of health risk behaviors among the nation's high school students. This surveillance system utilizes a survey instrument that is administered biennially in the classroom setting such that a random, representative sample of students is asked to participate.

The survey includes a core set of CDC questions and locally added questions including the following health areas: alcohol use, drug use, violence experience, safety, suicide, tobacco use, AIDS education, sexual behavior, body weight and image, nutrition, physical activity, and use of free time.

The 2001 Boston Youth Risk Behavior Surveillance System included a sample of 1,543 Boston high school students. Of these, 53.5% or 826 were female and 45.9% or 709 were male. The sex of the remaining 0.5% (8) is unknown. The racial/ethnic distribution of the respondents included 257 (16.7%) Whites, 579 (37.5%) Blacks, 335 (21.7%) Latinos, and 178 (11.5%) Asians. Other races/ethnicities and unknown races/ethnicities accounted for the remaining 194 respondents (12.6%).



APPENDIX 3  
DATA SOURCES

## DATA SOURCES

AIDS Reporting System data (ARS). Currently contains data through January 1, 2002. Boston: Massachusetts Department of Public Health, Communicable Disease Control.

Acute Care Hospital Case Mix 1997-2000 [data file]. Boston: Massachusetts Division of Health Care Finance and Policy.

Acute Care Hospital Discharge Data [data file of 1994, 1995, and 1996 hospitalizations]. Boston: Massachusetts Health Data Consortium, Inc.

AIDS Reporting System Data, Massachusetts Department of Public Health, Bureau of Communicable Disease Control, AIDS Surveillance Program.

Behavioral Risk Factor Survey, 1997-1999. Behavioral Risk Factor Surveillance System (BRFSS). Boston: Massachusetts Department of Public Health and Boston Public Health Commission.

Boston resident births [data file, 1992-2000]. Boston: Massachusetts Department of Public Health, Bureau of Health Statistics and Research and Evaluation (BHSR), Registry of Vital Records and Statistics.

Boston resident deaths [data file, 1992-2000]. Boston: Massachusetts Department of Public Health, Bureau of Health Statistics and Research and Evaluation (BHSR), Registry of Vital Records and Statistics.

Communicable Disease Data, 2000. Boston Public Health Commission, Communicable Disease Control Division.

Census 2000, US Department of Commerce, Bureau of the Census, American Fact Finder.

Health Insurance Data, 2000 Health Insurance Status of Massachusetts Residents Survey. Boston: Health Care Finance and Policy, Massachusetts Department of Public Health.

Homeless Counts, 1992-2001. Boston: City of Boston, Emergency Shelter Commission.

Lead Screening Data, fiscal year 2001. Boston: Boston Public Health Commission, Office of Environmental Health, Boston Childhood Lead Poisoning Prevention Program.

Preliminary Draft Allocation and Interpolation of Census 2000 SF1 File and Massachusetts Institute for Social and Economic Research 1998 Population Estimate File. January 2002. Massachusetts Department of Public Health, Bureau of Health Statistics, Research and Evaluation, Division of Research and Epidemiology.

Population Estimate Files, 1991-1998, Massachusetts Institute for Social and Economic Research (MISER).

Restraining Orders Data, 1994-2000. Research and Planning Department, Administrative Services Division, Office of the Commissioner of Probation, City of Boston.

US Department of Health and Human Services. *Healthy People 2010* (Conference Edition, in Two Volumes). Washington, DC: January 2000.

Violent Crime Data Related to Domestic Violence, January-November 2001. Boston Police Department, Office of Research and Evaluation, City of Boston.

Weapon-Related Injury Data, 1995-2000. Boston: Massachusetts Department of Public Health, Weapon-Related Injury Surveillance System.



APPENDIX 4

GLOSSARY

## GLOSSARY

The glossary includes explanations of terms, concepts, and sources used in this publication. Readers may call the Research and Technology Services at (617) 534-4757 for more information about any of the subjects addressed here.

