

## Section 10: Injury

Injury is a leading cause of disability and death among individuals of all ages. Injuries can be described as “intentional” or “unintentional.” Intentional injury includes assault and battery, homicide, and suicide. Unintentional injury includes events such as falls, accidental poisonings, motor vehicle crashes, pedestrians injured by motor vehicles, or a mass casualty event.

No age group, gender, or racial/ethnic group is immune from injury. Nationwide, among children ages 1-19 and adults ages 20-44, injury is the leading cause of death. Motor vehicle crashes are the most common cause of injury death in both groups (1). Homicide and suicide are the second and third leading causes of death, respectively, among 12-19 year olds. Among 20-44 year olds, suicide and homicide are the fourth and fifth leading causes of death, respectively (1). Injury continues to rank among the top ten leading causes of death for Americans 45 years and older. Falls were the most common cause of injury death in this age group.

In addition to premature death, injury can result in significant disability and a reduction in the quality of life. Non-fatal and fatal injuries impact not only the individual, but family members, friends, employers, and the community at large.

Injuries stress an already burdened health care system and drain financial resources. In 2004, injuries resulted in an annual average of 31 million initial hospital emergency department visits and almost 2 million hospitalizations in the United States (2). In 2000, 16% of the population reported needing medical attention for an injury. It is estimated that injuries cost at least \$120 billion a year (1). Clearly, the impact of injuries reaches far beyond the

individual and family to include society as a whole.

This section presents hospital emergency department visit data for injuries, hospitalization discharge data for injuries, and motor vehicle crash data. For data on intentional injury, please see the Violence section of this report. For data on suicide, please see the Mental Health section of this report. For data on injury mortality, please see the Mortality section of this report.

### Healthy People 2010 Targets (3)

Reduce hospital emergency department visits caused by injuries to 126 per 1,000 population.



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

In 2007, Boston residents made 64,595 visits to hospital emergency departments (EDs) for treatment of injuries (data not shown).

From 2002 to 2007, the highest level of ED injury visits occurred in 2003. From 2003 to 2007, the rate of ED visits for injury declined.

In 2007, visits for all injuries accounted for 27% of ED visits, about the same as in 2006 (data not shown).

In both 2006 and 2007, falls, “other unintentional injuries,” and motor vehicle or traffic crash accounted for almost 70% of all ED visits for injury.

For each year from 2002 to 2007, the rate of emergency department injury visits was higher for Boston’s male residents than for Boston’s female residents.

From 2002 to 2007, the rate decreased 17% for males and 14% for females.

