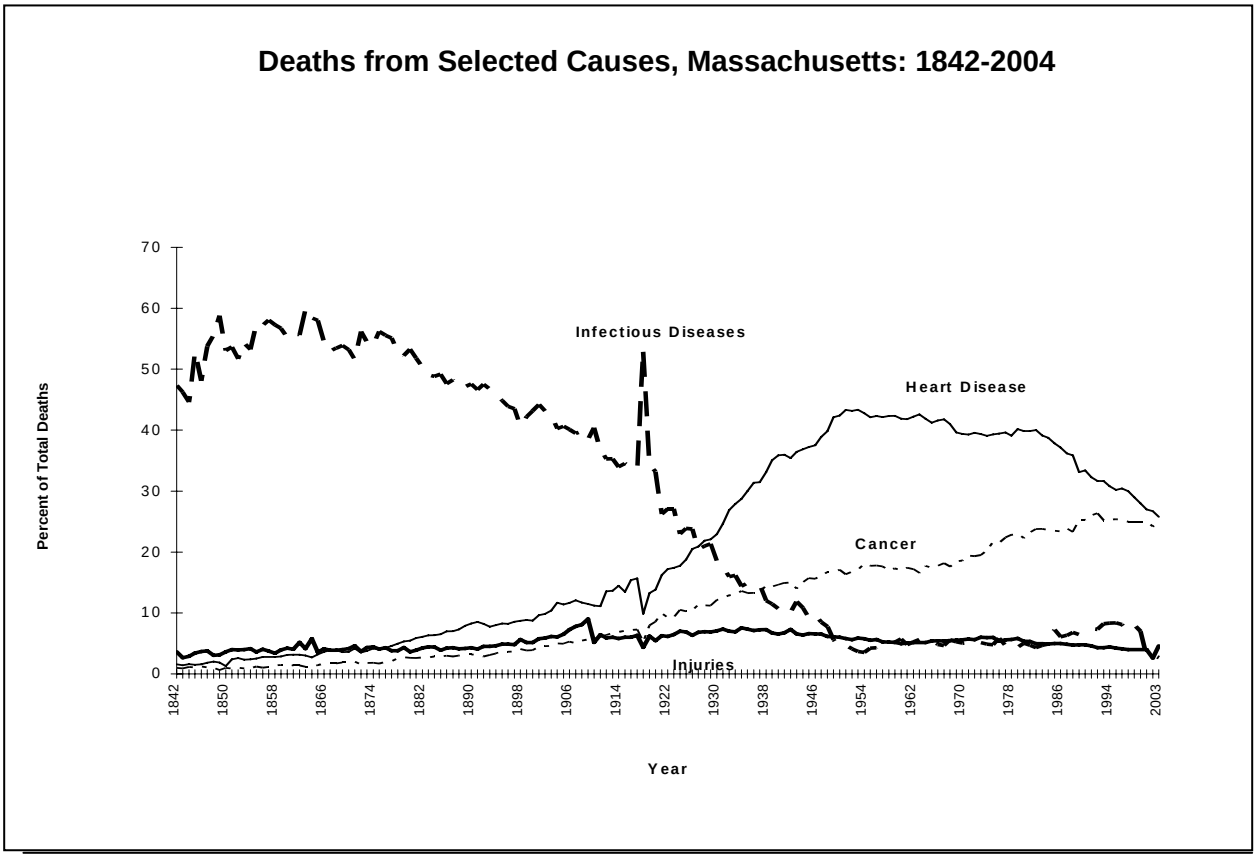
Massachusetts Deaths 2004



Center for Health Information, Statistics, Research and Evaluation

Massachusetts Department of Public Health

July 2006

Massachusetts Deaths 2004

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Massachusetts Department of Public Health

July 2006

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TECHNICAL FORWARD

Starting with this year's publication, new population estimates were used for 2000-2004. The population estimates were produced by the National Center for Health Statistics (NCHS) in collaboration with the Census Bureau's Population Estimation Program[1]. Each year, in addition to the most recent year's population estimates, the Census Bureau also revises the previous year's estimates including the Census 2000 estimates. The 2004 population estimates file includes new estimates for 2000-2003. The NCHS takes the Census Bureau population estimates file and reallocates the multiple race categories required by the 1997 Office of Management and Budget (OMB) back into the four race categories specified in the 1977 OMB specifications so that the estimates will be compatible with previous years' populations.

Please note that the statewide age-adjusted rates published in this report cannot be compared with those published in previous years because the overall population count and the age distribution of the population, which were based on the Census 2000 count, differ. The difference in the new population estimates is pronounced for Hispanics and black non-Hispanics. The Hispanic and black non-Hispanic populations have increased 15% since 2000, while the overall state population has increased by 1%. It is important to remember that age-adjusted death rates are not a measure of the actual risk of death, but rather, age-adjusted death rates are summary measures used to compare mortality trends over time or among different populations whose age distributions differ.

Using the new population estimates has lowered the age-adjusted death rates significantly. For instance, the 2004 age-adjusted death rate for white non-Hispanics (an older population) decreases from 776.6 using the 2000 population estimates to 744.7 using the new population estimates. The 2004 age-adjusted death rate for black non-Hispanics (a younger population) changes from 1,056.9 using the 2000 population estimates to 866.2 using the new 2004 population estimates. Using the 2000 population estimates, the age-adjusted death rate for black non-Hispanics was 36% higher than the white non-Hispanic age-adjusted death rate. However, using the new population estimates, the age-adjusted death rate for black non-Hispanics is 16% higher than the white non-Hispanic death rate.

Table TF1. A Comparison of the Age-Adjusted Death Rates in Massachusetts for 2004: Using Census 2000 vs. Census Bureau Estimates 2004 for Denominators

Race/Ethnicity Group	Age-Adjusted Death Rates using 2000 Population for Denominators	Age-Adjusted Death Rates using 2004 Population for Denominators
White non-Hispanics	776.6	744.7
Black non-Hispanics	1,056.9	866.2
Asian non-Hispanics	508.4	353.7
Hispanics	653.4	482.1
Overall	**784.3**	**739.3**

[1] National Center for Health Statistics. Estimates of the July 1, 2000-July 1, 2004 , United States resident population from the Vintage 2004 postcensal series by year, county, age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. Available on the Internet at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm. September 9, 2005.

Note to READERS: Changes in this year's report

This report contains significant changes from previous reports. Please review the information below before reading this report.

1. **Rate comparisons**: The comparison of rates made in this year's report is based on tests of statistical significance. Comparative words, for example, "higher", "lower", "increase", and "decrease" are used only when the rates being compared are statistically different at $P < .05$ level. The rates in this report are age-adjusted unless explicitly described as crude rates. Please see the Appendix for a more detailed explanation.

2. **Population changes**: There are two major changes related to population data in this report. First, starting with this year's publication, new population estimates are being used for 2000-2004. The population estimates are from the Census Bureau's Population Estimation Program. Please note that the statewide age-adjusted rates published in this report cannot be compared with those in published in previous years because the overall population count and the age distribution of the population, which were based on the Census 2000 count, differ. The difference in the new population estimates is pronounced for Hispanics and black non-Hispanics. Please see the Technical Forward for more detail. Second, updated population data for cities and towns by age, race, Hispanic ethnicity, and sex are not yet available. The only new estimates available for the Cities and Towns are the total population counts. Therefore, age-adjusted rates are presented only at the County, Region, and State level. (The only community level population based rates in this report appear in Table 23 and are calculated as the overall crude mortality rate for each city and town in Massachusetts.)

3. **Diabetes mortality:** A new chapter, "Diabetes Mortality" was added to this year's publication. In order to accurately capture the mortality burden of diabetes in Massachusetts, we present diabetes mortality data in two ways: 1) the underlying cause of death; and 2) mentioned as a contributing cause but not the underlying cause of death.

4. **Drug overdose deaths:** This year's report contains increased information on drug overdose deaths. Table 16e presents the distribution of poisoning deaths by Intent and by agent. This includes deaths due to narcotics, hallucinogens, and others drugs. In Table 23, the number of deaths due to narcotics and hallucinogens (which includes, but is not limited to, cocaine, heroin, LSD, methadone, and opium) are given for each community in Massachusetts.

5. **Revised Executive Summary:** The Executive Summary is now divided into two parts: 1) overall highlights from the report; and 2) chapter summaries for readers who wish to identify specific topics of interest.

6. **Differences with MassCHIP**: The death rates for 2000 through 2003 (both age-adjusted and crude) differ from those in the current version of MassCHIP (v3 r3.14) because MassCHIP uses the old population denominators. These differences will be eliminated when a new version of MassCHIP is released.

EXECUTIVE SUMMARY

The “Executive Summary” is divided into two main parts: 1) “2004 Highlights”, which identifies key findings from the entire report; and 2) “Chapter Summaries”, which presents brief summaries of all chapters in the report and important report topics. If you are going to read the entire report or a specific chapter, you can skip the “Chapter Summaries”. Please note that all death rates are age-adjusted unless otherwise noted.

2004 HIGHLIGHTS

- Age-adjusted death rates fell to a record low of 739.3 deaths per 100,000 population in 2004, down from 772.5 deaths per 100,000 in 2003, continuing a trend toward lower rates and mirroring a decline nationwide.

- In 2004, there was a continued decline in the number of resident deaths of 3% (1,775 deaths) from the previous year. This decrease was observed primarily among the group ages 65 and older, which had 1,416 fewer deaths.

- In 2004, heart disease, the leading cause of death, had a death rate significantly lower than that in 2003 (182.8 vs. 196.6). Deaths rates due to the other nine leading causes of death: cancer, stroke, chronic lower respiratory disease, influenza and pneumonia, Alzheimer’s disease, diabetes, unintentional injuries, nephritis, and septicemia, remained stable when compared with 2003 rates.

- Heart disease and cancer continued to be the leading causes of death among Massachusetts residents, accounting for half of all deaths. More women than men die of heart disease and cancer (the 2nd leading cause of deaths) in Massachusetts.

- In 2004, there were 211 Massachusetts residents who died from HIV/AIDS, which was one of the three lowest annual numbers of HIV/AIDS deaths in Massachusetts (lowest years: 1997, 1998, and 2004) since the peak in the epidemic in 1994 (981 HIV/AIDS deaths). However, the proportion of HIV/AIDS deaths among women has nearly tripled since 1989 (28% vs. 11%), and the proportion of HIV/AIDS deaths for persons ages 45 and older has almost tripled since 1994 (57% vs. 20%).

- Life expectancy reached an all-time high in Massachusetts. In 2004, a new born girl born in Massachusetts could expect to live to be 82, and a new born boy, 77.

- Injuries were the leading cause of death for Massachusetts residents between the ages of 1 and 44 years. Among the population overall, injuries rank as the fourth leading cause of death.

- About half of the leading cause-specific mortality rates are lower in Massachusetts than in the U.S. rates, including heart disease, stoke, and diabetes. Cancer and Alzheimer’s age-adjusted deaths rates are about the same as those of the U.S., and injuries of undetermined intent much higher.

- While the homicide rate for Massachusetts in 2004 was about the same as it was in 2003, it has increased 40% since 2000. The black non-Hispanic homicide rate continued to be significantly higher than all other race and ethnicity groups.

- The suicide rate for Massachusetts in 2004 was about the same as it was in 2003. In 2004, the white non-Hispanic suicide rate was significantly higher than that of all other race and ethnicity groups.

- Although motor vehicle-related deaths were up by only 3 deaths, deaths to motorcyclists were up by 75%, from 40 deaths in 2003 to 70 deaths in 2004. The age-adjusted rate for motorcycle deaths increased significantly in 2004. This increase was due entirely to an increase in male deaths.

- In 2004, the infant mortality rate (IMR) was 4.8 infant deaths per 1,000 live births, which continues the decline in IMR since 1980.

- As expected, in 2004, among Massachusetts residents most deaths occurred in the older age groups (75+ years) and the largest number of deaths continues to be among the oldest old (people aged 85 and over). About 1 out of 3 deaths is to a person ages 85 or older (33%); almost 2 out of 3 deaths is to a person ages 75 and older (64%).

- Disparities by race, ethnicity, and education persist:

    - The overall age-adjusted death rate for black non-Hispanics is 16% higher than the age-adjusted death rate for white non-Hispanics (866.2 vs. 744.7).
    - The death rate for those with a high school education or less was 3 times higher than the rate for those with 13 years of education or more.
    - The age-adjusted premature mortality rate (PMR) for black non-Hispanics (467.4) was higher than that of white non-Hispanics (320.7), Asian non-Hispanics (126.4), and Hispanics (273.1).

- Massachusetts has either achieved or moved closer to most of the Healthy People 2010 mortality objectives[2]. Out of 40 HP2010 mortality objectives examined, Massachusetts has achieved 16 targets and is within 25% of achieving targets for 9 additional indicators.

[2] In January 2000, the U.S. Department of Health and Human Services launched Healthy People 2010 (HP2010), a comprehensive, nationwide health promotion and disease prevention agenda. Healthy People 2010 contains 467 objectives designed to serve as a road map for improving the health of all people in the United States. Within these 467 objectives, HP2010 has 46 mortality goals both using the underlying cause of death as well as other mentionable causes.

Data Sources

Data on mortality are based on information on death certificates filed with the Massachusetts Registry of Vital Records and Statistics. Physicians and medical examiners assign cause of death through a system that acknowledges the possibility of multiple causes. Demographic information on the certificates, such as age, race, Hispanic ethnicity, gender, educational attainment, marital status, and occupation is recorded by the funeral director based on information provided by an informant, usually a family member, or, in the absence of an informant, based on observation. Unless otherwise noted, all data in this publication are for Massachusetts residents. These data include all events that occur to Massachusetts residents, regardless of death occurring in or out-of-state.

The data in this publication refer to the underlying cause of death as generated by the Mortality Medical Indexing, Classification, and Retrieval system (MICAR), unless specifically noted. This is a computer software algorithm developed by the National Center for Health Statistics and used by all U.S. jurisdictions so that coding of death data will be comparable throughout the U.S.

The data presented in this report can be used to monitor and evaluate the current status and long-term trends in mortality and health of the population in Massachusetts. Furthermore, this report can be used to identify which groups within the Massachusetts population are at greatest risk for death from specific diseases and injuries and to inform policies and programs directed toward these groups. It is important to note that variation in death rates among demographic groups, such as racial and ethnic groups, may reflect group differences such as socio-economic status, access to health care, and the prevalence of specific risk factors.

Throughout this report, both the number of deaths and age-adjusted rates will be presented. The number of deaths is presented to highlight the overall public health burden of disease in the state. Disease rates are presented to allow for comparisons across groups so that we can better target our programs. All age-adjusted rates were adjusted to the 2000 U.S. Standard Population and are per 100,000 population. As noted in the “Technical Forward”, new population estimates for the years 2000-2004 from NCHS and the Census Bureau are used for state and county death rate calculations.

CHAPTER SUMMARIES

The following are brief summaries of the report’s chapters or important topics included in the report.

Leading Causes of Death

The age-adjusted death rate in 2004 for Massachusetts was a record low of 739.3 deaths per 100,000 persons, which is a 15% decline since 1994 and a 4% decline from the previous year. Note that leading causes of deaths are based on the *number* of deaths, and not the rate.

Heart disease and cancer continued to be the leading causes of death among Massachusetts residents, accounting for half of all deaths. The gap between these two

leading causes of death continued to narrow to its lowest point since at least 1994 (480 deaths vs. 2,680 deaths in 1994). In 2004, 13,792 Massachusetts residents died of heart disease, which resulted in an age-adjusted death rate of 182.8 deaths per 100,000 persons. Cancer was the second leading cause of death, with 13,312 deaths, and an age-adjusted death rate of 188.4 per 100,000.

The ten leading causes of death accounted for 76% of all deaths in 2004. The top 10 causes of death remained the same as they were in 2003, and in the same order (1-heart disease, 2-cancer, 3-stroke, etc. (See Table 8 for complete listing.) except for unintentional injuries and diabetes, which switched rank in 2004. While HIV/AIDS is not ranked among the 10 leading causes of death for Massachusetts overall, it remained among the leading causes of death for black non-Hispanics and Hispanics.

In 2004, heart disease, the leading cause of death, had a death rate significantly lower than that in 2003 (182.8 vs. 196.6). Deaths rates due to the other nine leading causes of death: cancer, stroke, chronic lower respiratory disease, influenza and pneumonia, Alzheimer's disease, diabetes, unintentional injuries, nephritis, and septicemia, remained stable when compared with 2003 rates.

The homicide death rate overall was 27% greater than that in 2003, but this was not a significant change. There was a significant increase over the 2003 homicide rate only for black non-Hispanic males.

The number of HIV deaths has decreased by almost 80% since its peak of 998 in 1994, but it remained among the 3 leading causes of death for Hispanics ages 25-44 in 2004. It was the leading cause of death for Hispanics ages 25-44 in 2004, as it was in 2002.

Injuries were the leading cause of death for Massachusetts residents between the ages of 1 and 44, and ranked fifth among the population overall. Seventy one percent of deaths among individuals 15-24 years were caused by an injury.

For the first time, cancer was the leading cause of death for Massachusetts residents ages 75-84 years. Cancer was also the leading cause of death for persons ages 45-74, while heart disease was the leading cause of death for persons ages 85 and older.

Patterns by Race and Ethnicity

Age-adjusted mortality rates continued to vary markedly by race and Hispanic ethnicity in Massachusetts in 2004. The overall age-adjusted death rate for black non-Hispanics was 16% higher than that of white non-Hispanics (866.2 vs. 744.7).

In 2004, the age-adjusted death rates decreased for white non-Hispanics and black non-Hispanics, while the rates remained stable since 2003 for Asian non-Hispanics and Hispanics. The death rate for black non-Hispanics decreased by 9%, and the death rate for white non-Hispanics decreased by 4% from the previous year.

Age-adjusted premature mortality rates (PMR, deaths before age 75) also varied by race and Hispanic ethnicity. Black non-Hispanics had the highest PMR, experiencing almost 1.5 times the rate of premature deaths as white non-Hispanics (467.4 vs. 320.7 deaths per 100,000). White non-Hispanics had the next highest PMR (320.7 deaths per 100,000), while Asian non-Hispanics had the lowest PMR, 134.5 deaths per 100,000. The Hispanic PMR (273.1) was

higher than the Asian non-Hispanic rate, but was lower than the white non-Hispanic and black non-Hispanic rates.

The leading causes of death varied by race and ethnicity in 2004 as they have in previous years. While heart disease was the leading cause of death for white non-Hispanics, cancer was the number one cause of death among Asian non-Hispanics, black non-Hispanics, and Hispanics in 2004, followed by heart disease and stroke.

HIV/AIDS was the 4th leading cause of death for Hispanics and the 8th leading cause of death for black non-Hispanics. It was the 27th leading cause of death for white non-Hispanics and the 23rd leading cause for the state overall. Homicide was the 6th leading cause of death for black non-Hispanics and the 9th leading cause of death for Hispanics. It was the 30th leading cause of death for white non-Hispanics and the 24th leading cause for the state overall.

Heart Disease

Heart disease accounted for 25% of all deaths in Massachusetts in 2004 (13,792 out of 54,419 total). Heart disease deaths occur predominantly among the older population, and in 2004, 85% of all heart disease deaths occurred among people 65 years and older. The proportion deaths that were from heart disease varied by race and ethnicity in this age group: it was 87% among white non-Hispanics, 74% among Asian non-Hispanics, 65% among black non-Hispanics, and 57% among Hispanics.

Women have a lower age-adjusted heart disease rate than men do (147.9 vs. 229.2), even though women have a higher *number* of heart disease deaths than men (7,244 vs. 6,547). One reason for this paradox, is that women experience twice as many heart disease deaths than men at ages 85 and older (3,901 women v. 1,862 men), but the female population is 2.3 times than that of men in the same age group. This means that the female death rate for ages 85 and older is smaller than that of men (4,088.8 vs. 4,572.8).

Cancer

Cancer accounted for 24% of all deaths in Massachusetts in 2004. The overall leading cause of cancer death was lung cancer (27% of cancer deaths) followed by colorectal cancer (10% of cancer deaths). Lung cancer was the leading cause of cancer death for both men and women. Among women, the lung cancer mortality rate was 79% higher than the breast cancer mortality rate. The second leading cause of cancer death was breast cancer for females and prostate cancer for males.

Brain cancer was the leading cause of cancer death for all persons under the age of 15, while leukemia was the leading cause of cancer death for persons between the age of 15 and 24 years. Lung cancer was the leading cause of cancer death for persons age 25 and older.

Cancer is largely a disease of older adults, except for Hispanics. In 2004, approximately 3 out of 4 cancer deaths in Massachusetts occurred in persons age 65 and older. This age group accounted for 74% of all cancer deaths among white non-Hispanics, 64% of cancer deaths among Asian non-Hispanics, 58% of cancer deaths among black non-Hispanics, and 43% of cancer deaths among Hispanics.

Diabetes

In 2004, diabetes was either the underlying or a contributing cause of death (i.e., a diabetes-related cause of death) for 3,987, or 7.3% of all deaths in Massachusetts. In one-third of these deaths, diabetes was recorded as the underlying cause of death. Diabetes is largely a disease of older adults. In 2004, 81% of diabetes-related deaths occur to individuals aged 65 years and older.

In 2004, the diabetes-related death rate for black non-Hispanics was 92.5 deaths per 100,000, almost twice the rate for white non-Hispanics (53.5). The rate for Hispanics was 63.8 deaths per 100,000.

When diabetes was listed as a contributing cause, cardiovascular disease was listed as the underlying causes of death in 48.6% of these deaths in 2004. Cardiovascular disease (46.8%) was most likely to be recorded as the only associated cause when diabetes was the underlying cause. Diseases of the genito-urinary system was the second most prominent cause of death when diabetes was the underlying cause (16.1%) followed by diseases of the respiratory system.