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 8 of the Federal Groupers. The cause-of-death codes are from the International Classification of Diseases, 9<sup>th</sup> Revision, (ICD-9), and International Classification of Diseases: 10<sup>th</sup> Revision (ICD-10), products of the US Department of Health and Human Services.

**AAR:** See **Age-Adjusted Mortality Rate**

**Acquired Immune Deficiency Syndrome (AIDS):** See **HIV/AIDS**.

**Adolescent Births:** Births to females ages 10 to 19.

**African American:** All persons self-identified as being born in the US and of African descent. 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.

**Age-Adjusted Mortality Rate (AAR):** The age-adjusted mortality rate is calculated by applying the age-specific mortality rates in a population to a standard population (typically, and in this report, the 2000 US population). The age-adjusted rate of one area or group can be compared to the age-adjusted rate of another area or 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 Healthy People 2010 goals. See Technical Notes for further information.

**Age-Specific Mortality Rate (ASR):** The number of deaths per year in a given age group per 100,000 people in that age group. See Technical Notes for further information.

**Age-Specific Birth Rate:** The number of live births in a population divided by the total female population for a specific age group and expressed per 1,000 persons. See Technical Notes for further information.

**Alcohol-Related Deaths:** Causes of death directly related to alcohol use/abuse, such as liver disease attributed to alcohol consumption, accidental alcohol overdose, etc. 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. For pre-1999 data in this report, ICD-9 codes 291, 303, 305.0, 357.5, 425.5, 535.3, 571.0-571.3, 790.3, E860; for data from 1999 and later years ICD-10 codes F10, G31.2, G62.1, I42.6, K29.2, K70, R78.0, X45, X65, Y15.

**Amebiasis:** Parasitic infection of the intestine, spread through ingestion of fecally contaminated food or water. Transmission may occur sexually by fecal-oral contact. Symptoms are often mild and can include loose stools, stomach pain, and stomach cramping.

**Asian:** All persons self-identified as Asian or Pacific Islander (e.g., Chinese, Japanese, Hawaiians, Cambodians, Vietnamese, Asian Indians, Filipinos) who do not 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 96-98.

**Behavioral Risk Factor Surveillance System (BRFSS):** A random telephone survey of Massachusetts adults ages 18 years and older. The survey is sponsored by the Centers for Disease Control and Prevention (CDC) and is conducted annually in all 50 states. The BRFSS collects information regarding various health-related issues, such as behavior, attitudes, knowledge, access to health care, and opinions on health policy issues. The responses to the survey provide important information regarding the prevalence of risk factors that are responsible for causing premature death, illness, and disability among Massachusetts residents.

**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 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.

**Blood Cholesterol:** Cholesterol is a soft, waxy substance found among the lipids (fats) in the blood stream and cells. It is an important steroid because it comprises cell membranes, hormones, and tissues. However, levels of cholesterol in the blood that are too high are a major risk factor for coronary heart disease, which leads to a heart attack.

**Blood Lead Levels:** The amount of lead detected in the blood during the finger-stick screening or venous-confirmation blood tests. (“Venous” means “in or of the bloodstream or veins.”)

**Body Mass Index (BMI):** Calculated by dividing a person’s weight in kilograms by his or her height in meters squared ( $\text{kg}/\text{m}^2$ ); a measure of the appropriateness of weight in relation to height. This calculation is used to screen and monitor populations in order to detect risks of health or nutritional disorders.

BMI is used differently with children than with adults and is plotted according to age and sex-specific charts. The 1995 BMI cutpoints for adults are as follows:

Overweight	BMI of 25.0 to 29.9
Obese	BMI of 30.0 or more

The Centers for Disease Control and Prevention states that a BMI of 30 is equivalent to one being approximately 30 pounds overweight.

In 1995 the World Health Organization released new guidelines adopted by Healthy People 2010 categorizing adult males and females as overweight. Standards utilized by Healthy People 2000 classified males and females separately, both of which had higher cutoffs.