Figure 10.1 Emergency Department Visits for Injury, 2002-2007

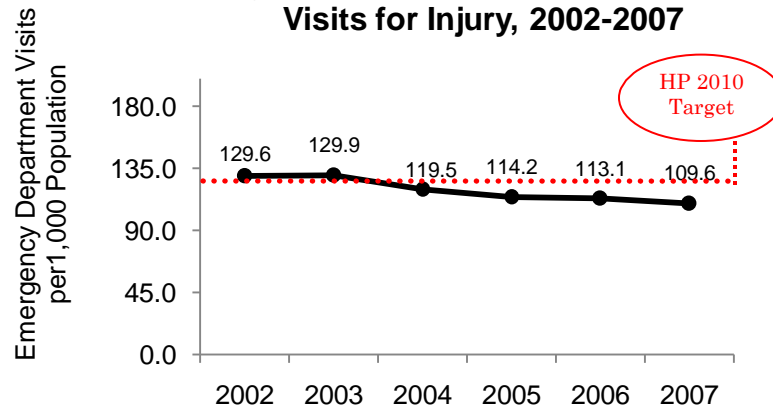


Figure 10.2 Emergency Department Visits for Injury by Type, 2006-2007

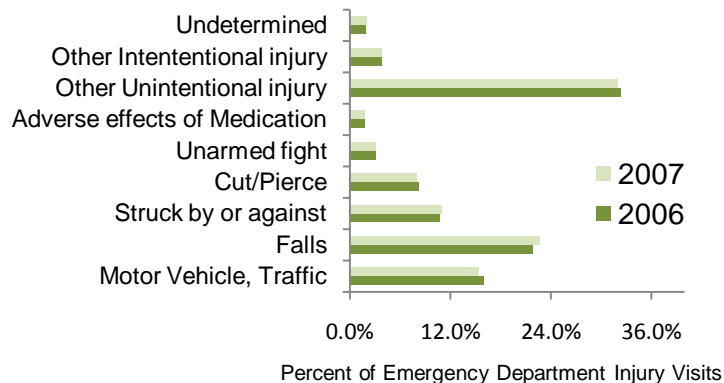


Figure 10.3 Emergency Department Visits for Injury by Gender, 2002-2007

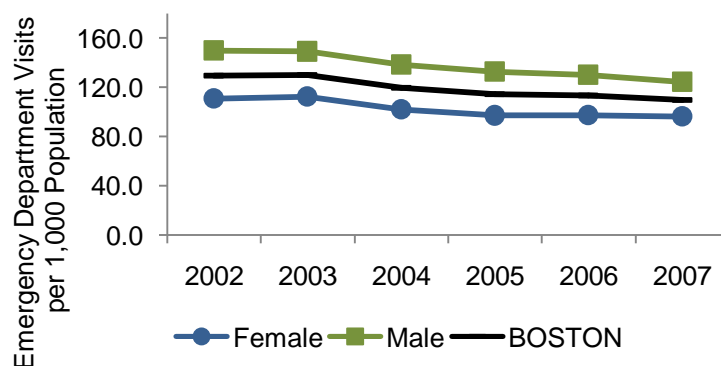
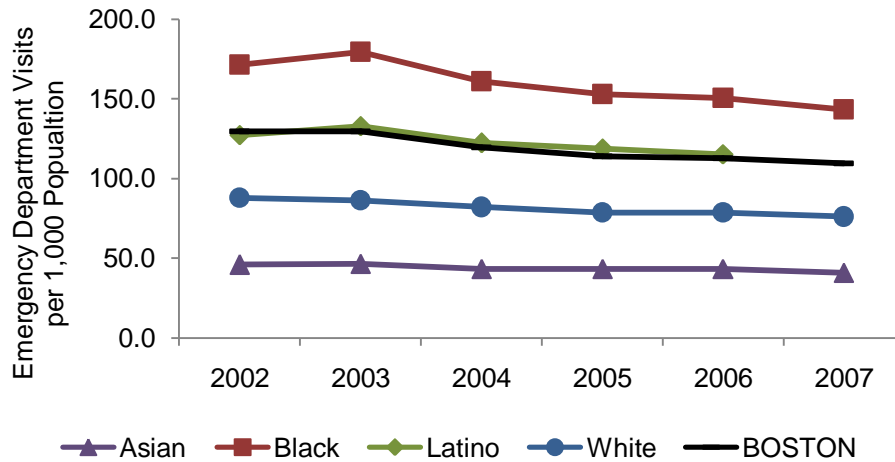