HIV/AIDS

In 2004, there were 211 Massachusetts residents who died from HIV/AIDS, which was one of the three lowest annual numbers of HIV/AIDS deaths in Massachusetts (lowest years: 1997, 1998, and 2004) since the peak in the epidemic in 1994 (981 HIV/AIDS deaths). However, the proportion of HIV/AIDS deaths among women has nearly tripled since 1989 (28% vs. 11%), and the proportion of HIV/AIDS deaths for persons ages 45 and older has almost tripled since 1994 (57% vs. 20%).

Hispanics died at a rate eight times higher than that of white non-Hispanics (13.9 vs. 1.7 deaths per 100,000). For black non-Hispanics, the rate was 9.3 times higher than that of white non-Hispanics (15.8 vs. 1.7 deaths per 100,000).

Injuries

In 2004, 5% of all deaths to Massachusetts residents were the result of injuries (2,615 deaths). Injuries were the leading cause of death among persons ages 1-44, accounting for 40% of those deaths. Poisonings, which include drug overdoses, were the leading cause of injury death. Sixty-two percent of poisoning deaths were due to narcotics and other hallucinogens.

When combining all injuries (unintentional, suicide, homicide and injuries of undetermined intent) to capture the total burden of injury deaths among Massachusetts residents, injuries were the 4th leading cause of death in 2004. Over half of all injury-related deaths were due to unintentional injuries, 23% were injuries of undetermined intent, and 23% were intentional injuries (16% suicide and 7% homicide).

Among unintentional injuries, the leading causes of death included motor vehicle-related deaths (39%), falls (20%), and, strangulation or suffocation (8%). The vast majority of intentional injuries were suicides (71%). Almost 90% of injuries of undetermined intent involved poisonings, which includes drug overdoses. Eighty-eight percent of these deaths

involved narcotics and other hallucinogens. These agents include, but are not limited to, heroin, cocaine, oxycodone, codeine, LSD, and morphine.

Approximately 14% of all injury-related deaths overall occurred among persons ages 15 to 24 years. However, in this age group, all injuries accounted for close to three-fourths of deaths. Injury-related death rates were highest among persons ages 85 years and older (219.7 deaths per 100,000 population compared with 87.9 deaths per 100,000 among persons ages 75 to 84, who had the second highest injury-related death rate).

In 2004, there were 524 motor vehicle-related deaths, 3 more deaths than in 2003. Although the greatest *number* of motor vehicle-related deaths occurred to men ages 25 to 44 years (116 deaths), males ages 15-24 had the highest *rate* for motor vehicle-related deaths (23.4 deaths per 100,000). Deaths to motorcyclists went up by 75%, from 40 deaths in 2003 to 70 deaths in 2004. This increase was seen among males.

While the homicide rate for Massachusetts in 2004 was about the same as it was in 2003, it has increased 40% since 2000. The black non-Hispanic homicide rate continued to be significantly higher than all other race and ethnicity groups. The majority of this increase was observed among persons ages 15-24 and black non-Hispanic males. Out of the 175 homicides, over half were a result of firearms, while a quarter was the result of stabbings. Adolescent and young adult males accounted for the largest proportion (42%) of homicide victims, and age-specific homicide rates were highest among males ages 15-24 years (16.9 deaths per 100,000).

In 2004, a total of 205 persons died from firearm-related injuries in Massachusetts. The death rate from firearms-related injuries remained stable. The firearm-related death rate for black non-Hispanic males was 6.4 times higher than the rate of white non-Hispanic males in 2004 (25.4 vs. 4.0 deaths per 100,000).

In 2004, the state age-adjusted suicide rate for men was 4.4 times higher than that of women (10.9 vs. 2.5), and the highest suicide rate among the race and ethnicity groups was that of white non-Hispanics (7.1). White non-Hispanics accounted for 91% of all suicides. Among suicide deaths, the leading causes of death were hanging, strangulation, or suffocation (42%), followed by firearm (22%) and poisoning (22%).

Causes of Infant Death

In 2004, there were 376 infant deaths (deaths of infants less than one year of age) and 78,460 live births among Massachusetts residents, which meant that the infant mortality rate (IMR) was 4.8 deaths per 1,000 live births. In 2004, Massachusetts had its second lowest IMR in its recorded history. The 2004 infant mortality rate was the same as the 2003 rate, and it represented a 31% decrease since 1990. Black non-Hispanic infants died at 3 times the rate of white non-Hispanic infants, and Hispanic infants died at two times the rate of white non-Hispanic infants. In 2004, the IMR increased only for Hispanics (by 32%), while it decreased for both black non-Hispanics (by 10%) and white non-Hispanics by 7%. The IMR remained the same for Asians as in 2003. None of these changes were statistically significant.

The leading causes of infant death were conditions arising in the perinatal period (62% of all infant deaths) followed by congenital malformations (16% of all infant deaths). Deaths occurring in the neonatal period (less than 28 days after birth) accounted for 77% of all infant

deaths. The leading causes of death in the neonatal period were disorders relating to short gestation and low birthweight, while Sudden Infant Death Syndrome (SIDS) was the leading cause of death in the post neonatal period (28-365 days).

Healthy People 2010

In 2004, Massachusetts either achieved or moved toward achieving many of the Healthy People 2010 mortality objectives. Out of 40 objectives presented, Massachusetts' 2004 death data indicated that the state has already met 16 of the 2010 target goals, including those for cervical cancer, prostate cancer, and stroke.

For nine objectives, the 2004 Massachusetts indicators were within 25% of the target goals. These objectives included: overall cancer deaths, lung cancer deaths, female breast cancer deaths, cervical cancer deaths, malignant melanoma deaths, unintentional injury deaths, infant mortality rate, child mortality death rates (15-19 years old), and asthma death rates for adults ages 35-64 years.

However, Massachusetts still needs to improve in the following areas: colorectal cancer deaths, cirrhosis deaths, HIV deaths, poisoning deaths, fall deaths, fire deaths, hanging/suffocation/strangulation deaths, deaths due to drowning, suicide deaths, drug-induced deaths, neonatal deaths, SIDS, maternal deaths, death rates for adolescents ages 20-24 years, and asthma death rates for person ages 15 to 34. Although these rates were greater than 25% from the target goals, most were still lower than the rates for the United States overall.

A Comparison of Massachusetts and U.S. Indicators

In 2004 certain Massachusetts mortality indicators were better than those for the U.S., and the ranking of the leading causes differed.

According to preliminary U.S. death statistics for 2004[3]:

- The overall death rate in Massachusetts is 8% below the national average (739.3 vs. 801.1 deaths per 100,000).

- Life expectancy at birth continued to be higher in Massachusetts when compared with the U.S. (79.6 years compared with 77.9 years).

- The top 10 causes of death in Massachusetts are the same as those of the U.S., but they are not in the same order. The top 4 are the same (1-heart disease, 2-cancer, 3-stroke, 4-chronic lower respiratory disease). However, influenza and pneumonia is the 5th leading cause of death followed by Alzheimer's disease in Massachusetts, whereas, for the U.S., unintentional injuries and diabetes are the 5th and 6th leading causes of death, respectively. Nephritis and septicemia are the 9th and 10th leading causes of death, respectively, in the state and the U.S. overall.

- About half of the leading cause-specific mortality rates are lower in Massachusetts than in the U.S. rates, including heart disease, stoke, and diabetes. Cancer and Alzheimer's

[3] Minino AM, Heron MP, Smith, BL. Deaths: Preliminary Data for 2004. National Vital Statistics Reports; Vol 54, No. 19. Hyattsville, MD; National Center for Health Statistics. June 28, 2006.

age-adjusted deaths rates are about the same as those of the U.S., and injuries of undetermined intent much higher.

- The infant mortality rate (IMR) in Massachusetts (4.8) was 29% lower than that of the U.S. (6.8).

- Massachusetts death rates are about the same as those of the U.S. figures for cancer, and they are higher for some causes: septicemia (17% higher), nephritis (16% higher), and influenza & pneumonia (22% higher).

Death Data Availability

Detailed information on 2004 deaths in Massachusetts will be available on the Department's free, Internet-based public health information service, MassCHIP at a later date. The death rates for 2000 through 2003 (both age-adjusted and crude) differ from those in the current version of MassCHIP (v3 r3.14) because MassCHIP uses the old population denominators. These differences will be eliminated when a new version of MassCHIP is released.

To register as a user, visit the MassCHIP website at http://masschip.state.ma.us or call 1-888-MASCHIP (within MA only) or (617) 624-5629.

This report is also available on the DPH website at: http://www.mass.gov/dph/resep (Click on Population Health Statistics and then on Death Data.)

TRENDS

Trends[4]

In 2004, 54,419 Massachusetts residents died (Table 1). The *number* of resident deaths in 2004 decreased (1,776 deaths) from the previous year (3%). This decrease occurred primarily in the older age groups, ages 65 and older, which had 1,416 fewer deaths. The only age group to experience an increase in deaths was the 15-24 age group. The age-adjusted death rate in 2004 was 739.3 deaths per 100,000 persons, a 15% decline since 1994 and a 4% decline from the previous year. (Please note: rates are age-adjusted to the 2000 U.S. standard population). In 2004, there were 376 infant deaths (deaths of children less than one year of age) among Massachusetts residents, 7 fewer infant deaths than in 2003, and the lowest number of infant deaths in Massachusetts' history. The infant mortality rate (IMR) of 4.8 per 1,000 live births was the second lowest rate since 1980 and the same as in 2003.

Age-adjusted death rates varied greatly by race and Hispanic ethnicity in Massachusetts in 2004, as they have throughout the last decade. Asian non-Hispanics continued to have the lowest age-adjusted death rate, followed by Hispanics, white non-Hispanics and black non-Hispanics. In 2004, the age-adjusted death rate for Asian non-Hispanics was 353.7 deaths per 100,000 persons, which was 41% of the black non-Hispanic rate of 866.2 deaths per 100,000. In 2004, death rates decreased for significantly for white non-Hispanics and black non-Hispanics from the previous year. Although the overall black non-Hispanic death rate decreased, the death rate for black non-Hispanic males remained stable, and the death rate for black non-Hispanic females decreased significantly from that of 2003. The age-adjusted death rates for both male and female white non-Hispanics decreased significantly. Compared with 2003, the death rate for Asian non-Hispanics and Hispanics remained stable.

The age-adjusted death rate for women continued to be substantially lower than that for men: 632.4 compared with 878.1 deaths per 100,000 population. However, men have experienced a larger decline in their age-adjusted rate since 1994 (20%) than women (11%).

The 2004 Massachusetts overall age-adjusted death rate was 8% lower than the preliminary 2004 United States rate (739.3 vs. 801.0 deaths per 100,000), and has been consistently lower than the U.S. rate throughout the 1990s and from 2000 through 2004 (Table 2a). The Massachusetts age-adjusted death rates have been consistently lower than the U.S. rates for heart disease, stroke, and unintentional injuries, and higher than the U.S. rates for influenza/pneumonia. The age-adjusted death rates for Massachusetts and the U.S. were almost the same in 2004.

There are two common ways of expressing the concept of life expectancy: 1) "Life expectancy at birth" is based upon the observed ages of death for the entire population, and it can be thought of as the "typical" age of death; and, 2) "future life expectancy" is the number of years one can expect to live, given that one has lived to a certain age[5]. "Future life expectancy" increases as one gets older; for example, someone who has lived to be age 65 can expect to live 19.3 more years.

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[4] Beginning in 1999, mortality data are coded according to the International Classification of Diseases- Tenth revision (ICD-10). Due to changes in the classification of disease beginning in data year 1999, trends in the cause of death between data after 1999 and previous years must be interpreted with caution.

[5] Dalington, RB. Are we measuring "Life Expectancy" the Best Way? http://comp9.psych.cornell.edu/Darlington/lifespan.htm.

In 2004, the Massachusetts life expectancy at birth reached a record high of 79.6 years. Figure 2 shows the trend toward longer life expectancy for Massachusetts residents in the last decade. In 2004, life expectancy at birth continues to be higher in Massachusetts than in the United States (79.6 years compared with 77.9). In 2004, a woman born in Massachusetts could expect to live, on average, until the age of 82, and a man could expect to live until the age of 77. This difference in life expectancy between the sexes is, in part, because men tend to die younger from injuries (such as unintentional injuries, homicide and suicide) than women. At age 65, men could expect to live an average of 18 more years, while women could expect to live 20 more years (Table 2b).

Life expectancy varied by race and gender as well (Figure 1). At birth, white non-Hispanic women could expect to live 82 years; black non-Hispanic women, 80 years; Hispanic women, 93 years; white non-Hispanic men, 77 years; black non-Hispanic men 72 years; and Hispanic men, 83 years.

The age composition of the Massachusetts population reflects changes in life expectancy and natural historic trends. From 1900 to 2004, the proportion of Massachusetts residents ages 45 and over increased from 21% to 38%. The increase was greatest in the oldest age group (those age 85 and over) (Figure 3). While persons ages 85 and over accounted for only 2% of the population in Massachusetts in 2004, naturally, they continue to have the highest number of deaths in the state in the year 2004.

Massachusetts has a rich history of collecting and reporting vital statistics, as demonstrated by Figure 4, which presents historical mortality trend data from 1842 to the present. In 1842, infectious diseases were the leading causes of death in Massachusetts, accounting for 47% of all deaths; 4% were due to intentional and unintentional injuries, 2% were attributed to heart disease, and 1% of all deaths were due to cancer. In 2004, in almost a reversal of rank order, 26% of the deaths in Massachusetts were due to heart disease, 24% to cancer, 5% to intentional and unintentional injuries, and 3% were due to infectious diseases.

Table 1. Trends in Mortality Characteristics, Massachusetts: 1994 - 2004

Year		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Resident deaths[1]												
	Number	54,914	55,296	55,187	54,634	55,204	55,763	56,591	56,733	56,881	56,194	54,419
	Crude rate[2,3,4]	899.2	900.2	892.4	877.3	877.5	881.9	889.5	887.1	887.0	875.2	848.1
	Age-adjusted rate[5]	868.2	866.2	853.0	834.8	808.8	808.8	812.2	803.4	793.8	772.6	739.3
Race/ethnicity of decedent [6,7]												
White non-Hispanic	Number	51,600	51,785	51,917	51,398	51,829	52,282	52,959	52,792	52,839	52,050	50,439
	Percent[8]	94.0	93.7	94.1	94.1	93.9	93.8	93.6	93.1	92.9	92.6	92.7
	Age-adjusted rate	864.2	860.1	852.2	835.1	808.5	808.7	814.5	804.4	796.0	775.2	744.7
Black non-Hispanic	Number	2,079	2,136	2,025	2,033	1,969	2,018	2,109	2,226	2,275	2,378	2,225
	Percent	3.8	3.9	3.7	3.7	3.6	3.6	3.7	3.9	4.0	4.2	4.1
	Age-adjusted rate	1,176.7	1,193.0	1,141.1	1,142.1	1,076.6	995.2	933.5	951.0	935.6	949.1	866.2
Asian non-Hispanic	Number	335	403	398	403	413	449	467	510	531	579	531
	Percent	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0
	Age-adjusted rate	521.2	565.2	534.5	512.0	500.7	422.4	401.4	396.9	397.6	411.9	353.7
Hispanic	Number	865	936	803	749	924	975	1,014	1,059	1,166	1,121	1,115
	Percent	1.6	1.7	1.5	1.4	1.7	1.7	1.8	1.9	2.0	2.0	2.1
	Age-adjusted rate	482.7	504.7	430.0	391.0	463.8	507.8	585.2	556.5	591.0	520.6	482.1
Gender of decedent [7]												
Female	Number	28,733	29,262	29,152	29,261	29,568	29,786	30,465	30,780	30,427	30,053	29,067
	Age-adjusted rate	712.6	717.6	702.7	699.0	678.0	676.9	688.8	689.5	674.4	659.3	632.3
Male	Number	26,181	26,034	26,035	25,373	25,635	25,977	26,126	25,953	26,454	26,141	25,352
	Age-adjusted rate	1,096.9	1,080.6	1,074.0	1,035.0	1,000.8	1,001.6	988.7	957.6	955.1	923.3	878.0
Age of decedent [7]												
<1 year	Number	499	419	403	425	414	418	377	407	397	383	376
1-14 years	Number	192	204	197	174	128	165	181	169	167	149	137
15-24 years	Number	473	452	434	422	413	407	403	444	460	490	517
25-44 years	Number	3,210	3,196	2,720	2,348	2,373	2,397	2,375	2,571	2,490	2,484	2,247
45-64 years	Number	7,766	7,611	7,477	7,416	7,501	7,431	7,841	8,004	8,344	8,476	8,347
65-74 years	Number	11,394	10,858	10,711	10,286	10,216	9,782	9,746	9,323	8,922	8,611	8,126
75-84 years	Number	16,092	16,497	16,839	16,884	16,946	17,397	17,554	17,416	17,262	16,973	16,342
85+ years	Number	15,283	16,054	16,400	16,677	17,213	17,765	18,113	18,395	18,838	18,627	18,327

1. Deaths presented in all tables and figures are resident deaths. 2. Deaths per 100,000 residents. 3. See Glossary for further definition of terms and rates. 4. Rate calculations are based on resident population estimates from MISER for 1994-1995 (released in September 1999), 1996-1997 (released in November 1999), and 1998 (released in September 2000). **Resident deaths rates for 2000-2004 have been recalculated using 2000-2004 new population estimates.** 5. Rates are age-adjusted per 100,000 residents using the 2000 US standard population. 6. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in race categories. Please refer to the Technical Notes in the Appendix for a more detailed explanation. 7. Column sum may not equal total because the race, gender or age of some decedents was unknown. 8. Percent of all resident deaths in that year.

Table 2a. Five Leading Causes of Death[1] Comparability Unmodified and Comparability Modified Age-Adjusted Rates Massachusetts and United States: 1994-2004

Year[2]		Heart Disease				Cancer				Stroke			
		MA		US		MA		US		MA		US	
		Comparability Unmodified[3]	Comparability Modified[4]	Comparability Unmodified[3]	Comparability Modified[4]	Comparability Unmodified[3]	Comparability Modified[4]	Comparability Unmodified[3]	Comparability Modified[4]	Comparability Unmodified[3]	Comparability Modified[4]	Comparability Unmodified[3]	Comparability Modified[4]
1994	Rate	265.3	261.5	304.5	300.2	224.7	226.3	211.0	212.4	51.7	54.7	63.3	60.1
	% of Total	30.8		32.7		25.3		23.2		6.1		6.7	
1995	Rate	259.4	255.7	301.3	297.0	225.6	227.2	209.6	211.0	52.9	55.9	63.9	61.3
	% of Total	30.2		32.4		25.4		23.1		6.3		6.8	
1996	Rate	257.1	253.4	293.4	289.2	221.2	222.7	206.7	208.1	50.5	53.4	63.2	61.0
	% of Total	30.4		32.2		25.2		23.1		6.1		6.9	
1997	Rate	249.0	245.5	285.7	281.6	215.4	216.8	203.7	205.1	50.6	53.5	61.8	60.1
	% of Total	30.2		32.0		25.0		23.1		6.2		6.9	
1998	Rate	231.0	227.7	272.4	273.9	209.0	210.4	202.4	204.4	47.1	49.7	59.5	63.1
	% of Total	29.0		31.6		25.0		23.0		6.0		6.8	
1999	Rate	222.1[7]		265.9		206.6[7]		201.6		50.2[7]		61.4	
	% of Total	27.9		30.3		24.8		23.0		6.4		7.0	
2000	Rate	216.7[7]		258.2		206.1[7]		200.9		50.9[7]		60.9	
	% of Total	27.1		29.5		24.8		23.0		6.4		6.9	
2001	Rate	211.0[7]		247.7		200.0[7]		195.8		46.7[7]		57.9	
	% of Total	26.7		28.9		24.2		22.9		6.2		6.8	
2002	Rate	201.1[7]		240.4		200.1[7]		194.0		48.1[7]		56.3	
	% of Total	26.0		28.4		24.0		22.8		6.0		6.7	
2003	Rate	196.6[7]		232.3		193.0[7]		190.1		45.0[7]		53.5	
	% of Total	26.0		28.0		24.1		22.7		6.0		6.5	
2004	Rate	182.8[7]		217.5[8]		188.4[7]		184.6[8]		42.5[7]		50.0[8]	
	% of Total	25.3		27.3		24.5		22.9		6.0		6.3	

1. Cause of death: the disease or injury that initiated the events leading to death; or the circumstances of the unintentional or intentional injury that resulted in the death. 2. 1990-1998 data coded according to ICD-9. 1999-2003 data coded according to ICD-10. ICD-9 and ICD-10 codes used in this publication are listed in the Appendix. 3. Comparability unmodified rate: this rate has not been modified to account for changes from ICD-9 to ICD-10. 4. Comparability Modified Rate: this rate is adjusted using the preliminary comparability ratio (CR) from NCHS, February 2001 in order to account for changes from ICD-9 to ICD-10. Please see Appendix for a more detailed explanation and for a list of CR used in this report. 5. All rates are age-adjusted per 100,000 residents using the 2000 US standard population. U.S. data for years 1994-1998 obtained from Compressed Mortality File on CDC Wonder, February 2001. 6. NA: comparability ratio is not applicable for years prior to 1994. 7. When comparing data over time between 1994 through 2004, please use the comparability modified rates for years 1994-1998. **Resident deaths rates for 2000-2004 have been recalculated using 2000-2004 new population estimates.** 8. U.S. data for 2004 obtained from NCHS. Deaths: Preliminary Data for 2004. National Vital Statistics Report, Vol. 54, No. 19, June 28, 2006.