**Campylobacter:** Infectious bacterial disease transmitted by the ingestion of undercooked poultry or pork, or contaminated milk or water. Transmission may also occur through contact with infected pets and farm animals. Illness typically lasts one week, and symptoms include diarrhea, cramping, abdominal pain, and fever within 2 to 5 days after exposure to the organism.

**Cancer:** A group of diseases characterized by uncontrolled growth and spread of abnormal cells. For pre-1999 data in this report, ICD-9 codes 140-208; for 1999 data and later years, ICD-10 C00-C97.

Specific types of cancer discussed in this report:

**Breast Cancer (Female):** For pre-1999 data in this report, ICD-9 code 174; for data from 1999 and later years, ICD-10 code C50.

**Colorectal Cancer:** For pre-1999 data in this report, ICD codes 153-154; for data from 1999 and later years, ICD-10 codes C18-C21.

**Lung Cancer:** For pre-1999 data in this report, ICD-9 code 162; for data from 1999 and later years, ICD-10 codes C33-C34.

**Prostate Cancer:** For pre-1999 data in this report, ICD-9 code 185; for data from 1999 and later years ICD-10 codes C61.

**Cardiovascular Disease (CVD):** A group of diseases that affect the heart, including high blood pressure, coronary heart disease, stroke, congestive heart failure, and congenital heart defects. For pre-1999 data in this report, ICD-9 codes 390-398, 402, 404, 410-429, 430-434, 436-438, 440; for data from 1999 and later years, ICD-10 codes I00-I09, I11, I13, I20-I51, I60-I69, I70.

**Cellulitis:** An infection of skin or connective tissues (an infection in or close to the skin) is usually controlled by body defense mechanisms. DRG 277-279.

**Census 2000:** The count of the population undertaken by the Census Bureau in 2000. At the time of publication of this report, national, state, and local numbers have been released. The 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.

**Cerebrovascular Disease (Stroke):** A set of diseases of the vascular system (which conveys blood throughout the body) that affect the supply of oxygen to the brain, thereby damaging brain cells. This category includes strokes. For pre-1999 data, ICD-9 codes 430-434, 436-438; for data from 1999 and later years, ICD-10 codes I60-I69. DRG 14 for hospitalization data.

**Chlamydia:** A sexually transmitted disease caused by any member of the genus *Chlamydia*.

**Chronic Obstructive Pulmonary Disease (COPD):** Diseases, including bronchitis, asthma, , emphysema, and allergies due to inhaled organic dust particles that decrease the ability of the lungs to perform their function (oxygenating the blood system). For pre-1999 COPD data in this report, ICD-9 codes 490-494, 496; for 1999 data, ICD-10 codes J40-J47.

For hospitalization-related charts and text in this report, the DRG code is 88.

**Colon and Rectum:** The two parts of the large intestine. The colon comprises the upper five or six feet of the large intestine, while the rectum comprises the remaining five to six inches. Together, they are the location of colorectal cancers.

**Coronary Heart Disease:** A disease of the heart caused by narrowing or blockage of the coronary arteries. For pre-1999 data in this report, ICD-9 codes 402, 410-417, 429.2; for data from 1999 and later years, ICD-10 codes I11, I20-I25, I26-I28, I51.6.

**Colonoscopy:** A visual screening examination, for colorectal cancer, of the full lining of the colon and rectum, parts of the large intestine.

**Confidence Interval:** The range within which lies the true value of a variable, based on a chosen probability. For example, given the probability 95%, one can be ninety-five percent certain that the true value lies between numbers X and Y. The range between X and Y is the confidence interval.

**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-9-CM codes 250.0-250.9; for data from 1999 and later years, ICD-10 codes E10-E14.

**Diagnostic Related Grouping (DRG) Codes:** Codes used to group causes of hospitalization.



**Drug-Related Deaths:** Causes of death related to the 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. For pre-1999 data in this report, ICD-9 codes 292, 304, 305.2-305.9, E850-E858, E950.0-E950.5, E962.0, E980.0-E980.5; for data from 1999 and later years, 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, Y10-Y14.