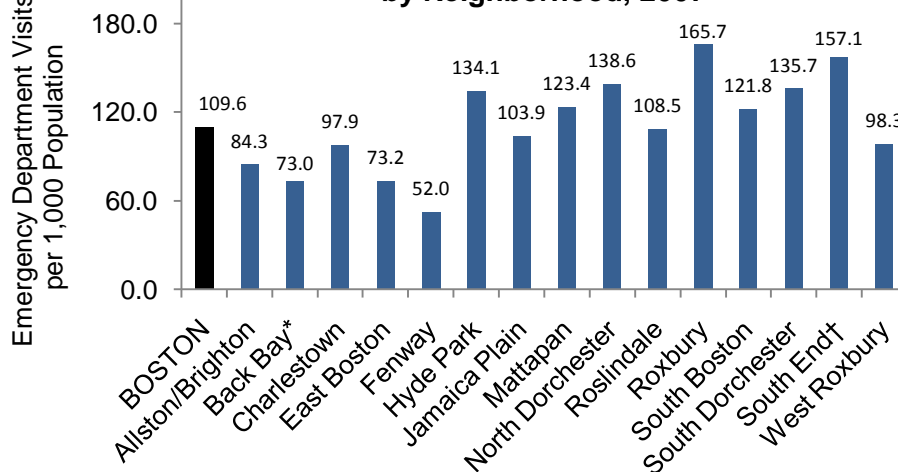
Figure 10.4 Emergency Department Vists for Injury by Race/Ethnicity, 2002-2007



During each year of 2002-2006, Black and Latino residents had Boston’s highest emergency department (ED) visit rates for injury, and Asian residents the lowest. In 2007, the rate for Black residents was 1.6 times that of Whites and more than 3 times the rate for Asian residents.

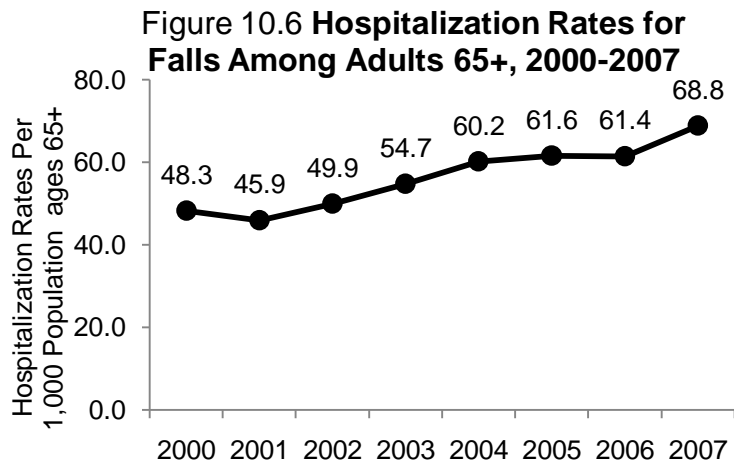
In 2007, Roxbury and South End residents experienced the highest rate of emergency department injury visits. The rate for Roxbury was 51% higher than the overall Boston rate and the rate for the South End was 43% higher.