Table 2a (continued). Five Leading Causes of Death[1] Comparability Unmodified and Comparability Modified Age-Adjusted Rates, Massachusetts and United States: 1994-2004

Year[2]		Influenza/Pneumonia MA		Influenza/Pneumonia US		Unintentional Injuries MA		Unintentional Injuries US		All Causes MA	All Causes US
		Comparability Unmodified[3]	Comparability Modified[4]	Comparability Unmodified[3]	Comparability Modified[4]	Comparability Unmodified[3]	Comparability Modified[4]	Comparability Unmodified[3]	Comparability Modified[4]		
1994	Rate	40.4	28.2	33.4	23.3	20.7	20.6	35.7	35.1	868.2	920.0
	% of Total	4.8		3.5		2.4		4.0			
1995	Rate	41.2	28.7	33.5	23.4	18.8	18.8	36.0	35.4	866.2	918.4
	% of Total	4.9		3.6		2.1		4.0			
1996	Rate	41.5	29.0	32.9	23.0	19.5	19.5	36.2	35.6	853.0	902.1
	% of Total	5.1		3.6		2.3		4.1			
1997	Rate	39.1	27.3	33.3	23.3	19.7	19.7	36.0	35.3	834.8	887.0
	% of Total	4.9		3.7		2.3		4.1			
1998	Rate	40.2	28.1	34.6	24.2	19.9	19.8	35.0	36.1	808.8	875.4
	% of Total	5.2		3.9		2.3		4.2			
1999	Rate	30.3[7]		23.4		19.3[7]		35.9		808.8	881.9
	% of Total	3.9		2.7		2.3		4.1			
2000	Rate	29.1[7]		23.7		20.2[7]		35.6		812.2	872.0
	% of Total	3.7		2.8		2.4		3.9			
2001	Rate	24.0[7]		21.8		21.9[7]		34.3		803.5	855.0
	% of Total	3.1		2.6		2.6		4.0			
2002	Rate	27.3[7]		22.7		20.5[7]		35.3		793.8	846.8
	% of Total	4.0		2.7		2.0		4.2			
2003	Rate	26.0[7]		22.0		20.1[7]		37.3		772.6	832.7
	% of Total	3.6		2.7		2.5		4.3			
2004	Rate	24.9[7]		20.4[8]		19.4[7]		36.6[8]		739.3	801.1[8]
	% of Total	3.6		2.6		2.5		4.5			

1. Cause of death: the disease or injury that initiated the events leading to death; or the circumstances of the unintentional or intentional injury that resulted in the death. 2. 1994-1998 data coded according to ICD-9. 1999-2004 data coded according to ICD-10. ICD-9 and ICD-10 codes used in this publication are listed in the Appendix. 3. Comparability unmodified rate: this rate has not been modified to account for changes from ICD-9 to ICD-10. 4. Comparability Modified Rate: this rate is adjusted using the preliminary comparability ratio (CR) from NCHS, February 2001 in order to account for changes from ICD-9 to ICD-10. Please see Appendix for a more detailed explanation and for a list of CR used in this report. 5. All rates are age-adjusted per 100,000 residents using the 2000 US standard population. U.S. data for years 1994-1998 obtained from Compressed Mortality File on CDC Wonder, February 2001. 6. NA: comparability ratio is not applicable for years prior to 1994. 7. When comparing data over time between 1994 through 2004, please use the comparability modified rate for years 1994-1998. **Resident deaths rates for 2000-2004 have been recalculated using 2000-2004 new population estimates.** 8. U.S. data for 2004 obtained from NCHS. Deaths: Preliminary Data for 2004. National Vital Statistics Report, Vol. 54, No. 19, June 28, 2006.

Figure 1

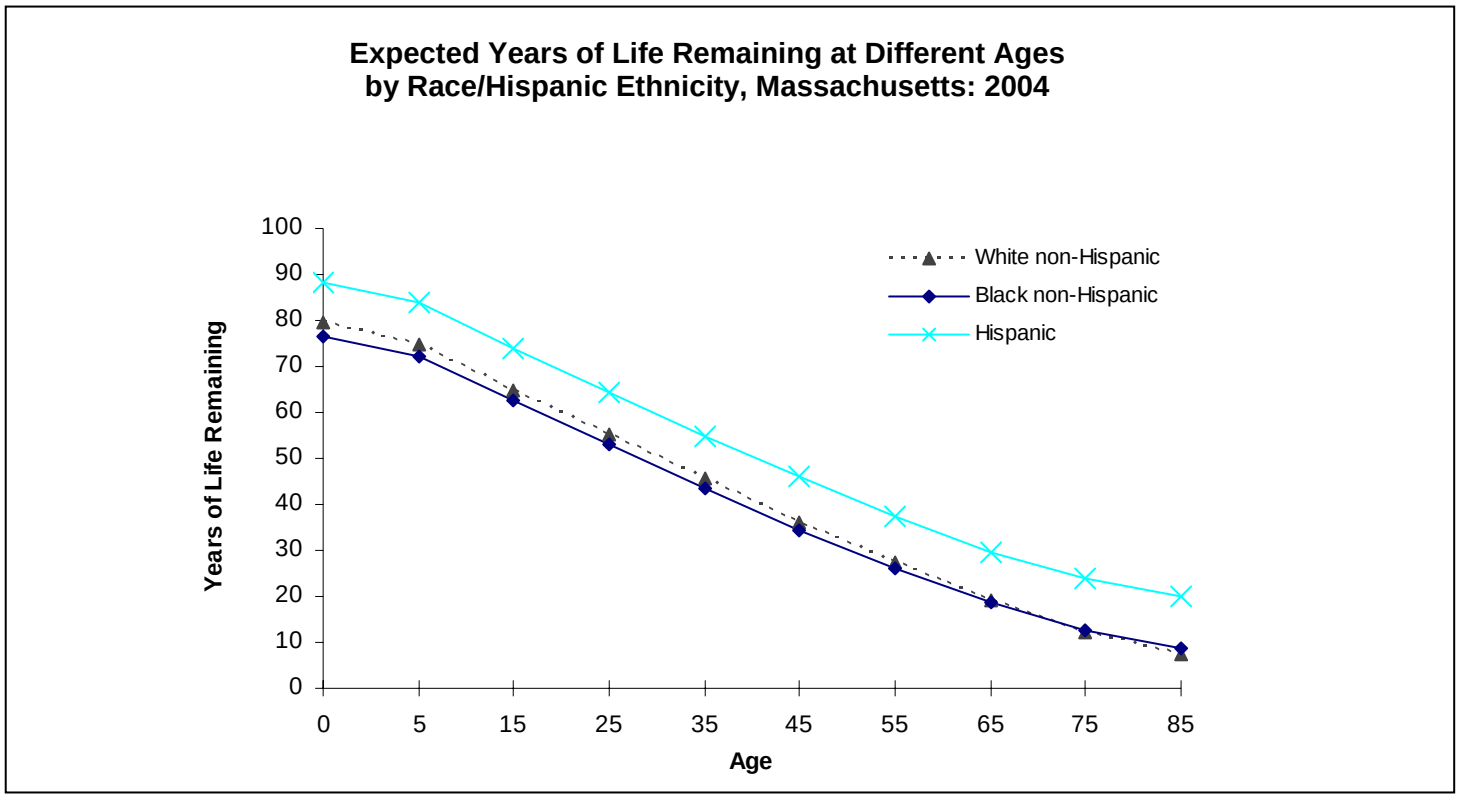


Table 2b. Years of Life Remaining[1], Massachusetts: 2004

At Age:	All	Females	White non-Hispanic Females	Black non-Hispanic Females	Hispanic Females	Males	White non-Hispanic Males	Black non-Hispanic Males	Hispanic Males
Birth	79.6	81.9	81.9	80.1	92.9	77.1	77.2	72.3	83.2
1 year old	78.9	81.2	81.1	79.9	92.5	76.5	76.5	72.1	82.8
5 years old	75.0	77.2	77.1	75.9	88.6	72.6	72.5	68.3	78.9
15 years old	65.1	67.3	67.1	66.0	78.6	62.6	62.6	58.4	69.0
25 years old	55.4	57.4	57.3	56.2	68.8	53.2	53.1	49.4	59.6
35 years old	45.8	47.7	47.5	46.7	59.1	43.6	43.6	40.2	50.2
45 years old	36.4	38.2	38.0	37.4	49.8	34.4	34.4	31.2	41.2
55 years old	27.5	29.0	28.8	28.7	40.8	25.8	25.7	22.9	33.2
65 years old	19.3	20.4	20.2	20.8	32.2	17.9	17.7	16.0	26.1
75 years old	12.5	13.2	13.0	14.0	25.7	11.4	11.3	10.9	21.0
85 years old	7.4	7.6	7.5	9.0	22.0	7.0	6.8	7.7	17.3

1. Years of Life Remaining calculated using the Greville Abridged Life Table Method (source: Dublin LI. Length of Life - A Study of the Life Table. Ronald Press Co. New York. 1949.) New population estimate for 2004 are used as the denominator.

Figure 2

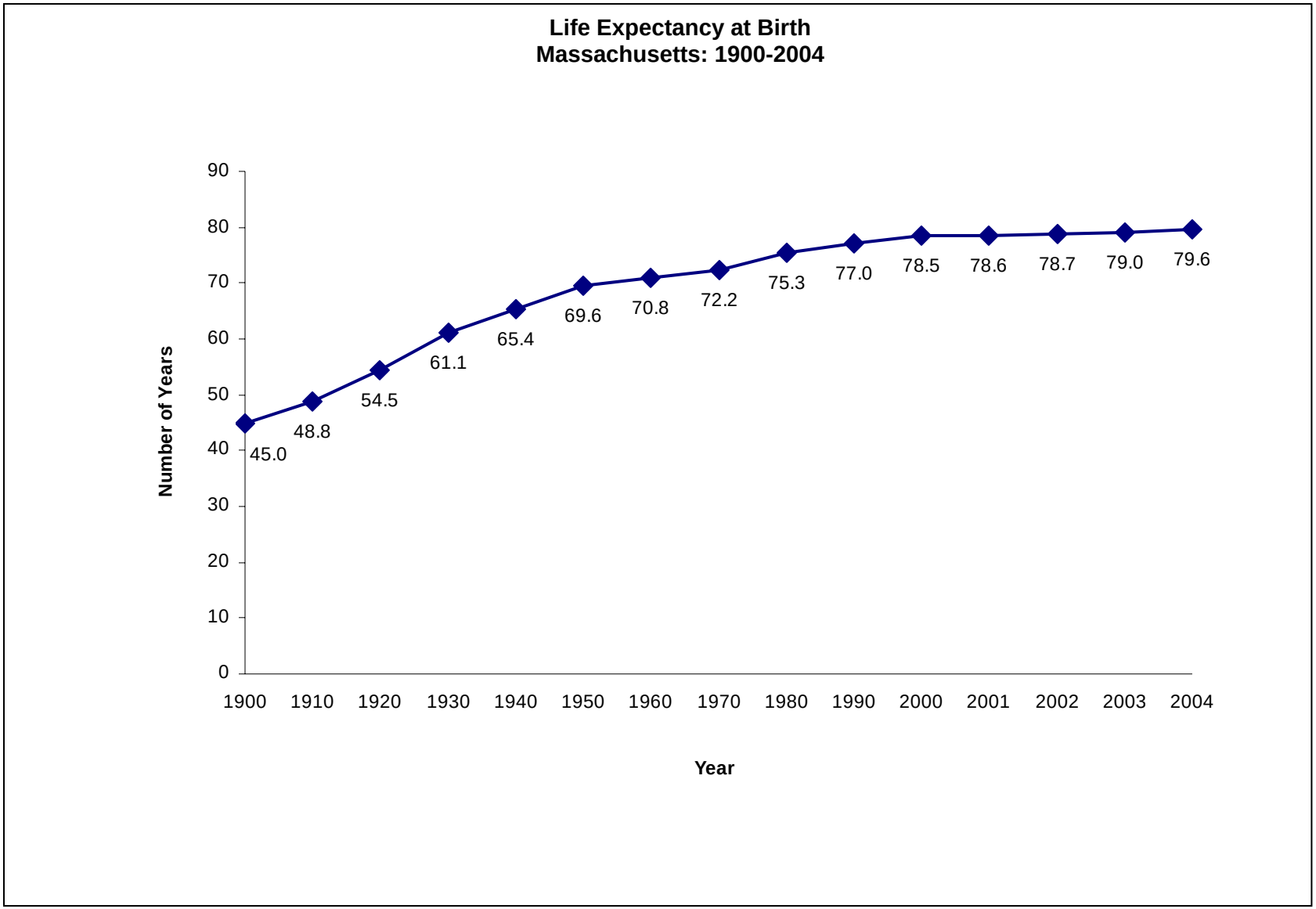
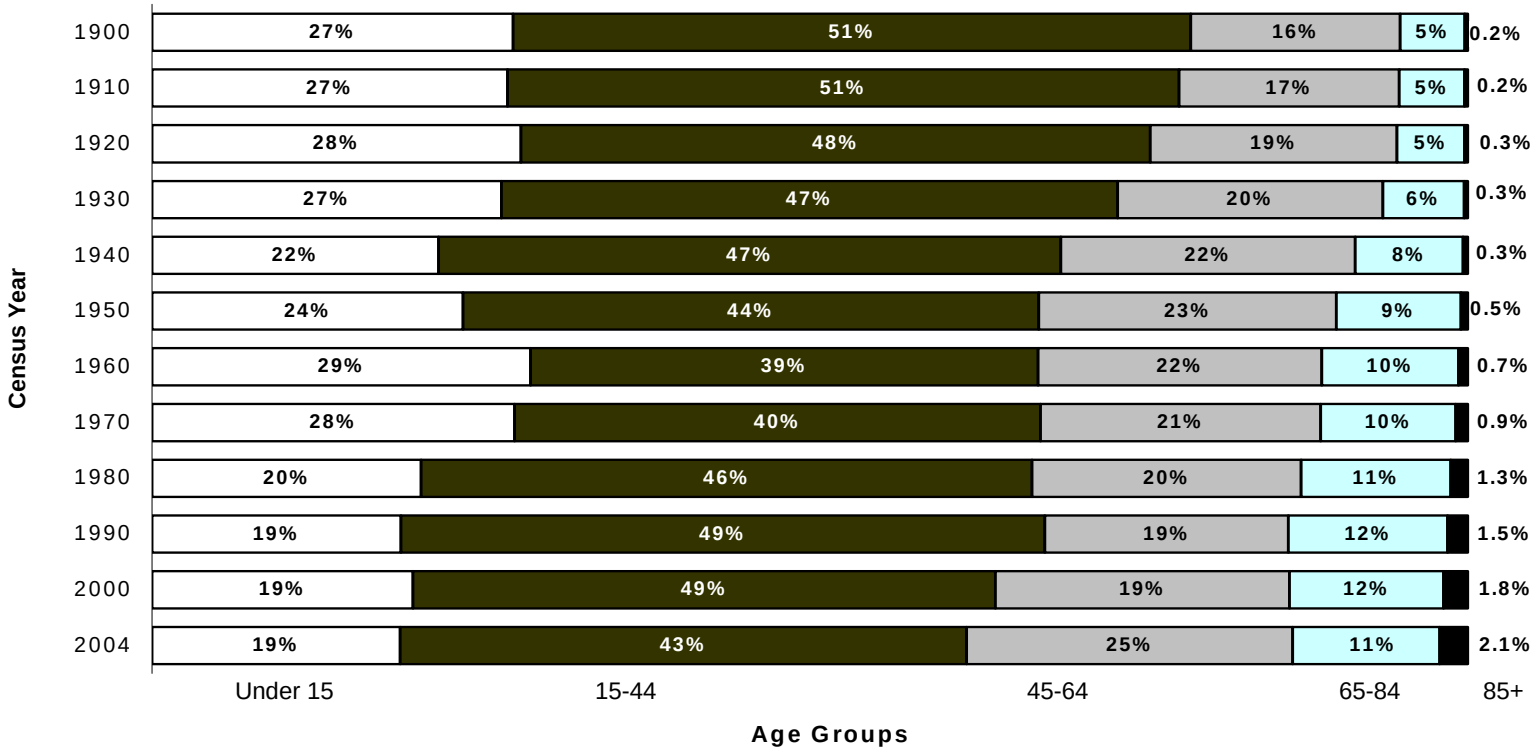

Life Expectancy at Birth
Massachusetts: 1900-2004
Number of Years
Year
90
80
70
60
50
40
30
20
10
0
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2001
2002
2003
2004
45.0
48.8
54.5
61.1
65.4
69.6
70.8
72.2
75.3
77.0
78.5
78.6
78.7
79.0
79.6

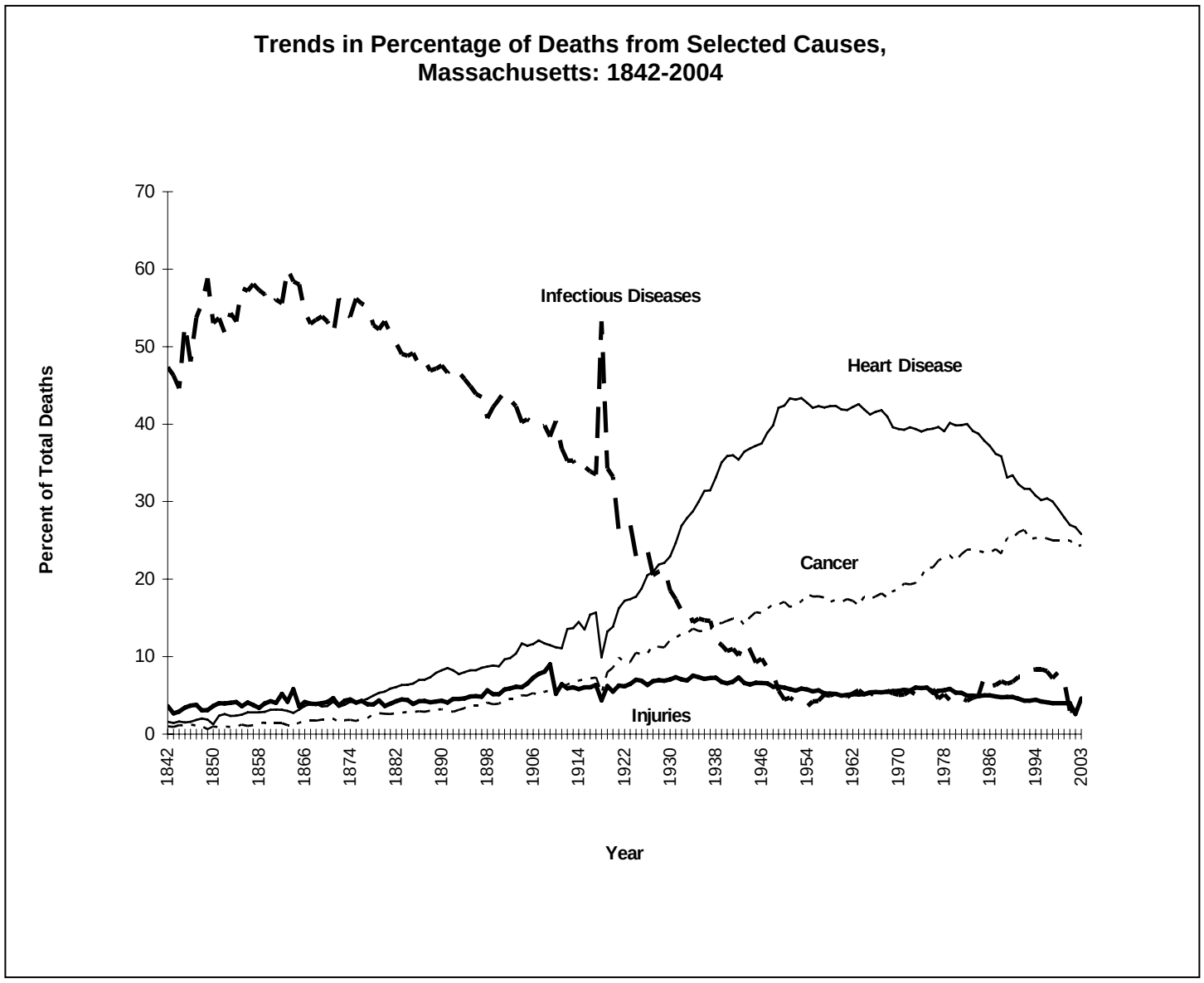
Figure 3

Changes in Age Composition of the Population
Massachusetts: 1900-2004



Source: US Census Bureau 1900-1999. New population estimates for 2000-2004.
Note: Percentages based on counts with known age.

Figure 4


Trends in Percentage of Deaths from Selected Causes,
Massachusetts: 1842-2004
Percent of Total Deaths
70
60
50
40
30
20
10
0
Infectious Diseases
Heart Disease
Cancer
Injuries
1842
1850
1858
1866
1874
1882
1890
1898
1906
1914
1922
1930
1938
1946
1954
1962
1970
1978
1986
1994
2003
Year

PLACE OF OCCURRENCE, MEDICAL EXAMINER CERTIFIED DEATHS, OCCUPATIONAL DEATHS, MEASURES OF MORTALITY, AND EDUCATIONAL ATTAINMENT

Place of Occurrence, Medical Examiner Certified Deaths, Occupational Deaths, Measures of Mortality, and Educational Attainment

Place of Occurrence

Of the 54,421 deaths in 2004, 23,558 (43%) occurred in hospitals – 36% of persons who died were inpatients at hospitals, and 8% died in emergency departments; 16,511 (30%) died in nursing homes, 12,287 (23%) died at home, and 936 (2%) were pronounced dead on arrival at emergency departments. These percentages have been consistent for the last 4 years (Table 3).