**E-Codes:** "E-codes" refer to the supplementary classification within ICD-9-CM of the external causes of injury and poisoning, such as environmental events, circumstances, and conditions. This is particularly helpful in planning intervention. E-codes are intended to be used as an addition to the main ICD code, which classifies the injury or poisoning by the biological system affected.

**Gastroenteritis, Esophagitis, and Miscellaneous Digestive Disorders:** Infection of the mucous membranes of the stomach and intestine.

**Giardiasis:** A parasitic infection that is transmitted person-to-person through hand-to-mouth contact of infected feces. Transmission may also occur through ingestion of fecal matter in recreational and drinking water. Symptoms include diarrhea, loose or watery stool, stomach cramps, and upset stomach.

**Gonorrhea:** A contagious catarrhal inflammation of the genital mucous membrane, transmitted chiefly by sexual intercourse and due to *Neisseria gonorrhoeae*; may involve the lower or upper genital tract, especially the urethra, endocervix, and Fallopian tubes, or spread to the peritoneum and rarely to the heart, joints, or other structures by way of the bloodstream.

**Healthy People 2010 Goals and Objectives:** Targets established by the US 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 diseases affecting the heart, including valve and conductive disorders as well as hypertensive diseases. For pre-1999 data in this report ICD-9 codes 390-398, 402, 404, 410-429; for data from 1999 and later years, ICD-10 codes I00-I09, I11, I13, I20-I51.

**Heart Failure and Shock:** Heart failure occurs when the heart is unable to pump blood in an efficient manner. Shock results when the heart cannot pump blood adequately to the tissues and vital organs. DRG 127.

**Hepatitis:** A contagious viral disease that can be transmitted via sexual contact and/or activity. There are many strains of hepatitis, including hepatitis A, hepatitis B, hepatitis non-A non-B, hepatitis B (unknown carrier), hepatitis B (unverified carrier), hepatitis C, hepatitis D, or hepatitis unspecified.

**Hepatitis A:** Liver disease caused by infection of 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. 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 infections. For pre-1999 data in this report ICD-9 codes 042-044; for data from 1999 and later years, 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 700-702, 704-708, 710-714.

**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. For pre-1999 data in this report, ICD-9 codes E960-E969; for data from 1999 and later years, ICD-10 codes X85-Y09, 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-9 Codes:** Codes designed for the classification of morbidity and mortality information for statistical purposes and for the indexing of hospital records by disease and operations for data storage and retrieval. International Classification of Disease Codes, 9<sup>th</sup> Revision, Clinical Modification (ICD-9-CM) is based on the official version of the World Health Organization’s 9<sup>th</sup> Revision, International Classification of Diseases (ICD-9). ICD-9 codes were used to classify mortality data from 1979 to 1998. ICD-9 classification has been replaced by ICD-10 classification. ICD-9CM codes are still used to classify mortality data.

**ICD-10 Codes:** Data from 1999 and later years is classified according to the International Classification of Disease Codes, 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 *Technical Notes* and <http://www.cdc.gov/nchs/icd9.htm#ICD-10-CM>.

**IMR:** See **Infant Mortality Rate**.

**Incidence:** The number of reported new cases of a particular disease over a period of time and in relation to the population in which it occurs.

**Incident:** A term used by Emergency Medical Services (EMS) to refer to an event leading to the dispatch of one or more Boston EMS units.

**Infant Mortality Rate (IMR):** The number of deaths at 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. The determinations of intent are for purposes of medical record-keeping only. Each chart that includes data on injury deaths specifies exactly which types of injuries are included. For hospitalization-related charts and text in this report, injury is an aggregation of DRGs 280-282, Major Diagnostic Classification (MDC) 21, 22, and 24 which include for, example, surgical procedures performed due to injury, traumatic injury (open wounds, multiple fractures, limb reattachment), poisoning and toxic effects of drugs, and burns.