Figure 10.5 Emergency Department Visits for Injury by Neighborhood, 2007



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

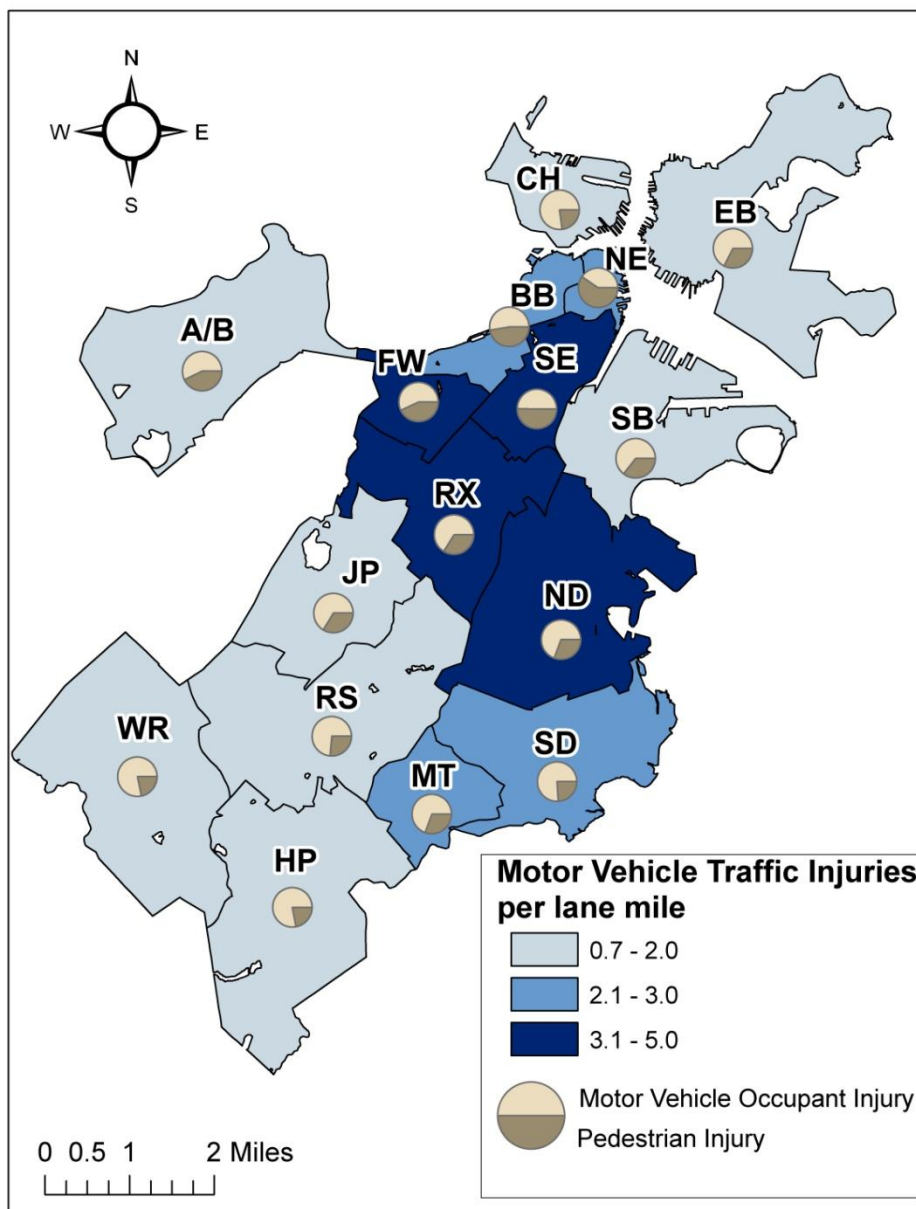
Additional data can be found on the Boston Public Health Commission website at [www.bphc.org/hob](http://www.bphc.org/hob).



The hospitalization rate for falls among adults ages 65 and over increased 50% from 2001 to 2007.

The map below presents the total number of motor vehicle crash injuries by lane miles per neighborhood in blue. The term “lane mile” refers to the number of lanes of traffic per mile. For example, one mile of a two lane highway has two lane miles. Pie charts are presented to compare the injuries sustained by pedestrians during a motor vehicle crash (pedestrian injury) and the injuries sustained by those inside the car during a motor vehicle crash (motor vehicle injury) within each neighborhood, per lane mile. Fenway, the South End, Roxbury and North Dorchester present the highest numbers of injuries per lane mile. All of the neighborhoods, except for the North End, have more motor vehicle injuries than pedestrian injuries per lane mile.

Figure 10.7 Motor Vehicle Crash Injuries per Lane Mile by Neighborhood, 2008



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

Additional data can be found on the Boston Public Health Commission website at [www.bphc.org/hob](http://www.bphc.org/hob).

**Summary: Injury**

Injury is a major public health problem nationally and locally. In 2007, injuries were the third leading cause of death in Boston (see Mortality section). The age-adjusted mortality rate for injuries in Boston was 53.6 per 100,000 population. The age-adjusted mortality rate was highest among Black residents (72.8) and male residents (83.8) .