Medical Examiner Certified Deaths[6]

There are 19 circumstances in which a death is referred to the Medical Examiner's Office (not all deaths occur under suspicious circumstances or as a result of violence). Please refer to the Appendix for a list of these circumstances. The total number of deaths certified by medical examiners was 4,151 in 2003 and 3,915 in 2004. Of those deaths certified by medical examiners, 44% were reported as a result of natural causes (non-injury related). Most homicide and suicide deaths (99%) were certified by medical examiners in 2004 compared with only 7% of heart disease deaths and less than 1% of cancer deaths (Figure 5).

Occupational Deaths

The Massachusetts Department of Public Health (MDPH) collects information about work-related deaths as part of the national Census of Fatal Occupational Injuries (CFOI), conducted in cooperation with the Bureau of Labor Statistics in the U.S. Department of Labor. CFOI uses multiple data sources including death certificates, workers' compensation records, Occupational Health and Safety Administration (OSHA) records, and Coast Guard reports. For information about fatal occupational injuries in Massachusetts during 2004, contact the MDPH Occupational Health Surveillance Program at (617) 624-5632.

Premature Mortality

A good summary measure of the impact of death on different groups in the population is premature mortality[7][8]. The premature mortality rate (PMR) measures the rate of premature death, that is, deaths that occur before the age of 75 years. It is given as a rate per 100,000 and is age-adjusted to the 2000 U.S. standard population under 75 years of age. PMR is considered an excellent, single measure that reflects the health status of a population.

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[6] Massachusetts General Laws, Chapter 38, Section 3. http://www.mass.gov/legis/laws/mgl/38-3.htm.

[7] Carstairs V, Morris R. *Deprivation and Health in Scotland*. Aberdeen, Scotland: Aberdeen University Press, 1991.

[8] Patricia Martens, et al. The Health and Health Care Use of Registered First Nations People Living in Manitoba: A Population-Based Study. http://www.umanitoba.ca/centres/mchp/reports/reports_02/rfn.htm

The reason that PMR is an excellent measure is that the vast majority of deaths to persons ages 75 and older are due to chronic conditions associated with aging. By examining deaths to persons younger than 75, it is possible to identify many issues that are amenable to systematic public health approaches to health promotion and disease prevention. An attractive feature of PMR analyses is that it moves away from considering single causes or single risk factors of death to taking a broader community perspective. PMR may be related to socioeconomic status and its correlates such as environmental conditions, housing, education, stress, higher rates of smoking, substance abuse, violence, obesity, and lack of access to care.

PMR varied markedly by race and Hispanic ethnicity in Massachusetts in 2004. Black non-Hispanics had the highest PMR, experiencing over one and a half the rate of premature deaths as white non-Hispanics (467.5 vs. 320.8 deaths per 100,000). White non-Hispanics had the next highest PMR (320.8 deaths per 100,000), followed by Hispanics (290.7 deaths per 100,000) while Asian non-Hispanics had the lowest PMR in the state, 134.5 deaths per 100,000 (Figure 6).

Potential Years of Life Lost

The total potential years of life lost (PYLL), a measure of the overall impact of mortality on the population, is calculated for each specific cause of death by multiplying the total number of deaths for each age group by the difference between the life expectancy and the midpoint of the age group, then adding the PYLL for each specific cause of death for all age groups[9]. This method gives more weight to causes of death occurring at younger ages than to those occurring at later ages. For the purpose of calculating PYLL, starting with *Massachusetts Deaths 2002*, we have adjusted the maximum age to be 75 years so that we do not include deaths beyond average life expectancy. Data after 2002 are not comparable with previous publications, which used a different maximum age cutoff. See Glossary for further explanation.

For all premature deaths (death before age 75) among Massachusetts residents in 2004, 359,180 potential years of life were lost (Table 4). Heart disease and cancer ranked high on both the number of premature deaths and the PYLL. Yet other causes had different rankings based upon number of deaths and PYLL. For instance, unintentional injuries was the 7th leading cause of premature death in 2004, but it ranked third based on PYLL. This is because unintentional injuries tend to occur among younger persons, where the potential life lost is far greater than that for older persons. Consequently, causes of death from which more young people die rank higher on PYLL than the number of deaths. In 2004, premature deaths due to unintentional injuries, perinatal conditions, and suicide continue to have, on average, the highest number of PYLL (Table 4).

There were gender differences between the PYLL and the number of deaths. For instance, when examining all heart disease deaths, we can see that there were 696 more deaths for females than for males. However, males had over 22,000 more potential years of life lost than do females (Figure 7). This means that, on average, males died from heart disease at a younger age than did females.

[9] CDC. Premature Mortality in the United States: Public Health Issues in the Use of Years of Potential Life Lost. MMWR 1986; 35:1s-11s.

Figure 7 illustrates that cancer was the leading cause of PYLL for men and women, with lung cancer responsible for 23,800 PYLL. Heart disease and unintentional injuries were the second and third leading cause of PYLL for both genders. Suicide was the fourth leading cause of PYLL for males, while perinatal conditions was the 4th leading cause for females. Males experienced substantially more PYLL due to injuries than females did.

Educational Attainment

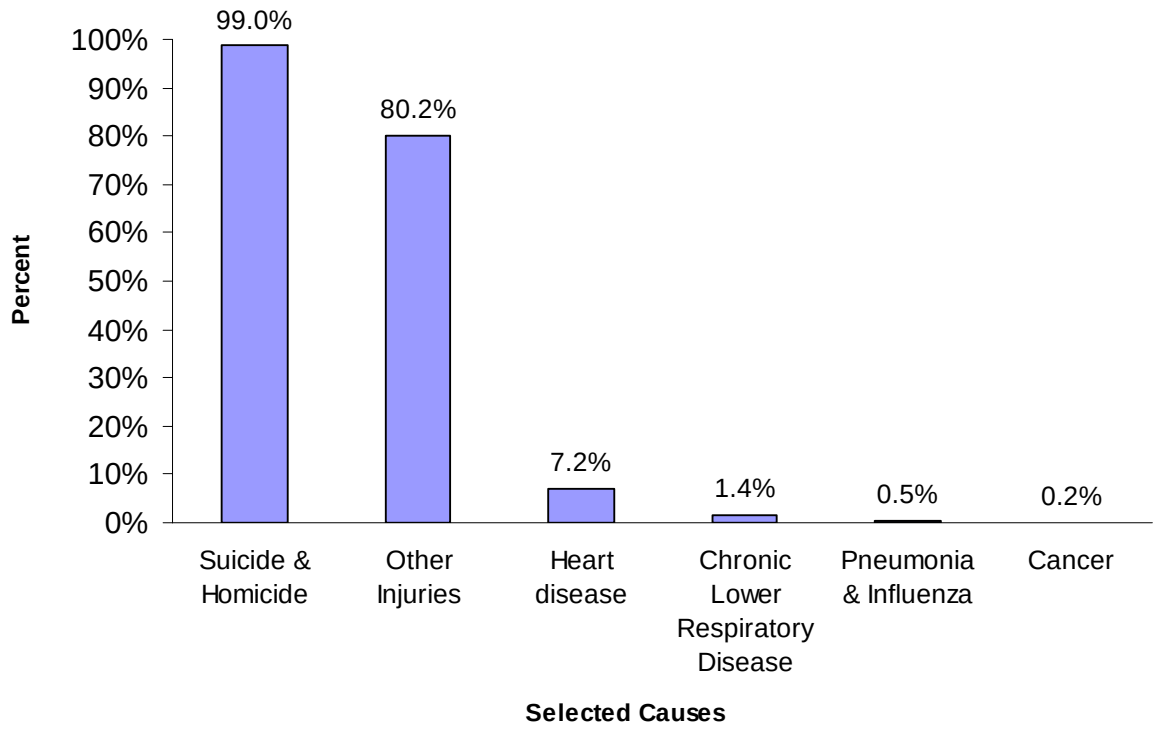
Mortality is inversely associated with educational attainment, that is, the average risk of death decreases markedly with increasing educational attainment. The age-adjusted death rate for those with a high school education or less was 518.9 per 100,000 population—almost 3 times higher than the rate of 174.6 for those with 13 years of education or more (Table 5). Rates are shown only for ages 25-64 years because persons under age 25 may not have completed their education.

Table 3. Distribution of Deaths by Place of Occurrence, Massachusetts: 2001-2004

Type of Place where death occurred	2001		2002		2003		2004	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Hospital (inpatient/outpatient)	25,393	45%	25,403	45%	24,936	44%	23,558	43%
Dead on Arrival	923	2	927	2	905	2	936	2
Nursing Home	17,265	30	17,232	30	16,888	30	16,511	30
At Home	11,952	21	12,296	22	12,439	22	12,287	23
Other	1,085	2	956	2	968	2	1,104	2
Unknown	115	0.2	67	0.1	58	0.1	23	0.04

Figure 5

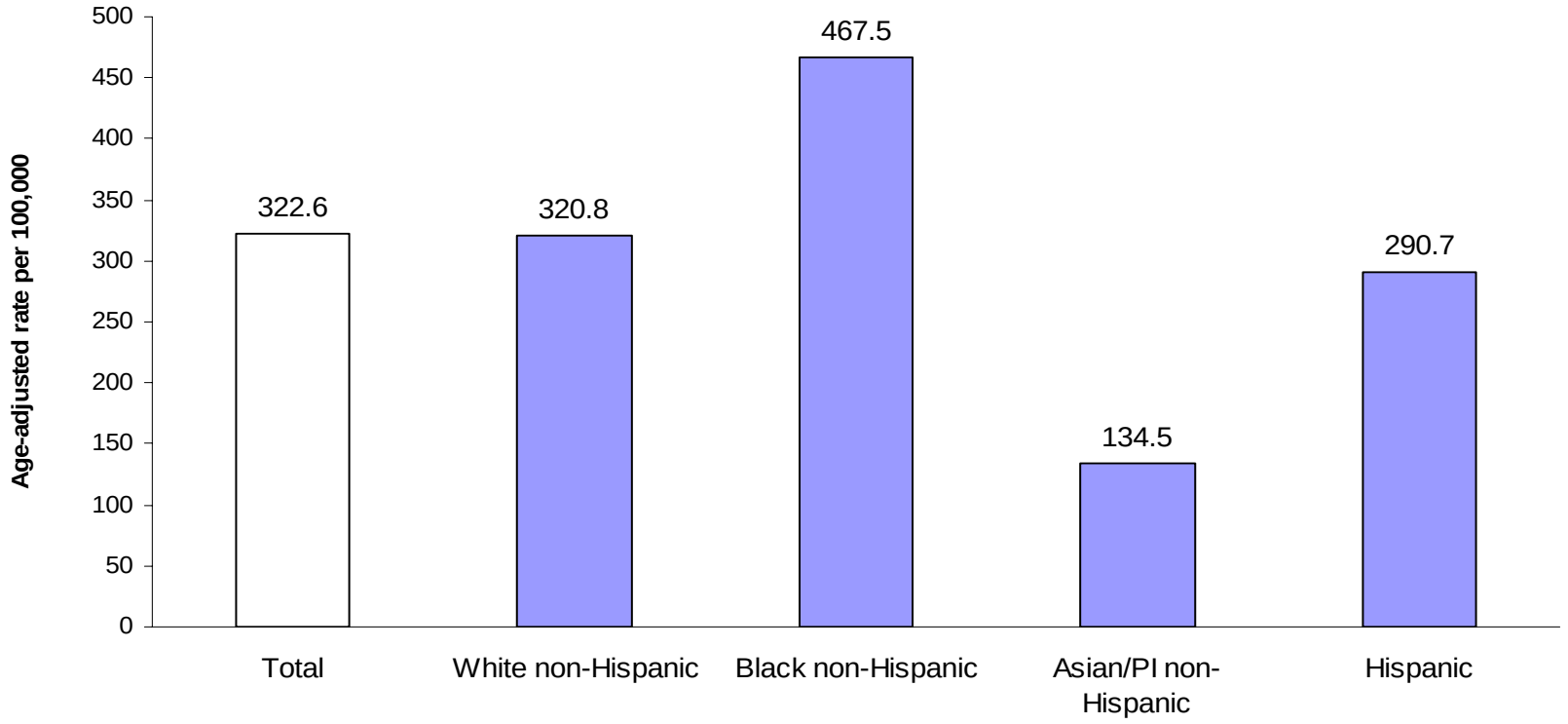
Proportion of Deaths Certified by Medical Examiner for Selected Causes[1] of Death, Massachusetts: 2004



See the Appendix section, "Circumstance for Referral to the Office of the Chief Medical Examiner (OCME)" for a list of circumstances requiring referral to the Medical Examiner's Office.

Figure 6

Premature Mortality Rate[1] (PMR) by Race and Hispanic Ethnicity, Massachusetts: 2004



[1] Deaths that occur before the age of 75 years per 100,000 and is age-adjusted to the 2000 U.S. standard population under 75 years of age.

Table 4. Rank by Potential Years of Life Lost (PYLL), Massachusetts: 2004

Cause	Total PYLL	Rank on PYLL	Average PYLL	# of Deaths before 75 years	Rank on # of Deaths
All Causes	*359,236*		*18.2*	*19,749*	
Cancer	94,888	1	14.1	6,727	2
Heart Disease	55,226	2	14.3	3,861	1
Unintentional injuries	28,904	3	34.2	842	7
Perinatal Conditions	17,429	4	74.5	234	22
Suicide	12,840	5	33.0	389	16
Stroke	8,392	6	13.2	636	3
Homicide	8,083	7	46.7	173	24
Diabetes	7,493	8	13.7	546	8
HIV/AIDS	6,060	9	29.0	209	23
Alzheimer's Disease	751	10	8.2	91	6

Note: Total potential years of life lost is calculated by multiplying the number of deaths for each group by the years of life lost (the difference between life expectancy and the midpoint of the age group, then adding the figures for all age groups).

Figure 7

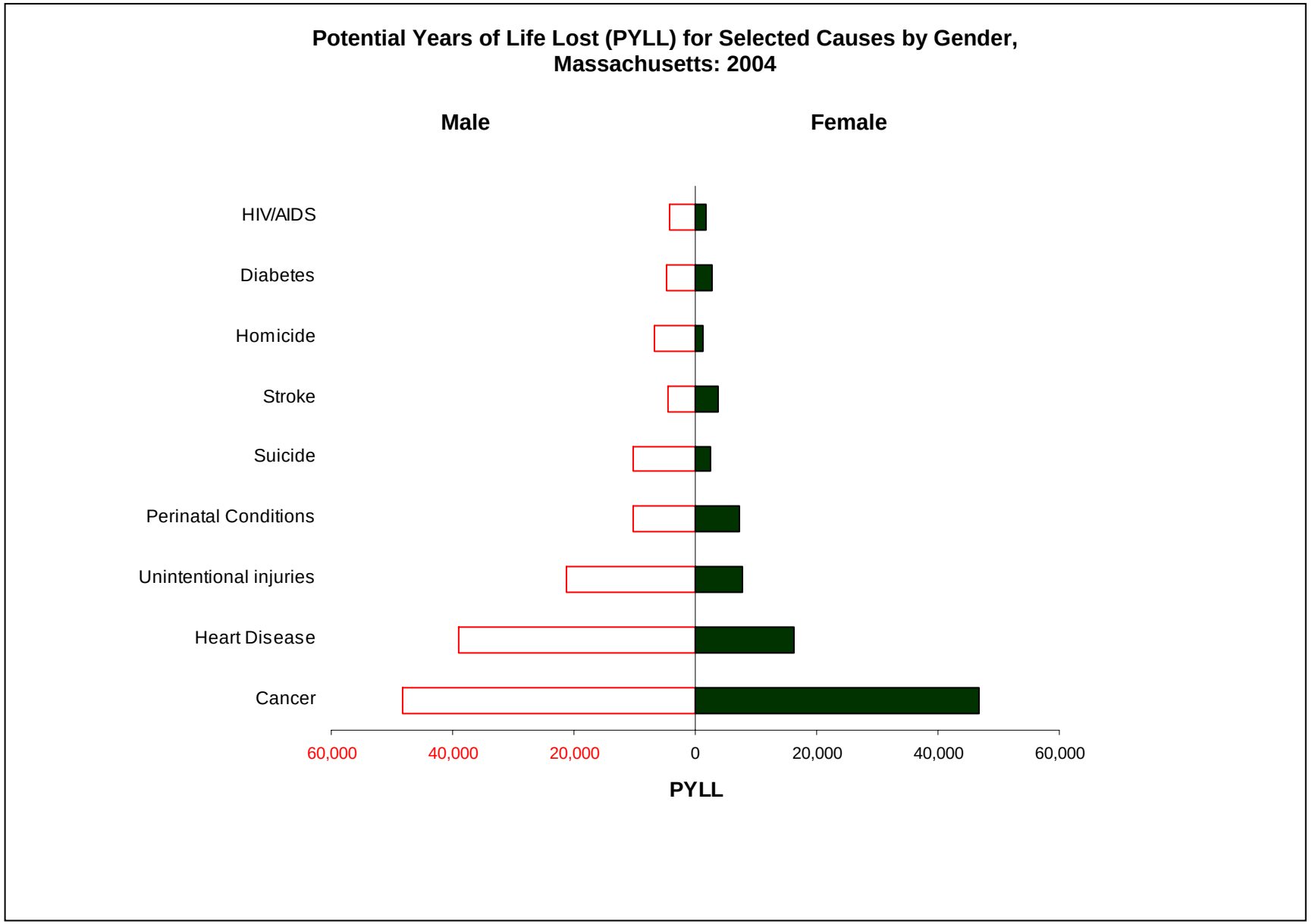
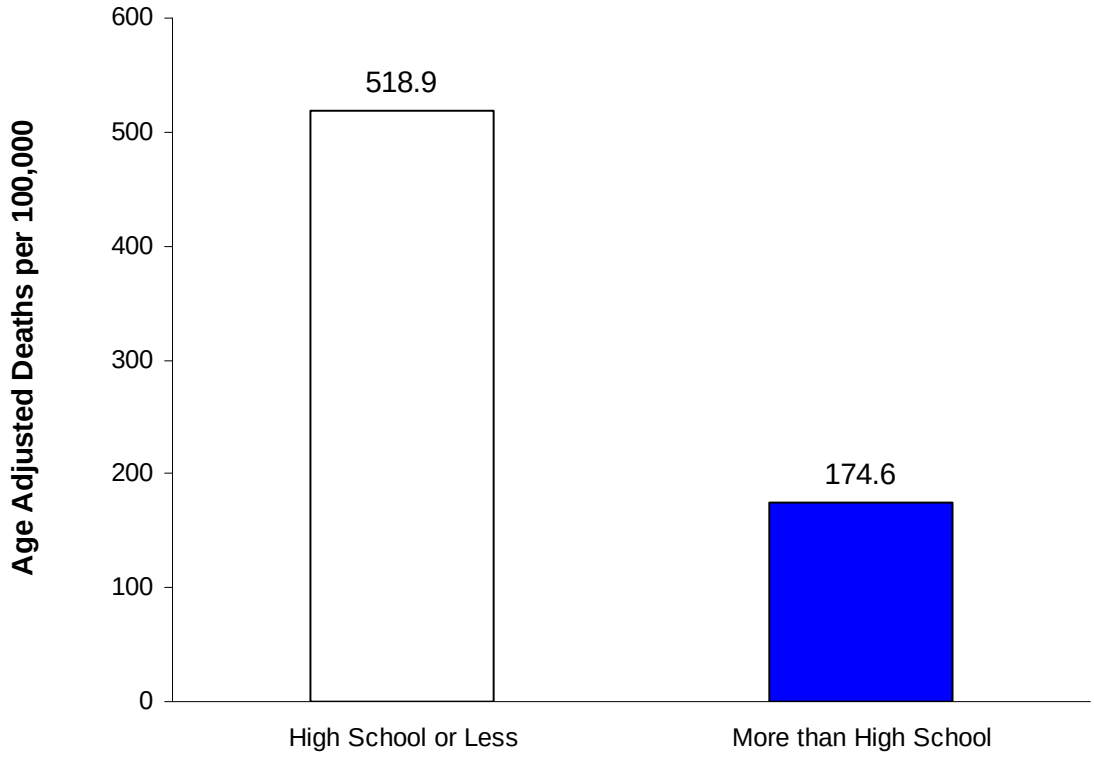

Potential Years of Life Lost (PYLL) for Selected Causes by Gender, Massachusetts: 2004
Male
Female
HIV/AIDS
Diabetes
Homicide
Stroke
Suicide
Perinatal Conditions
Unintentional injuries
Heart Disease
Cancer
60,000
40,000
20,000
0
20,000
40,000
60,000
PYLL

Table 5. Age-Adjusted Death Rates for Ages 25-64 Years by Educational Attainment*, Massachusetts: 2004

	Age-Specific Rates			Age-Adjusted Rates
Years of school completed	**25-34 years**	**35-44 years**	**45-64 years**	**25-64 years**
Both sexes				
High School or Less	130.7	277.3	932.7	**518.9**
13+ education	35.6	70.1	336.0	**174.6**

Age-Adjusted Death Rates by Education for Adults
Ages 25-64
Massachusetts: 2004



* Note: For this table and figure, 2000 denominator figures are used since these are the latest number available for population by age and education.

LEADING CAUSES

Leading Causes

Assigning ranks to causes of death is a way to give an overview of the major forces of mortality. Causes are ranked according to the number of deaths among the 113 causes specified by the Center for Disease Control and Prevention's National Center for Health Statistics (NCHS)[10].

Heart disease and cancer continued to be the leading causes of death among Massachusetts residents, accounting for half of all deaths (Figure 8). In 2004, 13,792 Massachusetts residents died of heart disease, which resulted in an age-adjusted death rate of 182.8 deaths per 100,000 persons. Cancer continues as the second leading cause of death, with 13,312 deaths, and an age-adjusted death rate of 188.4 deaths per 100,000 (Table 8). (Please note: rates are age-adjusted to the 2000 U.S. Standard Population).