**Latino:** Includes people of any race (Asian, Black, White, or Other) self-identified as Hispanic or Latino, such as Puerto Rican, Mexican, Cuban, Spanish, and Dominican. The numbers from the 2000 census used in the Demographics section use a different way of classifying race and ethnicity and should not be compared with numbers drawn from earlier censuses.

**Lead Screening:** The routine measurement of blood-levels in children to identify those who are lead poisoned.

**Low Birthweight (LBW):** Birthweight less than 2,500 grams (or 5.5 lbs).

**Malignant Tumor:** A tumor which has the ability to invade the surrounding tissues and to spread to other tissue and organ sites. Only malignant tumors are classified as cancers.

**Mammogram:** A test given to women to detect signs of breast cancer.

**Median:** Median is the middle value in a distribution. The median divides the total frequency into two parts. One half the cases fall below the median and one half fall above the median. This should not be confused with mean, which is the arithmetic average of a set of values.

**Metabolic Disorders:** A disruption in the biological process of breaking down food into a form useable by the body.

**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.

**Moderate Physical Activity:** Physical activity for 30 minutes, that does not cause sweating or hard breathing, on five or more of the seven previous days.

**Morbidity:** The proportion of illness, disease, or injury among a specific population in a geographical locality in a specific time period.

**Mortality:** Death, or the relative frequency of death per unit of population in a specific time period; death rate.

**n<5:** A notation used on charts in *The Health of Boston 2003* to indicate that in this health indicator there were fewer than five occurrences (for example, births, deaths, new case of a disease) and that a rate could not be calculated. See Technical Notes.

**Neighborhood:** One of 16 distinct geographical areas in Boston.

**Neisseria meningitidis:** Acute bacterial infection transmitted through direct contact, including respiratory droplets from nose to throat of infected people. Symptoms include sudden onset of fever, intense headache, nausea, vomiting, and stiff neck. Clinical syndromes include meningitis, sepsis, or pneumonia.

**Newborns/Neonates:** Infants from the time of their birth through the first 27 days of age. DRG 602-640 and “Not Classified” Category.

**Pap Smear:** A screening test to detect cancerous or precancerous conditions of the cervix.

**Percentage Differences in AAR to Meet Healthy People 2010 Goal or Target:** The percentage of the age-adjusted rate (AAR) for a given cause of death that would be required to meet the Healthy People 2010 targeted AAR, i.e., percent reduction =  $(AAR_1 - AAR_2)/AAR_1 \times 1000$ , where

AAR<sub>1</sub>= the age-adjusted rate, for a specific cause of death

AAR<sub>2</sub>= the Healthy People 2010 goal or target

**Pertussis:** Also known as “whooping cough,” acute bacterial disease involving the respiratory tract, transmitted by direct contact with airborne droplets from mucous membranes. Symptoms include repeated coughing and expelling of mucus.

**Pneumonia/Influenza:** Bacterial or viral infections of the lungs that primarily affect the aged and persons with compromised immune systems. For pre-1999 data in this report ICD-9 codes 480-487; for 1999 data ICD-10 codes J10-J18.

**Pregnancy:** The condition of carrying a developing embryo or fetus in the uterus. DRG 370-384.

**Psychoses:** Acute mental disorders characterized by loss of contact with reality and personality disintegration. DRG 430.

**Risk Factor:** A characteristic or agent whose presence increases the *probability of occurrence* of a particular disease, injury, cause of death, or birth outcome. A risk factor does not necessarily cause the outcome.

**Salmonellosis:** Bacterial infection transmitted by ingestion of contaminated food including raw and undercooked eggs, meat, poultry, raw milk, and water. Symptoms include diarrhea, fever, and abdominal cramps.

**Sexually Transmitted Disease:** Infection spread by transfer of organisms from person to person during sexual contact.

**Shigellosis:** Acute bacterial disease of the large and small intestine transmitted by direct or indirect fecal-oral contact. Symptoms include diarrhea accompanied by fever, nausea, vomiting, and abdominal pain.