In 2007, Boston residents made 64,595 visits to emergency departments (EDs) for treatment of injuries. In 2007, visits for all injuries accounted for 27% of ED visits – 70% of these for falls, “other unintentional injuries”, and motor vehicle or traffic crashes. Roxbury and South End residents incurred the highest rates of emergency department visits for injury. The rate for Roxbury was 51% higher than the overall Boston rate and the rate for the South End, 43% higher. Compared to other Boston neighborhoods, Roxbury and the South End, along with North Dorchester and Fenway, had the highest number of motor vehicle injuries (per mile driven). The North End was the only neighborhood in which the percentage of pedestrian injuries exceeded the percentage of motor vehicle occupant injuries.

Falls among individuals ages 65 and over are of special concern. The hospitalization rate for falls among Boston residents in this age group has shown an almost steady increase from 2001 to 2007. Statewide, falls account for one-third of unintentional injury death among this age group. Many falls that occur among this age group are related to other health issues, such as poor eyesight or mobility problems. Falls among older adults often cause more severe injury than they would in a younger person, often leading to disability and loss of independence (4).

Injuries are not only a leading cause of death and disability, but a major contributor to health care costs. In fiscal year 2005, the average charge for an injury related ED visit that did not result in hospitalization was \$929. The estimated combined hospital charges for injuries in Massachusetts in 2003-2004 were \$1.7 billion (5).



## References

1. **National Center for Injury Prevention and Control.** CDC Injury Fact Book. s.l. : Centers for Disease Control and Prevention, 2006.
2. **Bergen G, Chen LH, Warner M, Fingerhut LA.** Injury in the United States: 2007 Chartbook. Hyattsville, MD: National Center for Health Statistics. 2008.
3. **Department of Health and Human Services.** Healthy People 2010 Midcourse Review Focus Area 15 Injury and Violence Prevention. Healthy People 2010 Midcourse Review. [Online] April 9, 2007. [Cited: February 24, 2009.] <http://www.healthypeople.gov/data/midcourse/html/focusareas/FA15TOC.htm>.
4. **Massachusetts Department of Public Health.** Maximizing Our Efforts: The Massachusetts State Injury Prevention Plan. Boston : Commonwealth of Massachusetts, 2006.
5. **Massachusetts Division of Health Care Finance and Policy.** Non-Emergent and Preventable ED Visits, FY05. Boston, MA : Commonwealth of Massachusetts, 2007.

## Notes, Data Source, and Data Analysis

### Figure 10.1

NOTE: Data are presented as age-adjusted rates. Results that are shown for 2007 are based on preliminary data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

### Figure 10.2

NOTES: Results that are shown for 2007 are based on preliminary data. "Other unintentional" injuries are those that are the result of accidents and include, for example, those relating to fire, machinery, boating, explosives, electrical current, medical and surgical care, and unspecified accidents. "Other intentional" injuries include those purposely caused, such as assault by corrosive or caustic substance like acid; assault by hanging, strangulation, and suffocation; child abuse; injuries caused by fire; and other unspecified intentional injuries.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

### Figure 10.3

NOTE: Data are presented as age-adjusted rates. Results that are shown for 2007 are based on preliminary data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

### Figure 10.4

NOTE: Data are presented as age-adjusted rates. Results that are shown for 2007 are based on preliminary data. A rate cannot be presented for Latinos for 2007 because of enactment of new reporting requirements that resulted in the availability of only 6 months of data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

### Figure 10.5

NOTE: Data are presented as age-adjusted rates. Results that are shown for 2007 are based on preliminary data.

DATA SOURCE: Emergency Department Visit Data Base, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

### Figure 10.6

NOTE: Data are presented as age-specific rates.

DATA SOURCE: Acute Case Mix Files, Massachusetts Division of Health Care Finance and Policy

DATA ANALYSIS: Boston Public Health Commission Research and Evaluation Office

### Figure 10.7

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

DATA SOURCE: Boston Emergency Medical Services (EMS), Boston Public Health Commission, 2008

DATA ANALYSIS AND GRAPHIC: Boston Public Health Commission Research and Evaluation Office