As mentioned in a previous section, for the first time since 1997, the total *number* of resident deaths in 2004 decreased (by 3%, 1,776 deaths) from the previous year. In 2004, there were 830 fewer heart disease deaths, 212 fewer cancer deaths, and 147 fewer stroke deaths than in the previous year.

On an average day in 2004, 149 Massachusetts residents died (Figure 9). Approximately 38 of these deaths were due to heart disease, 36 to cancer, 16 to respiratory diseases, 9 to stroke, 7 to injuries, 4 to diabetes, 5 to Alzheimer's disease, 1 was an infant death, 1 was an HIV/AIDS death, and 32 were due to other causes.

Leading causes of death varied substantially by age. All injuries combined (unintentional, intentional, and injuries of undetermined intent) were the leading cause of death for persons between the ages of 1 to 44 years. In the older age groups, mortality due to chronic diseases was most prevalent (Table 6).

The lowest number of deaths (137) in the five age groups was seen among 1 to 14 year olds (Table 7a). In this group, the leading causes of death were unintentional injuries (41), cancer (23), congenital malformations (14), and homicides (7).

For persons ages 15 to 24, there was a total of 516 deaths. Injuries accounted for over seventy percent of these deaths. Unintentional injuries, which included motor vehicle-related deaths, falls, fires, and drownings, accounted for the highest percentage of deaths in this age group (32%), followed by homicide (16%), injuries of undetermined intent[11] (14%), and suicide (10%) (Table 7a). The number of homicides increased from last year for this age group, from 47 deaths to 80 deaths in 2004.

In 2004, cancer remained the number one cause of death for Massachusetts residents ages 25 to 84 (31%). Heart disease, chronic lower respiratory disease, and stroke were other leading causes.

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[10] The rankings do not necessarily denote the causes of death of greatest public health importance or the largest number among all causes of death. See Deaths: Leading Causes of 2002. National Vital Statistics Report, Vol. 53, No. 17, March 7, 2005, page 3.

[11] Deaths for which the medical examiner lacked sufficient evidence to classify the death as homicide, suicide, or accidental.

Heart disease was the leading cause of death for Massachusetts residents age 85 and older (31%) (Table 7b). Chronic diseases are the dominant cause of death for older persons. For instance, the heart disease death rate among persons age 65 to 74 was 4.4 times higher than the rate for persons age 45 to 64 (467.8 vs. 106.7 deaths per 100,000).

Death rates for children and young adults (ages 1 to 24) were much lower than those for older persons. Sixty-three percent of the deaths in this age group were due to injuries, both unintentional and intentional, and therefore, largely preventable. The proportion of deaths due to injury increased with age from 39% for children 1 to 14 years old to 71% for young persons, ages 15 to 24 years. However, injury deaths accounted only for 7% and 2% of deaths to persons ages 45 to 64 and persons age 65 and older, respectively.

Tables 7a and 7b compare age-adjusted death rates for males and females for overall leading causes of death. Unintentional injuries ranked first, and cancer ranked second for both males and females ages 1 to 14. Unintentional injuries also ranked first for young males and females ages 15 to 24. Homicide ranked second for both sexes ages 15 to 24 and for males in this group, but fourth for females in this age group. The rate of homicides for men ages 15-24 was 10 times higher than the rate of women for the same age group. The rank for injuries of undetermined intent was third for overall and for females ages 15-24. After combining all type of injuries (intentional, unintentional, and of undetermined intention) cancer was the second leading cause of death among young females and males. Heart disease ranked fourth for young males, whereas, for females it ranked seventh.

The four leading causes of death among persons ages 25 to 44 were also the same for males and females, but the order varied by sex. Injuries of undetermined intent ranked first for males and second for females while cancer ranked first among females and fourth among males. Suicide and HIV ranked fifth and sixth, respectively for both males and females in this age group. Cancer and heart disease were the top two causes of death for both males and females ages 45 to 64. Among persons age 65 and older, the top three causes were the same in cause and rank for both females and males (heart disease, cancer, and stroke).

The ten leading causes of death accounted for 76% of all deaths in 2004 (Table 8). The 10 leading causes of death remained the same as in 2003. The age-adjusted heart disease death rate was significantly lower in 2004 than it was in 2003, and the death rates for the other 9 leading causes of death remained stable since the previous year.

The leading causes of death varied markedly by race and Hispanic ethnicity in Massachusetts in 2004 as in previous years (Table 8). The overall age-adjusted death rate for black non-Hispanics exceeded that of white non-Hispanics by 16%. Age-adjusted death rates for black non-Hispanics were higher for most leading causes of death. HIV/AIDS disease remained among the 10 leading causes of death only for black non-Hispanics (ranked eighth) and Hispanics (ranked fourth), while Alzheimer's disease remained in the top ten for white non-Hispanics only.

The four major race and ethnic groups share five of the 10 leading causes of death. Cancer was the number one cause of death among Asian non-Hispanics, black non-Hispanics, and Hispanics in 2004, followed by heart disease and stroke. Heart disease was the leading cause of death for white non-Hispanics, followed by cancer, and stroke. The fourth cause of death for black non-Hispanics was nephritis, while diabetes was

fourth for Asians. The leading causes of death among Hispanics also included HIV/AIDS, perinatal conditions, and injuries of undetermined intent, all of which occurred more frequently among younger people.

In 2004, cancer and heart disease were the leading causes of death among Cape Verdean non-Hispanics in Massachusetts, followed by stroke, diabetes, influenza and pneumonia, and, unintentional injuries (Table 9) (see Technical Notes for a discussion of Cape Verdeans non-Hispanics).

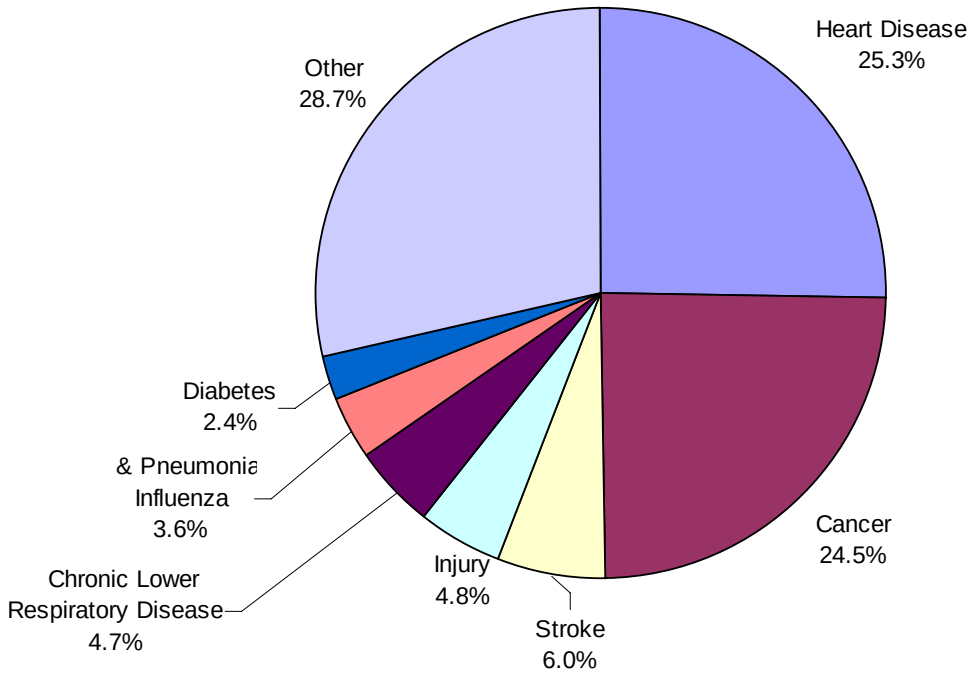
In 2004, the 10 leading causes of death for white non-Hispanics remained the same as in 2003, with diabetes and unintentional injuries switching places. Among white non-Hispanics, the death rate for heart disease decreased by 6% in 2004 from 2003 (185.7 vs. 198.5) and stroke (41.9 vs. 44.7) both. Among black non-Hispanics, homicide returned to the 10 leading causes of death in 2004. The death rate for homicide increased by 45% (15.7 vs. 10.8), although this difference was not statistically significant. Among black non-Hispanics, the death rates for chronic lower respiratory disease, diabetes, and stroke remained stable. Among Hispanics, death rates for injuries of underdetermined intent, unintentional injuries, perinatal conditions, and chronic lower respiratory disease remained stable in 2004 from 2003.

The differences in the 10 leading causes of death by race and ethnicity result from a combination of factors, including age. Younger age distributions within the Massachusetts black non-Hispanic and Hispanic populations yield higher proportions of deaths from causes typically affecting the young. Black non-Hispanics and Hispanics ages 15 to 44 have higher age-specific death rates for all causes as compared with white non-Hispanics. Among the 15 to 24 age group, black non-Hispanics and Hispanics have a higher age-specific death rate for homicide as compared with white non-Hispanics. Among persons over the age of 44, Hispanics and Asian non-Hispanics have lower age-specific death rates for all causes of death and from heart disease and cancer as compared with white non-Hispanics and black non-Hispanics (Tables 10a and Table 10b).

Among Hispanic subgroups, the majority of deaths occurred among Puerto Ricans (60%), the largest Hispanic population group in Massachusetts. The leading causes of death varied by group among Hispanics. Heart disease was the leading cause of death for Puerto Ricans, Dominicans and Cubans, while cancer was the leading cause for all other groups except for Central Americans. Central Americans had perinatal conditions as the leading cause of death in 2004. Homicides were the 6th and 4th causes of death among Puerto Ricans and Dominicans, respectively (Table 10c).

Figure 8

Percent Distribution of Leading Underlying Causes of Death[1]
Massachusetts: 2004

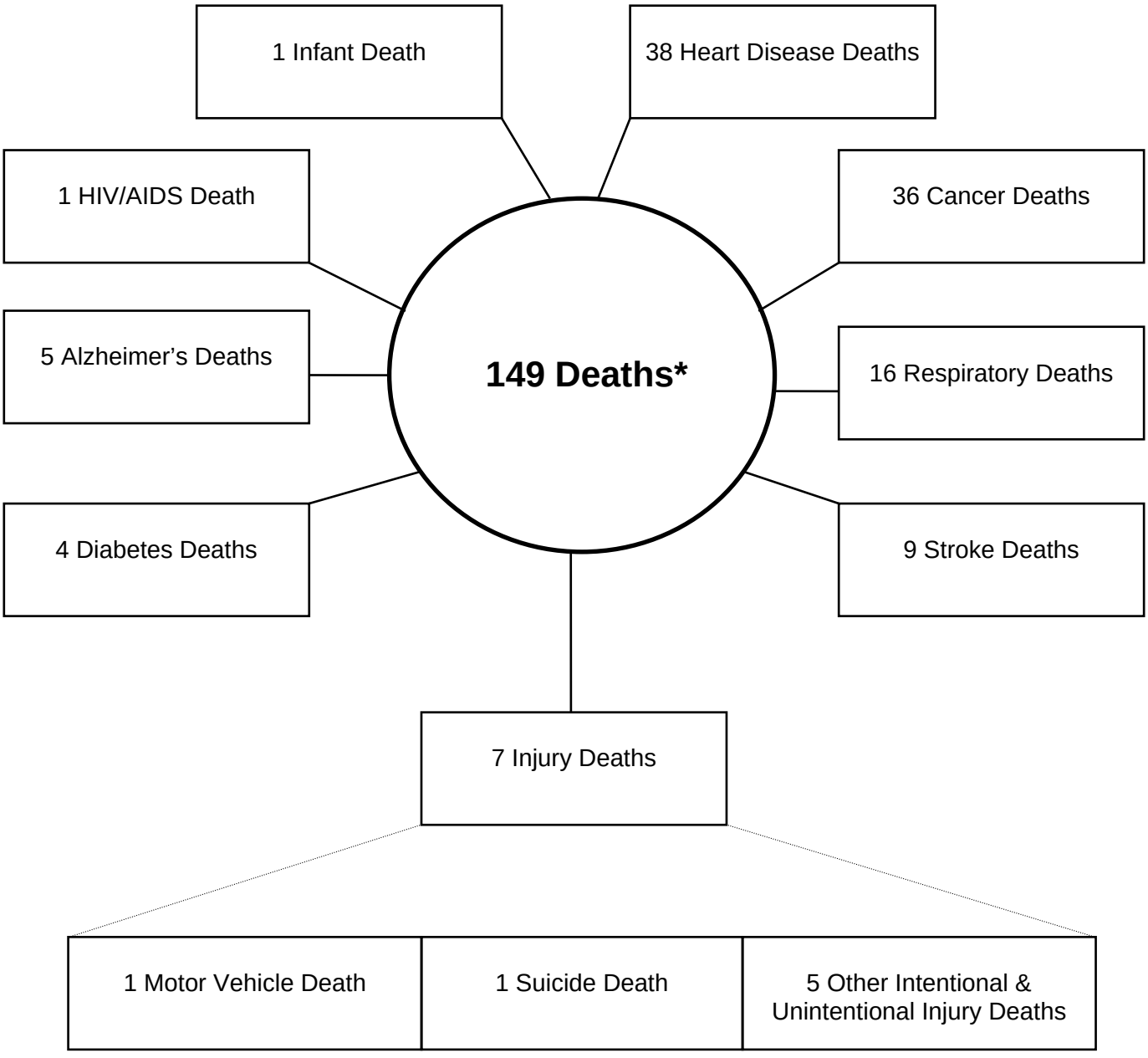


[1]Total Number of Deaths = 54,419
Causes of Death are classified according to ICD-10

Figure 9

Daily Death Statistics
Massachusetts: 2004

Every day in 2004, residents of Massachusetts experienced on average:



*includes 32 deaths due to other causes

Table 6. Top Ten Leading Underlying Causes of Death* by Age, Massachusetts 2004

	Age Groups (number of deaths)								
Rank	**<1 year**	**1-14 years**	**15-24 years**	**25-44 years**	**45-64 years**	**65-74 years**	**75-84 years**	**85+ years**	**All**
1	Short gestation (83)	Unintentional injuries (41)	Unintentional injuries (165)	Cancer (410)	Cancer (3,126)	Cancer (3,138)	Cancer (4,273)	Heart disease (5,763)	**Heart disease (13,792)**
2	Congenital malformations (59)	Cancer (23)	Homicide (80)	Injuries of undetermined intent (325)	Heart disease (1,697)	Heart disease (1,853)	Heart disease (4,167)	Cancer (2,312)	**Cancer (13,312)**
3	Pregnancy Complications (39)	Congenital malformations (14)	Injuries of undetermined intent (73)	Heart disease (285)	Unintentional injuries (279)	Chronic Lower Respiratory Disease (487)	Stroke (1,100)	Stroke (1,516)	**Stroke (3,252)**
4	SIDS (33)	Homicide (7)	Suicide (51)	Unintentional injuries (263)	Chronic Lower Respiratory Disease (256)	Stroke (359)	Chronic Lower Respiratory Disease (1,033)	Influenza & pneumonia (1,108)	**Chronic Lower Respiratory Disease (2,573)**
5	Complications of placenta (28)	Heart disease (5)	Cancer (30)	Suicide (165)	Chronic Liver Disease (251)	Diabetes (263)	Influenza & pneumonia (595)	Alzheimer's Disease (1,045)	**Influenza & pneumonia (1,955)**
6	Intrauterine hypoxia (13)	Ill defined conditions (5)	Ill defined conditions (23)	HIV /AIDS (88)	Diabetes (246)	Septicemia (167)	Alzheimer's Disease (535)	Chronic Lower Respiratory Disease (778)	**Alzheimer's Disease (1,671)**
7	Circulatory System (10)	Septicemia (3)	Heart disease (15)	Ill defined conditions (85)	Stroke (229)	Nephritis (159)	Diabetes (443)	Nephritis (509)	**Unintentional injuries (1,352)**
8	Necrotizing entercolitis (10)	Suicide (3)	Congenital malformations (7)	Homicide (60)	Injuries of undetermined intent (189)	Influenza & pneumonia (157)	Nephritis (431)	Diabetes (338)	**Diabetes (1,327)**
9	Respiratory distress (9)	Injuries of undetermined intent (3)	Stroke (5)	Chronic Liver Disease (52)	Septicemia (156)	Chronic Liver Disease (113)	Septicemia (300)	Septicemia (308)	**Nephritis (1,249)**
10	Atelectasis (6)	In situ neoplasms (2)	Influenza & pneumonia (4)	Stroke (38)	Suicide (141)	Unintentional injuries (93)	Unintentional injuries (233)	Ill defined conditions (281)	**Septicemia (961)**
All Causes	**376**	**137**	**517**	**2,247**	**8,347**	**8,126**	**16,342**	**18,327**	**54,419**

* Ranking based on number of deaths. Number of deaths in parentheses.

Injuries are broken down by intent (unintentional, homicide, suicide) and injuries of undetermined intent (deaths where investigation has not determined whether injuries were accidental or purposely inflicted).

Table 7a. Leading Underlying Causes of Death*, Numbers and Age-Specific Rates by Gender, Massachusetts: 2004

		Total		Female		Male	
Age	**Cause of death[1]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**
1-14 years	**TOTAL**	**137**	**12.1**	**58**	**10.5**	**79**	**13.6**
	Unintentional Injuries	41	3.6	15	2.7	26	4.5
	Cancer	23	2.0	11	2.0	12	2.1
	Congenital Malformations	14	1.2	6	1.1	8	1.4
	Homicide	7	0.6	2	--[5]	5	0.9
15-24 years	**TOTAL**	**517**	**60.7**	**119**	**28.3**	**398**	**92.3**
	Unintentional Injuries	165	19.3	42	9.8	123	28.5
	Homicide	80	9.4	7	1.7	73	16.9
	Injuries of Undetermined Intent	73	8.6	13	3.1	60	13.9
	Suicide	51	6.0	8	1.9	43	10.0
25-44 years	**TOTAL**	**2,247**	**117.6**	**779**	**80.4**	**1,468**	**155.9**
	Cancer	410	21.5	224	23.1	186	19.8
	Injuries of Undetermined Intent	325	17.0	102	10.5	223	23.7
	Heart Disease	285	14.9	78	8.0	207	22.0
	Unintentional Injuries	263	13.8	64	6.6	199	21.1
45-64 years	**TOTAL**	**8,347**	**525.2**	**3,214**	**391.0**	**5,133**	**669.1**
	Cancer	3,126	196.7	1,509	183.6	1,617	210.8
	Heart Disease	1,697	106.7	452	55.0	1,245	162.2
	Unintentional Injuries	279	17.6	82	10.0	197	25.7
	Chronic Lower Respiratory Disease[3]	256	16.1	123	15.0	133	17.3
65+ years[4]	**TOTAL**	**42,795**	**5,009.1**	**24,746**	**4,870.1**	**18,049**	**5,212.8**
	Heart Disease	11,783	1,379.2	6,703	1,319.2	5,080	1,467.2
	Cancer	9,723	1,138.1	4,965	977.1	4,758	1,374.2
	Stroke	2,975	348.2	1,919	377.7	1,056	304.7
	Chronic Lower Respiratory Disease[3]	2,298	269.0	1,309	257.6	989	285.7

1. Cause of Death classified using ICD-10. See Appendix for ICD-10 codes. 2. Number of deaths per 100,000 residents in each age group. 3. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title). 4. See Table 7b for leading causes of death for detailed age groups for persons ages 65+ years. 5. Calculations based on fewer than 5 events are excluded.

* Ranking based on number of deaths for all persons.

Table 7b. Leading Underlying Causes of Death, Numbers and Age-Specific Rates (Ages 65 and older) by Gender, Massachusetts: 2004

		Total		Female		Male	
Age	**Cause of death[1]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**
65-74 years	**TOTAL**	**8,126**	**2,051.6**	**3,680**	**1,692.6**	**4,446**	**2,335.8**
	Cancer	3,138	792.3	1,536	706.5	1,602	841.8
	Heart Disease	1,853	467.8	732	336.7	1,121	589.1
	Chronic Lower Respiratory Disease[3]	487	123.0	245	112.7	242	127.2
	Stroke	359	90.6	176	80.9	183	95.6
75-84 years	**TOTAL**	**16,342**	**5,073.0**	**8,575**	**4,390.9**	**7,767**	**6,456.7**
	Cancer	4,273	1,326.5	2,093	1,071.7	2,180	1,812.2
	Heart Disease	4,167	1,293.6	2,070	1,060.0	2,097	1,743.2
	Stroke	1,100	341.5	619	317.0	481	399.9
	Chronic Lower Respiratory Disease[3]	1,033	320.7	575	294.4	458	380.7
85+ years	**TOTAL**	**18,327**	**13,463.4**	**12,491**	**13,092.5**	**5,836**	**18,857.4**
	Heart Disease	5,763	4,233.6	3,901	4,088.8	1,862	6,016.5
	Cancer	2,312	1,698.4	1,336	1,400.3	976	3,153.7
	Stroke	1,516	1,113.7	1,124	1,178.1	392	1,266.6
	Influenza and Pneumonia	1,108	814.0	737	772.5	371	1,198.8

1. Cause of Death classified according to ICD-10. See Appendix for ICD-10 codes. 2. Number of deaths per 100,000 residents in each age group. 3. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title).