**Shock:** See **Heart Failure and Shock**.

**Sigmoidoscopy:** A screening test for colorectal cancer to examine the rectum and lower colon, parts of the large intestine.

**Simple Pneumonia/Pleurisy:** Bacterial or viral infection of the lungs and inflammation of the pleura, the membrane that covers both lungs. DRG 89-91.

**Socioeconomics:** The statistical study of the social and economic characteristics of a population, such as education and poverty levels.

**Statistical Significance:** A certain group of statistical tests determines whether findings accurately describe the population of interest or whether they can be explained by chance. If these tests identify the findings to be outside of the range of chance, they are considered to have achieved statistical significance. See Technical Notes for further information.

**Standard Population:** An estimate of the US population, in which the age, race, and sex distributions are known, resulting in a set of population weights used to calculate age-adjusted mortality rates. *Standard population* is not to be confused with population numbers from any particular census. In this report, the year 2000 US standard population is used to calculate age-adjusted mortality rates. See Technical Notes for further information.

**Stroke (Cerebrovascular Disease):** A stroke occurs when a blood vessel in the brain bursts or when the blood supply to part of the brain is interrupted. For pre-1999 data in this report, ICD-9 codes 430-434, 436-438; for 1999 data, 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 pre-1999 alcohol related data in this report, ICD-9 codes 291, 303, 305.0, 357.5, 425.5, 535.3, 571.0-

571.3, 790.3, E860; for 1999 data, ICD-10 codes F10, G31.2, G62.1, I42.6, K29.2, K70, R78.0, X45, X65, Y15. For pre-1999 drug-related data in this report, ICD-9 codes 292, 304, 305.2-305.9, E850-E858, E950.0-E950.5, E962.0, E980.0-E980.5; for 1999 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, Y10-Y14. Hospitalization substance abuse data include alcohol and/or drug abuse, dependence, and detoxification and rehabilitation therapy (MDC code 20).

**Suicide:** The act of taking one's own life voluntarily and intentionally. ICD-9-CM codes E950.0-E959.9. For data from 1999 and later years, ICD-10 codes X60-X84, Y87.0.

**Syphilis:** An acute and chronic infectious disease caused by *Treponema pallidum* and transmitted by direct contact, usually through sexual intercourse. After an incubation period of 12 to 30 days, the first symptom is a chancre, followed by slight fever and other constitutional symptoms.

**Tuberculosis (TB):** A bacterial infection which primarily affects the lungs. TB is transmitted through airborne droplets from sneezing or coughing or spitting. People who are infected with latent TB are asymptomatic and cannot transmit the bacteria to others. People with TB disease experience symptoms including chronic cough, pain in the chest, coughing up blood or sputum, fatigue, weight loss, and fever.

**Unintentional Injury:** An injury that was accidental. ICD-9-CM codes E800.0-E809.9, E830.0-E949.9, E980.0-E989.9. The ICD-9-CM codes used by the Healthy People 2010 committee, and therefore used for the Boston rates for comparison with the Healthy People 2010 goals, are slightly different. They are E800.0-E949.9. For the data from 1999 and later years, 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, Y86.

**Uterine Procedures (Uterine and Adnexa Procedures):** For hospitalization-related charts and text in this report, uterine procedures is an aggregation of DRGs 354-359, codes for surgical procedures involving the uterus, ovaries, and/or fallopian tubes.

**Varicella:** Also known as chicken pox, a highly contagious viral infection transmitted by direct contact or through airborne droplets from coughing or sneezing. Symptoms include a skin rash of blister-like lesions, usually on the face, scalp, or trunk.

**Vigorous Physical Activity:** Physical activity that causes sweating and hard breathing and promotes cardiorespiratory fitness, for at least three days per week for 20 minutes or more per occasion.

**Viral Meningitis:** Viral infection resulting in inflammation of the tissues that cover the brain and spinal cord. The virus is transmitted through direct contact with respiratory secretions from an infected person. Symptoms include fever, severe headache, stiff neck, drowsiness or confusion, and nausea and vomiting. Also called aseptic meningitis.