Table 8. Leading Causes of Death[1] and Age-Adjusted Death Rates by Race and Hispanic Ethnicity, Massachusetts: 2004

White, non-Hispanic[2]

Cause[3]	#	Rate[4]
Total	**50,439**	**744.7**
Heart disease	13,021	185.7
Cancer	12,432	192.5
Stroke	3,006	41.9
Chronic Lower Resp. Disease[5]	2,471	36.4
Influenza and Pneumonia	1,874	25.4
Alzheimer's Disease	1,617	21.4
Unintentional injuries[6]	1,224	20.3
Diabetes	1,172	17.6
Nephritis	1,110	15.7
Septicemia	873	12.8

Black, non-Hispanic[2]

Cause	#	Rate
Total	**2,225**	**866.2**
Cancer	504	200.1
Heart Disease	484	198.8
Stroke	129	56.2
Nephritis	89	37.8
Diabetes	83	34.3
Homicide	70	15.7
Septicemia	61	24.6
HIV/AIDS	55	15.8
Perinatal Conditions	51	10.0
Chronic Lower Resp. Disease[5]	48	19.7

Asian, non-Hispanic[2]

Cause	#	Rate
Total	**531**	**353.7**
Cancer	149	93.1
Heart Disease	76	56.1
Stroke	47	34.1
Diabetes	24	17.7
Unintentional injuries[6]	24	10.2
Chronic Lower Resp. Disease[5]	19	15.2
Nephritis	16	12.8
Influenza and Pneumonia	14	11.2
Ill defined conditions	11	6.0
Suicide	10	2.7

Hispanic

Cause	#	Rate
Total	**1,115**	**482.1**
Cancer	209	100.1
Heart Disease	184	100.3
Stroke	65	35.5
HIV/AIDS	55	13.9
Unintentional injuries[6]	46	10.5
Diabetes	45	26.4
Perinatal Conditions	44	5.6
Injuries of Undetermined Intent	43	8.5
Homicide	40	6.8
Nephritis	32	18.5

Total

Cause	#	Rate
Total	**54,419**	**739.3**
Heart disease	13,792	182.8
Cancer	13,312	188.4
Stroke	3,252	42.5
Chronic Lower Respiratory Disease[5]	2,573	35.2
Influenza and Pneumonia	1,955	24.9
Alzheimer's Disease	1,671	20.8
Unintentional injuries[6]	1,350	19.4
Diabetes	1,327	18.4
Nephritis	1,249	16.6
Septicemia	961	13.1

1. Ranking based on number of deaths. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in a race category. Please refer to the Technical Notes in the Appendix for a more detailed explanation. 3. Underlying Cause of Death based on ICD-10 (Please refer to Appendix for list of ICD-10 codes used). 4. All rates are age-adjusted per 100,000 residents using the 2000 US standard population.
5. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title).
6. Unintentional injuries such as motor vehicle-related and other transportation related deaths, falls, fires, and drownings that were not intended to occur.

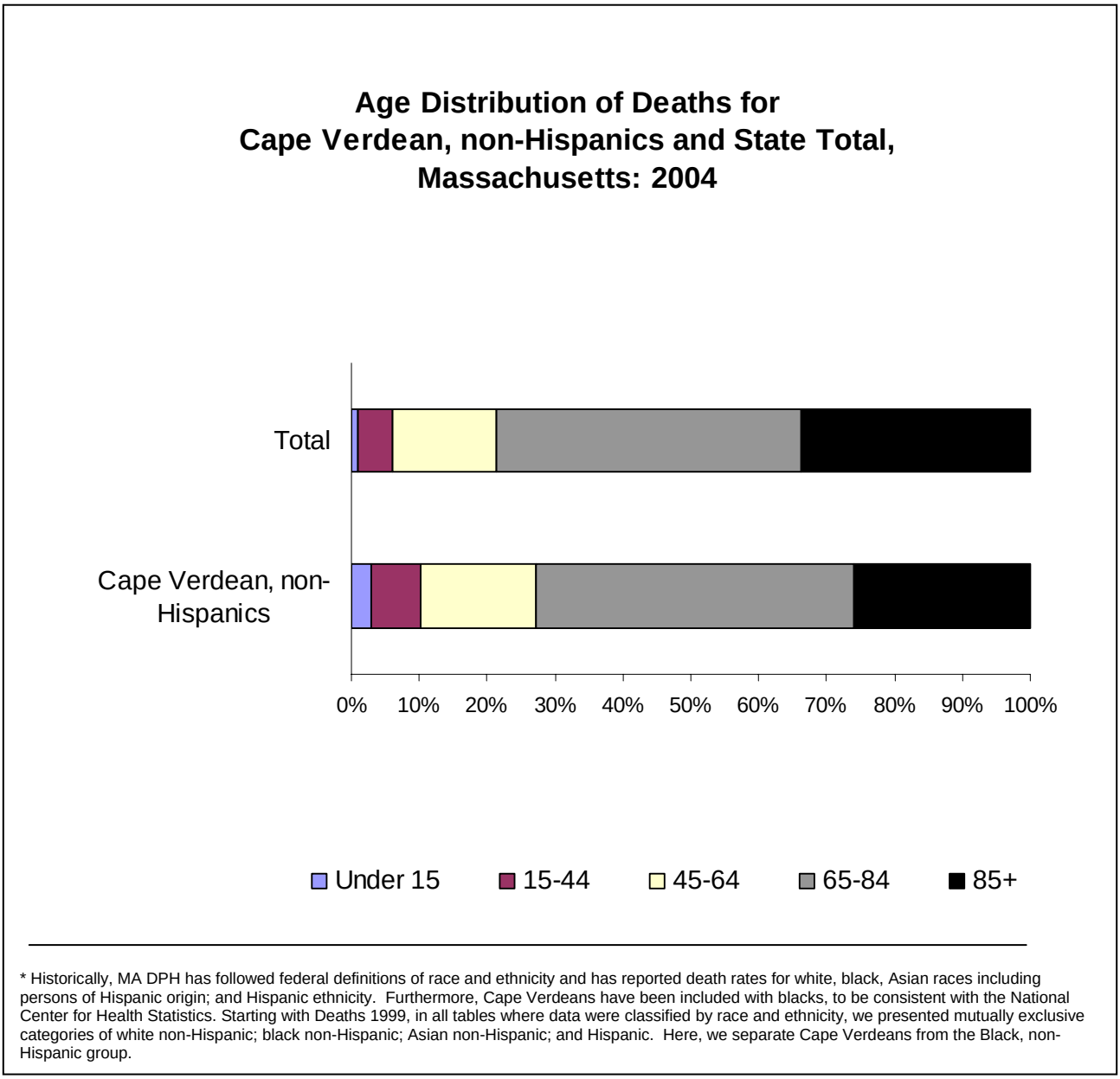
Table 9. Leading Causes of Death[1] for Cape Verdean, non-Hispanics*, Massachusetts: 2004

	Number	Percent
Heart Disease	52	31.5%
Cancer	33	20.0
Stroke	10	6.1
Diabetes	6	3.6
Influenza and pneumonia	6	3.6
Unintentional injuries	6	3.6
In situ neoplasms	4	2.4
Perinatal Conditions	4	2.4
Homicide	3	1.8
Other Causes	41	24.8
All Deaths	**165**	**100%**

1. Deaths are coded according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 2. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title).

* Historically, MA DPH has followed federal definitions of race and ethnicity and has reported death rates for white, black, Asian races including persons of Hispanic origin; and Hispanic ethnicity. Furthermore, Cape Verdeans have been included with blacks, to be consistent with the National Center for Health Statistics. Starting with Deaths 1999, in all tables where data were classified by race and ethnicity, we presented mutually exclusive categories of white, non-Hispanic; black, non-Hispanic; Asian, non-Hispanic; and Hispanic. Here, we separate Cape Verdeans from the Black, non-Hispanic group.

Figure 10



* Historically, MA DPH has followed federal definitions of race and ethnicity and has reported death rates for white, black, Asian races including persons of Hispanic origin; and Hispanic ethnicity. Furthermore, Cape Verdeans have been included with blacks, to be consistent with the National Center for Health Statistics. Starting with Deaths 1999, in all tables where data were classified by race and ethnicity, we presented mutually exclusive categories of white non-Hispanic; black non-Hispanic; Asian non-Hispanic; and Hispanic. Here, we separate Cape Verdeans from the Black, non-Hispanic group.

Table 10a. Number and Age-Specific Rates for Selected Causes of Death by Race and Hispanic Ethnicity, Massachusetts: 2004

	Total		White, non-Hispanic[1]		Black, non-Hispanic[1]		Asian, non-Hispanic[1]		Hispanic	
Selected Causes[2]	**#**	**Rate[3]**	**#**	**Rate**	**#**	**Rate**	**#**	**Rate**	**#**	**Rate**
Age: 1-14, TOTAL	**137**	**12.1**	**91**	**10.7**	**18**	**19.9**	**10**	**17.6**	**17**	**12.8**
Unintentional Injuries[4]	41	3.6	31	3.7	4	--[5]	2	--[5]	3	--[5]
Cancer	23	2.0	15	1.8	3	--[5]	1	--[5]	4	--[5]
Congenital malformations	14	1.2	10	1.2	1	--[5]	2	--[5]	1	--[5]
Homicide	7	0.6	3	--[5]	2	--[5]	0	--[5]	2	--[5]
Age: 15-24, TOTAL	**517**	**60.7**	**368**	**57.0**	**71**	**110.0**	**14**	**28.7**	**59**	**65.4**
Unintentional Injuries[4]	165	19.3	137	21.2	9	13.9	4	--[5]	13	14.4
Homicide	80	9.4	16	2.5	43	66.6	2	--[5]	16	17.7
Injuries of Undetermined Intent[6]	73	8.6	68	10.5	0	--[5]	0	--[5]	5	5.5
Suicide	51	6.0	42	6.5	4	--[5]	2	--[5]	3	--[5]
Age: 25-44, TOTAL	**2,247**	**117.6**	**1,755**	**117.9**	**217**	**179.1**	**48**	**38.6**	**211**	**122.7**
Cancer	410	21.5	337	22.6	34	28.1	9	7.2	29	16.9
Injuries of Undetermined Intent[6]	325	17.0	274	18.4	18	14.9	3	--[5]	28	16.3
Heart Disease	285	14.9	235	15.8	30	24.8	5	4.0	14	8.1
Unintentional Injuries[4]	263	13.8	217	14.6	15	12.4	9	7.2	20	11.6
Age: 45-64, TOTAL	**8,346**	**525.2**	**7,320**	**527.1**	**588**	**782.8**	**91**	**174.0**	**327**	**470.1**
Cancer	3,126	196.7	2,831	203.9	170	226.3	41	78.4	83	119.3
Heart Disease	1,697	106.7	1,487	107.0	130	173.1	13	24.9	63	90.6
Unintentional Injuries[4]	279	17.6	255	18.4	10	13.3	3	--[5]	6	8.6
Chronic Lower Respiratory Disease[7]	256	16.1	227	16.3	14	18.6	2	--[5]	10	14.4
Age: 65+, TOTAL[8]	**42,795**	**5,009.1**	**40,695**	**5,150.8**	**1,256**	**4,610.5**	**353**	**2,016.0**	**426**	**2,336.3**
Heart Disease	11,783	1,379.2	11,286	1,428.5	314	1,152.6	56	319.8	105	575.8
Cancer	9,723	1,138.1	9,229	1,168.1	293	1,075.5	95	542.5	91	499.1
Stroke	2,975	348.2	2,800	354.4	96	352.4	36	205.6	38	208.4
Chronic Lower Respiratory Disease[7]	2,298	269.0	2,229	282.1	31	113.8	17	97.1	20	109.7

1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in a race category. Please refer to the Technical Notes in the Appendix for a more detailed explanation. 2. Deaths are coded according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 3. Number of deaths per 100,000 persons in each age group. 4. Unintentional injuries include injuries such as motor vehicle-related and other transportation related deaths, falls, fires, and drownings that were not intended to occur. 5. Calculations based on fewer than five events are excluded. 6. Injuries of undetermined intent include deaths from falls, fires, drownings, and drug overdoses, where the investigation has not determined whether the injuries were accidental or purposely inflicted. 7. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title). 8. Please see Table 10b for causes of death for detailed age groups for persons ages 65+ years.

Table 10b. Number and Age-Specific Rates for Selected Causes of Death, Persons Ages 65+ by Race and Hispanic Ethnicity, Massachusetts: 2004

	Total		White, non-Hispanic[1]		Black, non-Hispanic[1]		Asian, non-Hispanic[1]		Hispanic	
Selected Causes[2]	**#**	**Rate[3]**	**#**	**Rate**	**#**	**Rate**	**#**	**Rate**	**#**	**Rate**
Age: 65-74, TOTAL	**8,126**	**2,051.6**	**7,428**	**2,071.1**	**401**	**2,634.5**	**99**	**937.1**	**174**	**1581.2**
Cancer	3,138	792.3	2,920	814.1	127	834.4	43	407.0	41	372.6
Heart Disease	1,853	467.8	1,683	469.2	105	689.8	9	85.2	47	427.1
Chronic Lower Respiratory Disease[4]	487	123.0	469	130.8	10	65.7	4	--[5]	4	--[5]
Stroke	359	90.6	310	86.4	20	131.4	11	104.1	17	154.5
Age: 75-84, TOTAL	**16,342**	**5,073.0**	**15,537**	**5,141.6**	**485**	**5,473.4**	**142**	**2660.7**	**156**	**2946.2**
Cancer	4,273	1,326.5	4,060	1,343.6	**125**	1,410.7	45	843.2	37	698.8
Heart Disease	4,167	1,293.6	3,997	1,322.7	110	1,241.4	19	356.0	33	623.2
Stroke	1,100	341.5	1,035	342.5	40	451.4	11	206.1	13	245.5
Chronic Lower Respiratory Disease[4]	1,033	320.7	1,011	334.6	9	101.6	6	112.4	6	113.3
Age: 85+, TOTAL	**18,327**	**13,463.4**	**17,730**	**13,720.6**	**370**	**11,708.9**	**112**	**6965.2**	**96**	**4961.2**
Heart Disease	5,763	4,233.6	5,606	4,338.3	99	3,132.9	28	1741.3	25	1292.0
Cancer	2,312	1,698.4	2,249	1,740.4	41	1,297.5	7	435.3	13	671.8
Stroke	1,516	1,113.7	1,455	1,126.0	36	1,139.2	14	870.6	8	413.4
Influenza and Pneumonia	1,108	814.0	1,082	837.3	14	443.0	5	310.9	7	361.8

1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in a race category. Please refer to the Technical Notes in the Appendix for a more detailed explanation. 2. Deaths are coded according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 3. Number of deaths per 100,000 persons in each age group. 4. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title). 5. Calculations based on fewer than five events are excluded.

Table 10c. Number of Deaths for Leading Causes of Death[1] by Hispanic Ethnicity, Massachusetts: 2004

Ethnicity	Cancer	Heart Disease	Stroke	HIV/ AIDS	Unintentional Injuries	Diabetes	Perinatal Conditions	Injuries of Undetermined Intent	Homicide	Chronic Lower Respiratory Disease[2]	ALL DEATHS
Puerto Rican	126	129	44	46	23	37	20	37	27	23	**754**
Dominican	28	25	9	2	4	7	6	4	8	3	**130**
Central American	10	8	7	3	11	1	13	0	0	1	**76**
South American	19	7	3	1	4	0	4	1	3	1	**62**
Cuban	17	13	2	1	1	0	1	0	1	2	**61**
Mexican	3	1	0	2	1	0	0	1	1	1	**20**
Other/Unknown	7	1	0	0	2	0	0	0	1	0	**10**
All Hispanics	**210**	**184**	**65**	**55**	**46**	**45**	**44**	**43**	**41**	**31**	**1,115**

[1] Ranking based on number of deaths. Underlying Cause of Death based on ICD-10 (Please refer to Appendix for list of ICD-10 codes used).
[2] The title of this cause has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title).

HEART DISEASE AND CANCER

Heart Disease and Cancer

Heart disease and cancer continued to be the first and second leading causes of death among Massachusetts residents in 2004: there were 13,792 heart disease deaths and 13,312 cancer deaths, yielding age-adjusted rates of 182.8 and 188.4 deaths per 100,000 persons respectively (Table 8). In 2004, heart disease, the leading cause of death, had a death rate significantly lower than that in 2003 (182.8 vs. 196.6). The proportion of all deaths due to heart disease and cancer was 50% in 2004, compared with 54% in 1998. While heart disease deaths have declined continually since 1998, cancer deaths have gone up and down since then.

The gap between these two leading causes of death continued to narrow to its lowest point since at least 1994 (480 deaths vs. 2,680 deaths in 1994). The overall leading cause of cancer death was lung cancer (27%) followed by colorectal cancer (10%) (Table 12).

The introduction of a new revision of the ICD in 1999 has created major discontinuities in trend data. The extent of this discontinuity is measured using a "comparability ratio", which measures the level of agreement between both classification systems. The National Center for Health Statistics (NCHS) has calculated preliminary comparability ratios using a large sample of national mortality data. **When comparing data after 1999 to previous years, the comparability modified data should be used.**

Gender Patterns

While more women die of heart disease than men (7,244 vs. 6,548), men are more likely to die from heart disease than women, as measured by their death rate of heart disease (226.6 for men vs. 147.9 deaths for women, per 100,000). This was true for Hispanics, Black non-Hispanics, and white non-Hispanics, although the extent of risk varied by race and ethnicity in 2004 (see Figure 11c).

In 2004, there were 13,312 cancer deaths – 6,594 men and 6,718 women (Table 12). The overall cancer death rate for men was 47% higher than the rate for women (226.6 vs. 164.0 per 100,000). In 2004, this excess risk in men was true among black non-Hispanics, who were 78% more likely of dying of cancer than their female counterparts; followed by white non-Hispanics (37%) (Figure 12c).

For women, lung cancer (26%), breast cancer (14%), and colon cancer (10%) were the most common causes of cancer death –accounting for 50% of all women's cancer deaths. For men, lung cancer (29%), prostate cancer (10%), and colon cancer (9%) accounted for 48% of all men's cancer deaths. In 2004, men had higher death rates than women for the most common site-specific cancers including: bladder, colorectal, esophagus, leukemia, lung, non-Hodgkin's lymphoma, pancreas, and stomach among others (Table 12).

Age Patterns

Heart disease continues to be the leading cause of death for Massachusetts residents ages 85 and older. Cancer continues to be the leading cause of death for MA residents ages 45-74, and it is now the leading cause of death for persons ages 75-84 as well (Table 6). Heart disease deaths occur predominantly among the older population. This was true for each race and ethnic group, although the percentage varied by race and ethnicity. In 2004, 85% of all heart disease deaths occurred among people ages 65 and older (Figure 11b); 87% among white non-Hispanics; 65% among black non-Hispanics; 74% among Asian non-Hispanics; and 57% among Hispanics (Figure 11b).

Cancer, like heart disease, is largely a disease of older adults. In 2004, approximately 3 out of 4 (73%) cancer deaths in Massachusetts occurred in persons 65 years and older. This age group accounted for 74% of all cancer deaths among white non-Hispanics, 58% among black non-Hispanics, 64% among Asian non-Hispanics, and 43% among Hispanics (Figure 12b).

In 2004, the smallest number of cancer deaths was seen among persons under the age of 45 (463 deaths, Table 13). Brain cancer was the leading cause of cancer death for all persons ages 1 to 14. Leukemia was the leading cause of cancer death for persons between the ages of 15-24. Among cancers affecting men and women, lung cancer was the leading cause of cancer death for all persons, ages 25 and older. Female breast cancer was the second leading cause of cancer death (351 deaths) among adults ages 25 to 64. Colorectal cancer was the second leading cause of cancer death among persons ages 65 and older.

Race/Ethnicity and Gender Patterns

In Massachusetts during the past 7 years, the age-adjusted death rate for heart disease has continually decreased for white non-Hispanics; similar patterns were seen for both males and females (Table 11). The Asian non-Hispanic death rate for heart disease decreased by 36% in 2004 from 2003 (a 51% decrease for men, and no change among women). In 2004, the death rate for heart disease for Hispanics and black non-Hispanics did not change from the previous year (Table 11). In the same year, the heart disease death rate for white non-Hispanics declined by 6%; this rate decreased by 7% for men, and decreased by 6% for women (Figure 11c).

In 2004, 55% of all cancer-related deaths in Massachusetts were associated with five sites: lung, colorectal, female breast, pancreas and prostate (Table 12). In 2004, there were 212 fewer number of cancer deaths than in 2003, however there were 20 more for Hispanics. The overall cancer death rate for black non-Hispanics was no different than that of white non-Hispanics, but the cancer death rate among black non-Hispanic men was significantly higher than that of white non-Hispanic men. In 2004, Hispanics and Asian non-Hispanics had the lowest cancer death rates, overall and for both men and women (Figure 11c).

Cancer mortality affects race and ethnic groups differentially. Lung and colorectal cancer continued to be the leading causes of cancer death for all race and ethnic groups in 2004. Female breast cancer was the third leading cause of cancer death only for white non-Hispanics and the fourth leading cause of cancer death among Hispanics and black non-Hispanics. Pancreatic cancer was among the five leading causes of cancer death for all race and ethnic groups except for Asians, ranking third among Hispanics. Prostate cancer was among the top 5 cancers only for white non-Hispanics and black non-Hispanics. Leukemia, non-Hodgkin's lymphoma, and stomach cancers were the third, fourth, and fifth leading causes of cancer death only for Asian non-Hispanics, while leukemia was the fifth leading cause of cancer death only for Hispanics (Table 14).

The death rate for breast cancer for black non-Hispanic women declined by 46% from 2003 (19.0 vs. 36.0). In 2004, the prostate cancer death rate for black non-Hispanic men continued to be higher than that of any other racial and ethnic group. It was 2.3 times the rate for white non-Hispanics (2.6 times in 2003, 1.8 in 2002) (Table 14).