**Weighted Percentage:** A value determined by assigning weights to individual measurements. Each value is assigned a nonnegative coefficient (weight).

**White:** All persons self-identified as White who do not 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.

**Youth Risk Behavior Surveillance System (YRBSS):** A surveillance system developed by the Centers for Disease Control and Prevention (CDC) to monitor the prevalence of youth behaviors that influence health. The survey consists of representative samples of ninth- through twelfth-graders in the United States and the District of Columbia.



## APPENDIX 5

### HEALTHY PEOPLE 2010 GOALS AND OBJECTIVES

# Healthy People 2010

Category and Objective	Target	Boston
<b>Infant Mortality Rates</b>		
Reduce deaths in infants <1 year old	4.5 per 1,000 live births	7.4
<b>Low Birthweight</b>		
Reduce low birthweight rate	5.0 % of births	8.6
<b>Teen Birth Rates</b>		
<b>Reduce adolescent births</b>	<b>46 births per 1,000</b>	<b>31.6</b>
<b>Childhood Lead Poisoning</b>	0	4.0
<b>Childhood Asthma</b>		
Reduce hospitalizations for children <5	2.5 per 1,000	8.5
<b>Cancer</b>		
Reduce overall cancer death rate	158.7 deaths per 100,000	209.4
Reduce the lung cancer death rate	44.8 deaths per 100,000	53.3
Reduce breast cancer death rates	22.2 deaths per 100,000 females	22.9
Reduce colorectal cancer death rates	13.9 deaths per 100,000	26.9
Reduce prostate cancer death rates	28.7 deaths per 100,000 males	39.7
<b>Screening</b>		
Increase percentage of females who receive a Pap test:		
Females 18 and over who have ever received one	97%	91%
Females 18 and over who received one in preceding 3 years	90%	88%
<b>Increase percentage of females ages 40 and over who received a mammogram within past 2 years</b>	<b>70%</b>	<b>86%</b>
Increase percentage of adults with colorectal cancer screening examination:		
Adults over age 50 who have ever received a sigmoidoscopy	50%	47%
Adults over age 50 who received a fecal occult blood test within past 2 years	50%	81%
<b>Coronary Heart Disease (CHD)</b>		
<b>Reduce CHD mortality rate</b>	<b>166 deaths per 100,000</b>	<b>147.7</b>
<b>Risk Factors:</b>		
Reduce proportion of adults with high blood pressure	16%	18%
<b>Reduce percentage of adults with high blood cholesterol</b>	<b>21%</b>	<b>21%</b>



Category and Objective	Target	Boston
<b>Stroke</b>		
Reduce stroke mortality rate	<b>48 deaths per 100,000</b>	<b>49.4</b>
<b>Diabetes</b>		
Reduce diabetes mortality rate	<b>45 deaths per 100,000</b>	<b>21.4</b>
<b>Substance Abuse</b>		
Reduce drug mortality rate	<b>1 death per 100,000</b>	<b>15.1</b>
Reduce cigarette smoking by adults	12%	21%
Reduce cigarette smoking by adolescents	<b>16%</b>	<b>15%</b>
Reduce binge drinking among adults ages 18 and over	6%	22%
Reduce binge drinking among adolescents ages 12-17	3%	18%
<b>Violence</b>		
Reduce homicide mortality rate	3.2 homicides per 100,000	8.7
Reduce suicide mortality rate	<b>6.0 deaths per 100,000</b>	<b>5.1</b>
<b>Physical Activity</b>		
Reduce the percentage of adults who engage in no leisure time physical activity	20%	27%
Increase the percentage of adults who engage in regular, moderate physical activity daily for at least 30 minutes	30%	24%
Increase the percentage of adolescents who engage in moderate physical activity for at least 30 minutes on 5 or more of previous days	30%	17%

NOTE: Boston has attained the Healthy People objective in all of the areas indicated in bold.