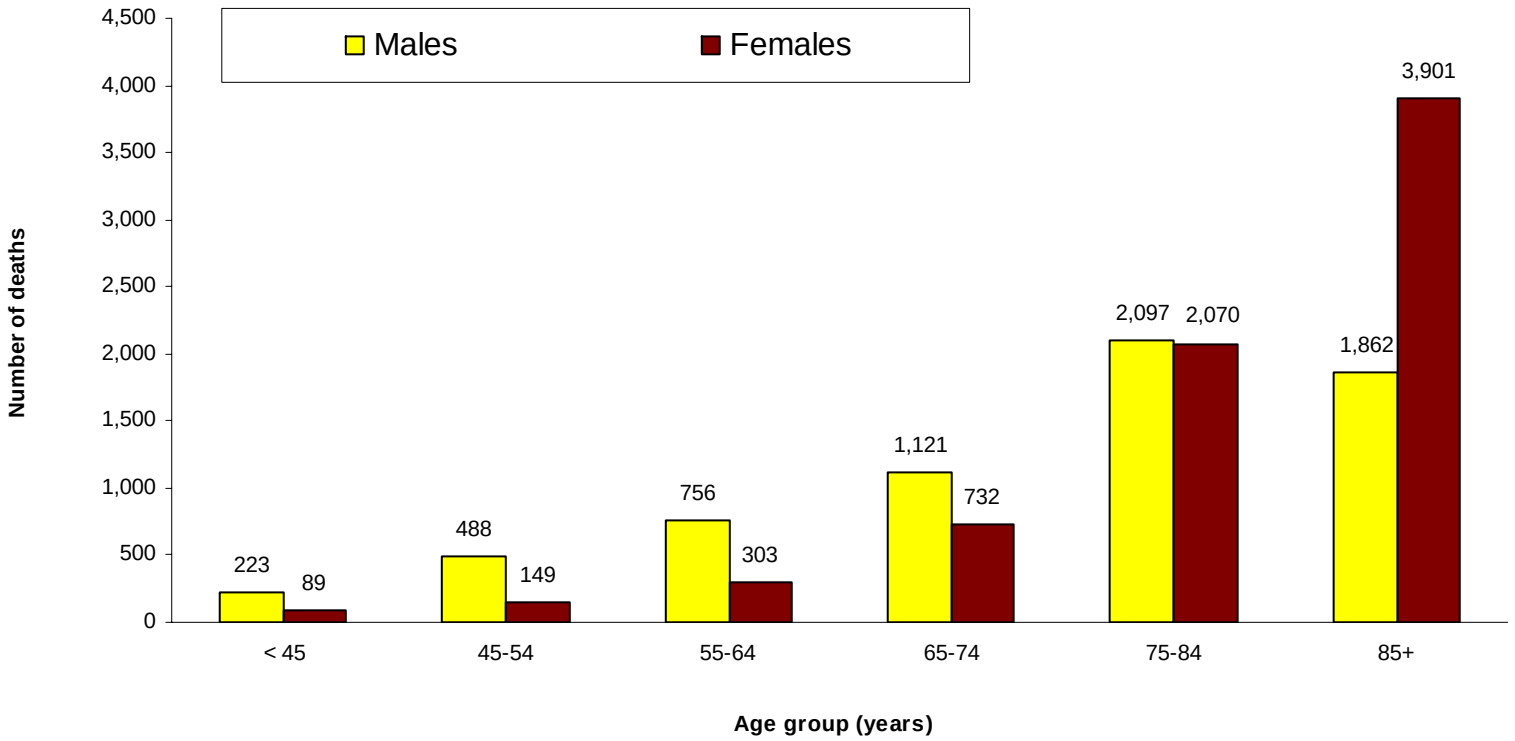
Compared with 2003, 2004 cancer–specific death rates have not decreased equally for all populations. For example, lung cancer death rates decreased only for black non-Hispanics

(by 12%); this rate declined by 22% among black non-Hispanic women. The death rate for colorectal cancer remained stable for all racial and ethnic groups. Similarly, the male death rate for prostate remained stable for all racial and ethnic groups. In 2004, Leukemia entered the five leading causes of cancer deaths for Asians and Hispanics. The death rate for Leukemia remained stable for all racial and ethnic groups.

Trends in cancer death rates may reflect differences in cancer risk behaviors, changes in screening modalities, aging of the population, and the development and use of new and more effective treatments. Continuing research and prevention efforts are needed to reach high-risk and underserved populations and to understand the reasons for differences in mortality among race and ethnic groups in Massachusetts.

Figure 11a

Heart Disease Deaths by Age Group and Gender
Massachusetts: 2004



ICD-10: I00-I09, I11, I13, I20-I51

Figure 11b

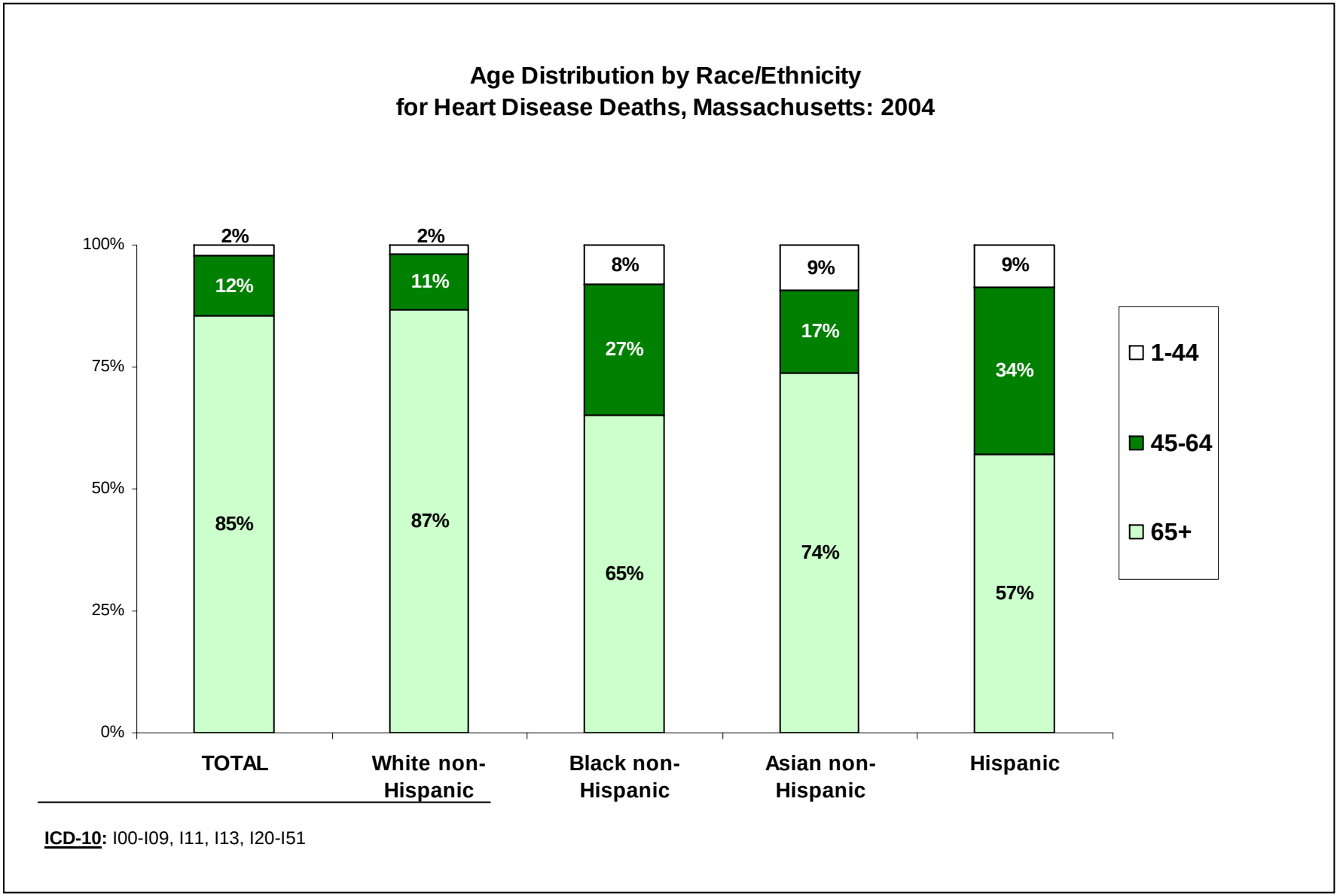
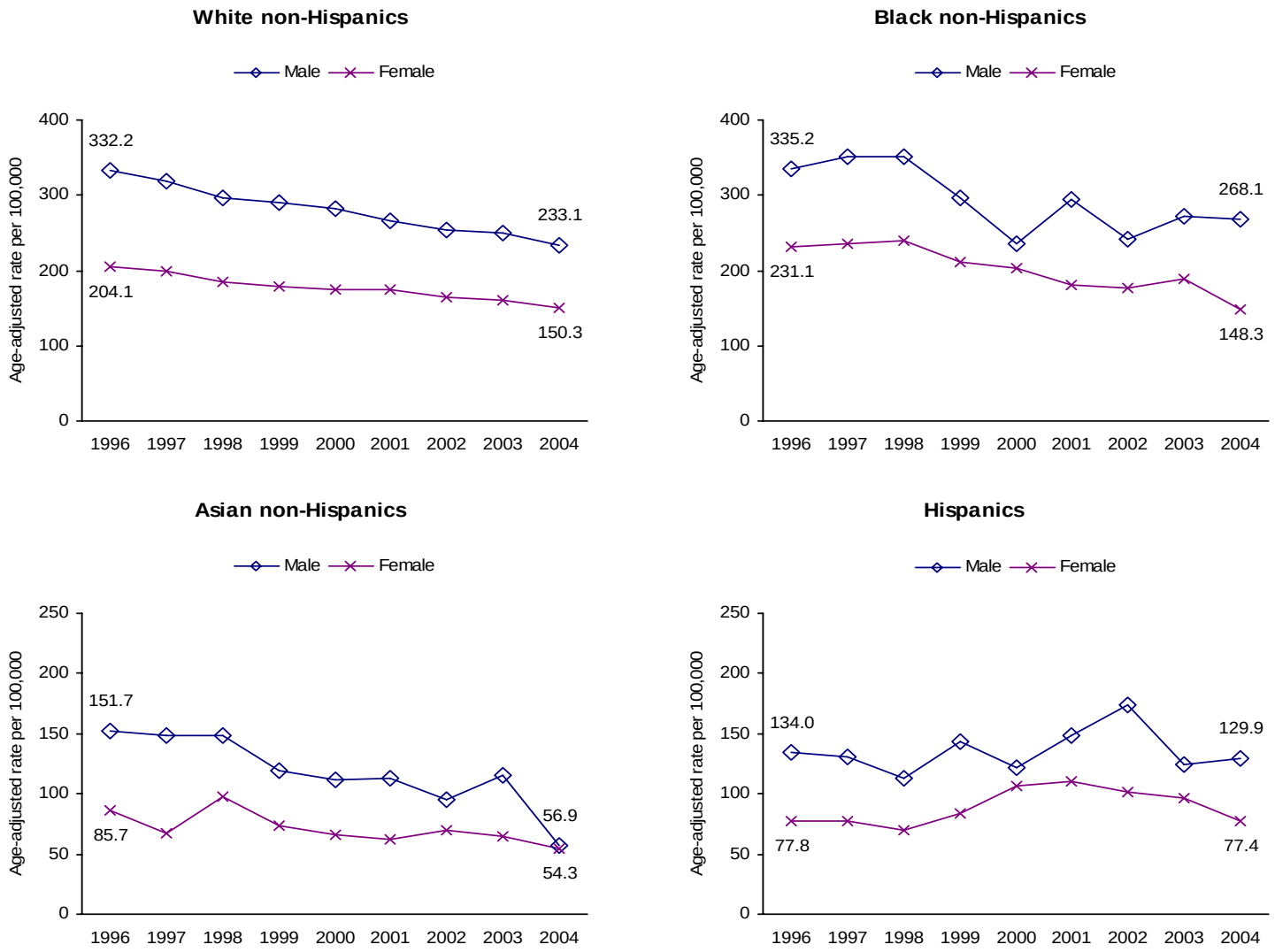

Age Distribution by Race/Ethnicity
for Heart Disease Deaths, Massachusetts: 2004
100%
75%
50%
25%
0%
2%
12%
85%
2%
11%
87%
8%
27%
65%
9%
17%
74%
9%
34%
57%
1-44
45-64
65+
TOTAL
White non-Hispanic
Black non-Hispanic
Asian non-Hispanic
Hispanic
ICD-10: I00-I09, I11, I13, I20-I51

Figure 11c. Heart Disease Death Rates by Race/Ethnicity and Gender, Massachusetts: 1996-2004

(For 1996-1998 the comparability modified rates were used. Please see Table 11 footnotes for more details)



Note: Resident deaths rates for 2000-2004 have been recalculated using 2000-2004 new population estimates.. ICD-10: I00-I09, I11, I13, I20-I51

Figure 12a

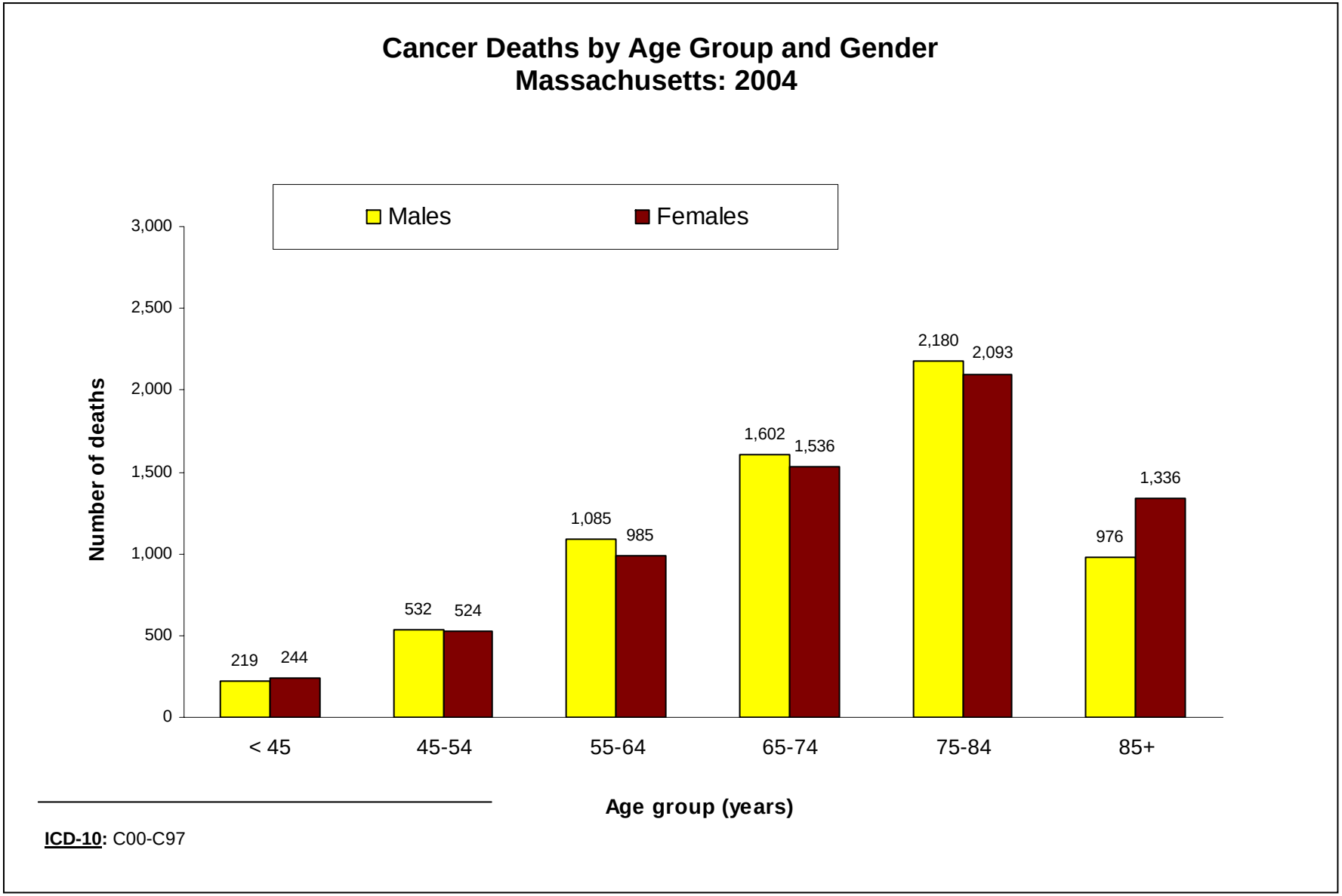
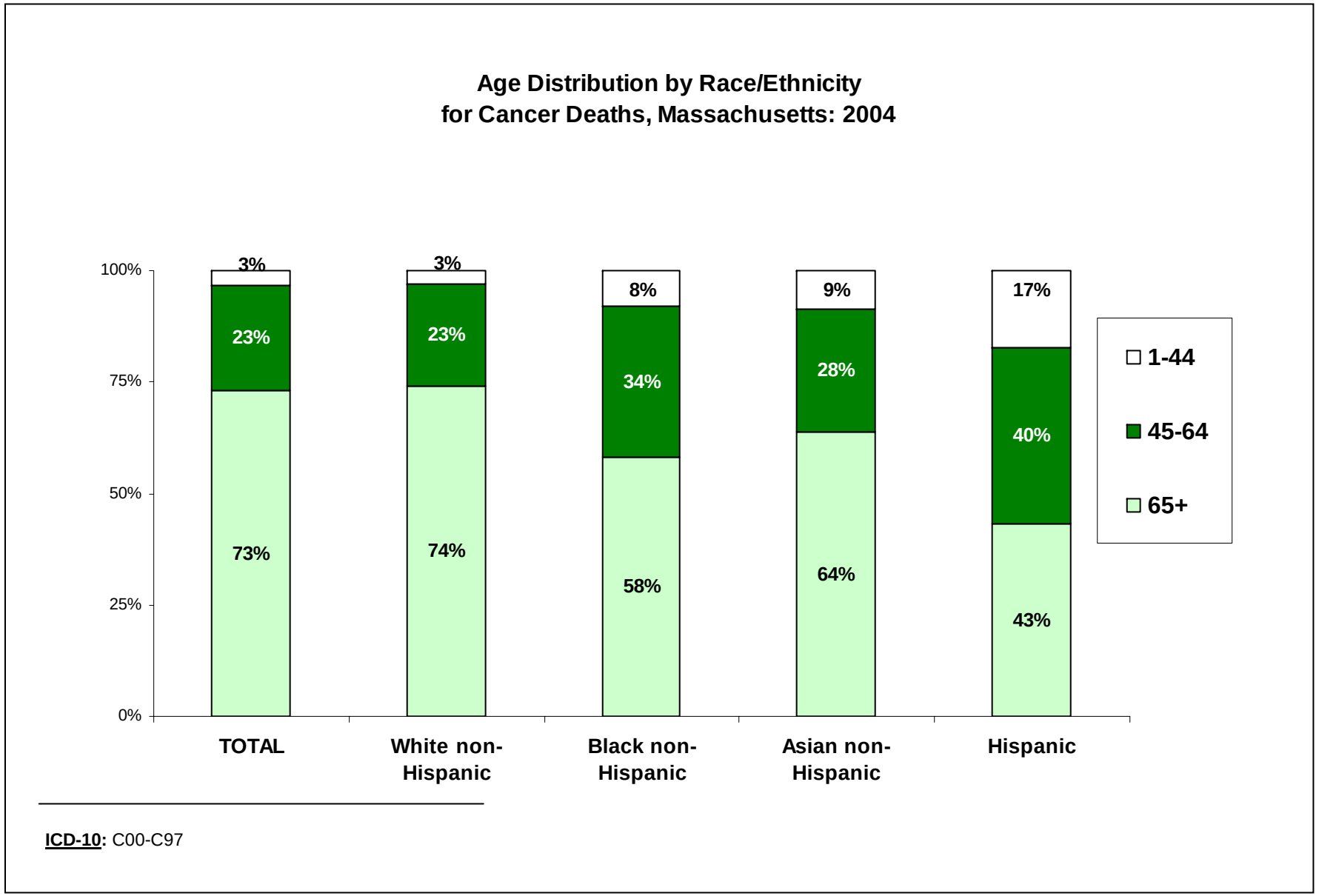

Cancer Deaths by Age Group and Gender
Massachusetts: 2004
Males
Females
Number of deaths
3,000
2,500
2,000
1,500
1,000
500
0
219
244
532
524
1,085
985
1,602
1,536
2,180
2,093
976
1,336
< 45
45-54
55-64
65-74
75-84
85+
Age group (years)
ICD-10: C00-C97

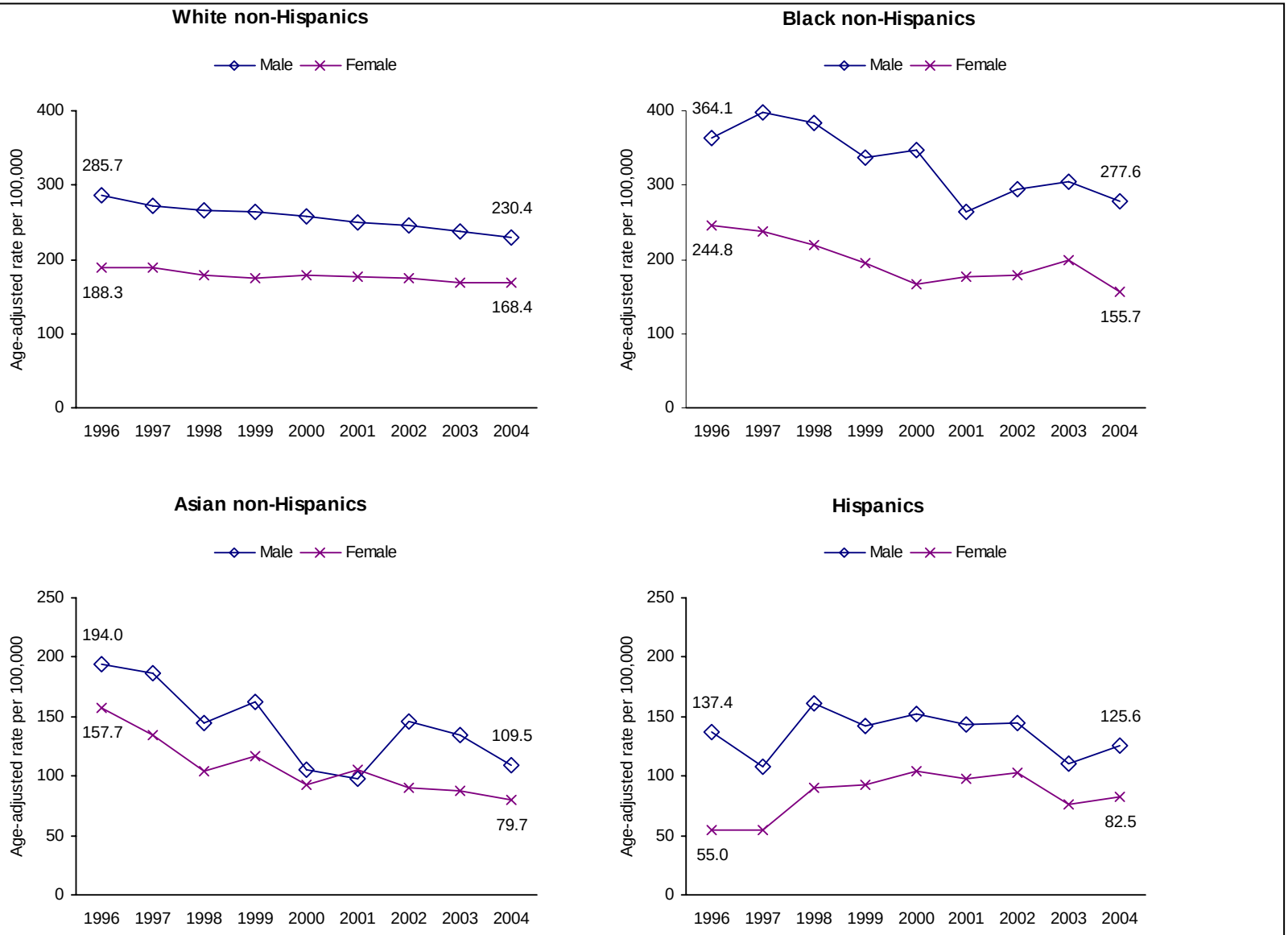
Figure 12b



ICD-10: C00-C97

Figure 12c. Cancer Death Rates by Race/Ethnicity and Gender, Massachusetts: 1996-2004

(For 1996-1998 the comparability modified rates were used. Please see Table 11 footnotes for more details)



Note: Resident deaths rates for 2000-2004 have been recalculated using 2000-2004 new population estimates. ICD-10: C00-C97

Table 11. Heart Disease and Cancer Deaths by Race and Gender, Comparability Unmodified and Comparability Modified Age-Adjusted Rates[1], Massachusetts: 1998-2004

Heart Disease

Year	White non-Hispanic[2]						Black non-Hispanic[2]					
	Male		Female		Total		Male		Female		Total	
	Comparability Unmodified[3]	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]d	Comparability Unmodified	Comparability Modified[4,5]
1998	300.0	295.7	186.6	184.0	233.2	229.9	357.2	352.1	242.8	239.4	286.9	282.8
1999	289.8		178.4		224.3		296.5		211.5		248.0	
2000	282.4		174.4		219.3		235.1		203.6		221.9	
2001	265.9		174.0		213.4		295.2		181.3		228.6	
2002	254.7		163.5		202.3		242.2		177.6		205.9	
2003	250.3		160.2		198.5		272.1		188.5		223.9	
2004	233.1		150.3		185.7		268.1		148.3		198.8	

Year	Asian non-Hispanic[2]						Hispanic					
	Male		Female		Total		Male		Female		Total	
	Comparability Unmodified[3]	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]
1998	150.6	148.5	98.5	97.1	121.0	119.3	114.0	112.4	71.3	70.3	91.3	90.0
1999	119.6		73.7		94.7		143.4		83.5		108.2	
2000	111.2		65.5		85.6		122.1		106.6		115.6	
2001	113.5		62.6		85.1		148.7		110.0		126.9	
2002	94.6		69.5		79.9		174.1		101.2		131.9	
2003	115.2		65.0		87.6		124.8		96.2		109.7	
2004	56.9		54.3		56.1		129.9		77.4		100.3	

1. Rates are per 100,000 age-adjusted to the 2000 US standard population. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in a race category. Please refer to the Technical Notes in the Appendix for a more detailed explanation. 3. Comparability unmodified rate: this rate has not been modified. 4. Comparability modified rate: this rate has been adjusted using the preliminary comparability ratio (CR) provided by the NCHS (February 2001). Please refer to the Appendix for a more detailed explanation. 5. 1999-2004 are coded according to ICD-10. When comparing data over time between 1994 through 2004, please use the comparability modified rate for years 1994-1998. **Resident deaths rates for 2000-2004 have been recalculated using 2000-2004 new population estimates.** 6. The Census 2000 count for Hispanics 65+ years is lower than the number previously estimated. Thus, the death rate (the number of deaths divided by the population) is increased relative to past calculations.

Table 11 (continued). Heart Disease and Cancer Deaths by Race and Gender, Comparability Unmodified and Comparability Modified Age-Adjusted Rates[1], Massachusetts: 1998-2004

Cancer

White non-Hispanic[2]

Year	Male		Female		Total	
	Comparability Unmodified[3]	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]
1998	264.1	265.9	177.8	179.0	210.0	211.4
1999	263.4		174.3		207.7	
2000	258.7		179.0		209.0	
2001	249.2		175.8		203.5	
2002	245.7		175.3		202.2	
2003	237.1		169.4		195.7	
2004	230.4		168.4		192.5	

Black non-Hispanic[2]

Year	Male		Female		Total	
	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]
1998	380.2	382.8	218.1	219.6	280.1	282.0
1999	337.2		195.7		251.5	
2000	348.1		167.4		237.8	
2001	264.7		176.4		212.1	
2002	293.5		179.5		224.3	
2003	304.5		199.0		238.7	
2004	277.6		155.7		200.1	

Asian non-Hispanic[2]

Year	Male		Female		Total	
	Comparability Unmodified[3]	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]
1998	143.5	144.5	103.7	104.4	120.2	121.0
1999	162.8		116.9		136.7	
2000	104.7		92.1		99.0	
2001	98.3		105.6		103.1	
2002	145.8		90.0		114.3	
2003	134.6		87.4		109.3	
2004	109.5		79.7		93.1	

Hispanic

Year	Male		Female		Total	
	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]	Comparability Unmodified	Comparability Modified[4,5]
1998	160.2	161.3	89.5	90.1	117.2	118.0
1999	141.8		92.5		113.8	
2000	151.9		104.5		123.8	
2001	142.9		97.4		116.4	
2002	144.3		103.3		120.6	
2003	110.0		76.6		90.0	
2004	125.6		82.5		100.4	

1. Rates are per 100,000 age-adjusted to the 2000 US standard population. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in a race category. Please refer to the Technical Notes in the Appendix for a more detailed explanation. 3. Comparability unmodified rate: this rate has not been modified. 4. Comparability modified rate: this rate has been adjusted using the preliminary comparability ratio (CR) provided by the NCHS (February 2001). Please refer to the Appendix for a more detailed explanation. 5. 1999-2004 are coded according to ICD-10. When comparing data over time between 1994 through 2004, please use the comparability modified rate for years 1994-1998. **Resident deaths rates for 2000-2004 have been recalculated using 2000-2004 new population estimates.** 6. The Census 2000 count for Hispanics 65+ years is lower than the number previously estimated. Thus, the death rate (the number of deaths divided by the population) is increased relative to past calculations.

Table 12. Number and Age-Adjusted Rates of Cancer Deaths by Selected Causes and Gender, Massachusetts: 2004

Cause of Death[1]	ICD-10 Code	Total		Female		Male	
		#	Rate[2,3]	#	Rate	#	Rate
Total Cancer Deaths	**C00-C97**	**13,312**	**188.4**	**6,718**	**164.0**	**6,594**	**226.6**
Bladder	C67	375	5.2	109	2.5	266	9.3
Brain and nervous system	C70-C72	273	4.0	128	3.3	145	4.7
Cervix	C53	64	1.7	64	1.7	NA	NA
Colorectal	C18-C21	1,286	17.7	684	15.5	602	20.7
Esophagus	C15	353	5.1	84	2.1	269	9.1
Female breast	C50[4]	971	24.2	971	24.2	NA	NA
Hodgkin's disease	C81	25	0.4	12	0.3	13	0.4
Kidney and other urinary organs	C64, C65	284	4.0	102	2.4	182	6.2
Leukemia	C91-C95	499	7.1	241	5.8	258	8.8
Lung	C33, C34	3,607	52.0	1,726	43.4	1,881	64.7
Melanoma of the skin	C43	190	2.7	65	1.7	125	4.2
Multiple myeloma	C88, C90	240	3.3	112	2.6	128	4.3
Non-Hodgkin's lymphoma	C82-C85	517	7.2	264	6.1	253	8.8
Ovary	C56	370	9.3	370	9.3	NA	NA
Pancreas	C25	789	11.2	420	10.1	369	12.5
Prostate	C61	650	23.4	NA	NA	650	23.4
Stomach	C16	295	4.1	128	3.0	167	5.8
Uterus	C54, C55	173	4.3	173	4.3	NA	NA
All other cancers	Residual	2,351	33.3	1,065	25.6	1,286	43.7

1. Common terms are used to describe the causes of cancer deaths. For detailed terminology of cancer sites, please refer to ICD-10 code list in the Appendix. 2. All rates are age-adjusted by the direct method using the 2000 US standard population. Rates are per 100,000 population. 3. The total resident population is used to calculate all "Total Rates" except for ICD-10 C50, C53-C56, which are based on the total female population, and ICD-10 C61, which is based on the total male population. 4. Includes only female breast cancer.

Table 13. Selected Causes of Cancer Deaths by Age, Massachusetts: 2004

Age	Cause of death[1]	ICD-10 Code	Number	Age-specific rate[2]
1 – 14 years	**TOTAL**		**23**	**2.0**
	Brain and nervous system	C70-C72	8	0.7
	Leukemia	C91-C95	5	0.4
	Kidney and other urinary organs,	C64, C65	2	---[3]
	Lung	C33, C34	1	---[3]
15 - 24 years	**TOTAL**		**30**	**3.5**
	Leukemia	C91-C95	10	1.2
	Brain and nervous system	C70-C72	2	---[3]
	Colorectal	C18-C21	1	---[3]
	Pancreas	C25	1	---[3]
25 – 44 years	**TOTAL**		**410**	**21.5**
	Lung	C33, C34	62	3.2
	Female breast[4]	C50	58	6.0
	Colorectal	C18-C21	39	2.0
	Leukemia	C91-C95	34	1.8
45 – 64 years	**TOTAL**		**3,126**	**196.7**
	Lung	C33, C34	857	53.9
	Female breast[4]	C50	293	35.6
	Colorectal	C18-C21	246	15.5
	Pancreas	C25	199	12.5
65 + years	**TOTAL**		**9,723**	**1,138.1**
	Lung	C33, C34	2,687	314.5
	Colorectal	C18-C21	1,000	117.0
	Female breast[4]	C50	620	122.0
	Prostate[5]	C61	603	174.2
65-74 years	**TOTAL**		**3,138**	**792.3**
	Lung	C33, C34	1,055	266.4
	Colorectal	C18-C21	242	61.1
	Female Breast[4]	C50	203	93.4
	Pancreas	C25	200	50.5
75-84 years	**TOTAL**		**4,273**	**1,326.5**
	Lung	C33, C34	1,220	378.7
	Colorectal	C18-C21	424	131.6
	Prostate[5]	C61	273	215.2
	Pancreas	C25	250	77.6
85+ years	**TOTAL**		**2,312**	**1,698.4**
	Lung	C33, C34	412	302.7
	Colorectal	C18-C21	334	245.4
	Prostate[5]	C61	235	577.1
	Female Breast[4]	C50	172	180.3

1. Common terms are used to describe causes of cancer death. For detailed terminology, please refer to the ICD-10 codes listed in the Appendix.
2. Number of deaths per 100,000 residents in each age group. 3. Calculations based on fewer than five events are excluded. 4. Calculation based on female population in specified age group. 5. Calculation based on male population in specified age group.

Table 14. Leading Causes of Cancer Deaths and Age-Adjusted Rates by Race & Hispanic Ethnicity, Massachusetts: 2004

White non-Hispanic[1]			Black non-Hispanic[1]			Asian non-Hispanic[1]			Hispanic		
Cause[2]	**#**	**Rate[3]**	**Cause**	**#**	**Rate**	**Cause**	**#**	**Rate**	**Cause**	**#**	**Rate**
Lung	3,411	53.8	Lung	125	50.8	Lung	32	21.6	Lung	34	17.1
Colorectal	1,216	18.2	Colorectal	42	16.3	Colorectal	12	7.1	Colorectal	16	7.2
Female Breast	921	25.4	Prostate	40	52.5	Leukemia	11	6.5	Pancreas	16	8.7
Pancreas	739	11.5	Female Breast	32	19.0	Non-Hodgkin's Lymphoma	9	6.0	Female Breast	13	11.0
Prostate	597	23.1	Pancreas	27	10.6	Stomach	8	5.5	Leukemia	13	4.7
Total Cancer	**12,432**	**192.5**	**Total Cancer**	**504**	**200.1**	**Total Cancer**	**149**	**93.1**	**Total Cancer**	**209**	**100.1**

1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in a race category. Please refer to the Technical Notes in the Appendix for a more detailed explanation. 2. ICD-10 codes used. Please refer to the ICD-10 codes listing in the Appendix for detailed terminology. 3. All rates are age-adjusted by the direct method using the 2000 US standard population. Rates are per 100,000 population.

DIABETES

Diabetes

Diabetes was the 8th leading cause of death in Massachusetts in the year 2004, accounting for 1,327 deaths in which it was listed as the underlying cause of death. Diabetes was also listed as a contributing cause of death on an additional 2,660 deaths. Studies have found that diabetes is likely to be underreported as a cause of death, about 35-40% of decedents with diabetes have diabetes listed somewhere on the death certificate and only 10-15% have it listed as the underlying cause of death[12 13].

Therefore, to accurately capture the mortality burden of diabetes in Massachusetts, starting with this year's report, we present diabetes mortality as listed as the underlying cause of death and as any contributing cause. The term diabetes-related death used in this chapter refers to deaths where diabetes is the underlying cause or a contributing cause of death.

In 2004, diabetes was either the underlying or a contributing cause of death (i.e., a diabetes-related cause of death) for 3,987, or 7.3% of all deaths in Massachusetts. In one-third of these deaths, diabetes was recorded as the underlying cause of death (Figure 13a). The vast majority (78.1%) of these deaths was unspecified diabetes, 16.1% were non-insulin dependent diabetes, and 5.7% were insulin-dependent. Diabetes is largely a disease of older adults. In 2004, 81% of diabetes-related deaths occur to individuals aged 65 years and older.

As an underlying cause of death, diabetes ranked 8th, but when considering all mentioned conditions, diabetes-related deaths ranked 4th for females and 3rd for males as a cause of death. When diabetes is examined as a contributing cause of death as well as the underlying cause of death we can capture the full mortality burden of diabetes. There were slightly more female than male deaths with diabetes as the underlying cause of death and as a contributing cause (Table 15a). Overall, males had a higher proportion of diabetes-related deaths (7.7% vs. 7.0% of all deaths) (Table 15a).

When leading causes of death were examined by race and Hispanic ethnicity, diabetes-related deaths ranked as the 3rd leading cause among all racial and ethnicity groups. Yet, black non-Hispanics and Hispanics died from diabetes-related at higher rates than white non-Hispanics. In 2004, the diabetes-related age-adjusted death rate for black non-Hispanics was 92.5 deaths per 100,000, almost twice the rate for white non-Hispanics (53.5). The rate for Hispanics was 63.8 deaths per 100,000 (Table 15b).

Diabetes-related deaths rise with increasing age. The increase is particularly rapid from age 45 years up to age 84. In 2004, 81% of diabetes-related deaths occur to individuals aged 65 years and older (Figure 13c). There were more diabetes-related deaths as an underlying cause of death among those under age 35, and more diabetes-related deaths as a contributing cause among older adults, aged 35 years and older.

As expected, the diabetes mortality rate as an underlying cause only has been consistently much lower than the diabetes death rate as a contributing cause only. The

[12] Harris MI, Entmacher PS. Chapter XXIX. Mortality from diabetes. In: Harris MI, Hamman RF, eds. Diabetes in America. Washington, DC: Department of Health and Human Services, NIH Publication No. 85–1468, 1985.
[13] Ochi JW, Melton LJ, Palumbo PJ, Chu-Pin C. A population-based study of diabetes mortality. Diabetes Care 1985; 8: 224–9.

combined diabetes-related mortality rate is the sum of the underlying cause and the contributing cause only rates has been decreasing since 2002 (Figure 13e).

When diabetes was listed as a contributing cause, cardiovascular disease was listed as the underlying causes of death in 48.6% of these deaths in 2004 (Table 15c). Heart disease accounted for over three-fourths of these deaths and stroke for one-in-ten of these deaths. Cancer was the second most prominent cause of death where diabetes was a contributing cause (18.3%), followed by diseases of the respiratory system (10.6%).

An analysis of the clustering of associated causes when diabetes was listed as the underlying cause of death revealed that disease of the circulatory system, diseases of the genitourinary system, and/or diseases of the respiratory system were listed as associated causes in 73% of deaths in 2004. Of these diseases, cardiovascular disease (46.8%) was most likely to be recorded as the only associated causes when diabetes was the underlying cause (Table 15d). Diseases of the genito-urinary system were the second most prominent cause of death where diabetes was the underlying cause (16.1%) followed by diseases of the respiratory system (8.7%).

When the pattern between diabetes as an associated cause is compared with diabetes as the underlying causes of death, interesting patterns emerge. People who die of cancer (underlying cause) are much more likely to also have diabetes (18.3%) than people who die of diabetes as an underlying cause and also have cancer (1.7%).

Figure 13a. Diabetes Deaths
Massachusetts: 1999-2004

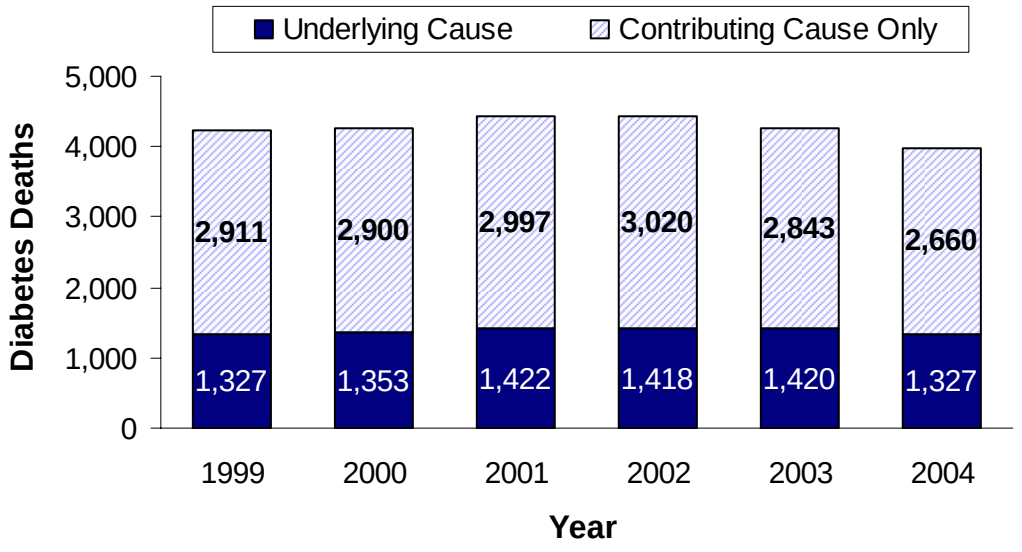


Table 15a. Diabetes Deaths by Gender
Massachusetts: 2004

	Proportion of all deaths (%)			Number		
Cause of death	Males	Females	Total	Males	Females	Total
Underlying	2.6%	2.3%	2.4%	653	674	1,327
Contributing/Associated	5.2%	4.7%	4.9%	1,307	1,353	2,660
Total diabetes deaths	7.7%	7.0%	7.3%	1,960	2,027	3,987
Total deaths	***100%***	***100%***	***100%***	***25,350***	***29,067***	***54,421***

ICD-10: E10-E14

Table 15b. Diabetes Deaths by Race and Hispanic Ethnicity Massachusetts: 2004

Cause of death	Race/Hispanic Ethnicity: White non-Hispanic	Black non-Hispanic	Hispanic	Asian non-Hispanic	Total
	Number				
Underlying	1,172	83	45	24	1,327
Contributing/Associated	2,400	140	75	38	2,660
Total diabetes-related	3,572	223	120	62	3,987
Total deaths	***50,439***	***2,225***	***1,115***	***531***	***54,421***
	Proportion of all deaths (%)				
Underlying	2.3	3.7	4.0	4.5	2.4
Contributing/Associated	4.8	6.3	6.7	7.2	4.9
Total diabetes-related	***7.1***	***10.0***	***10.8***	***11.7***	***7.3***

Figure 13b. Diabetes Death Rates by Race/Hispanic Ethnicity Massachusetts: 2004

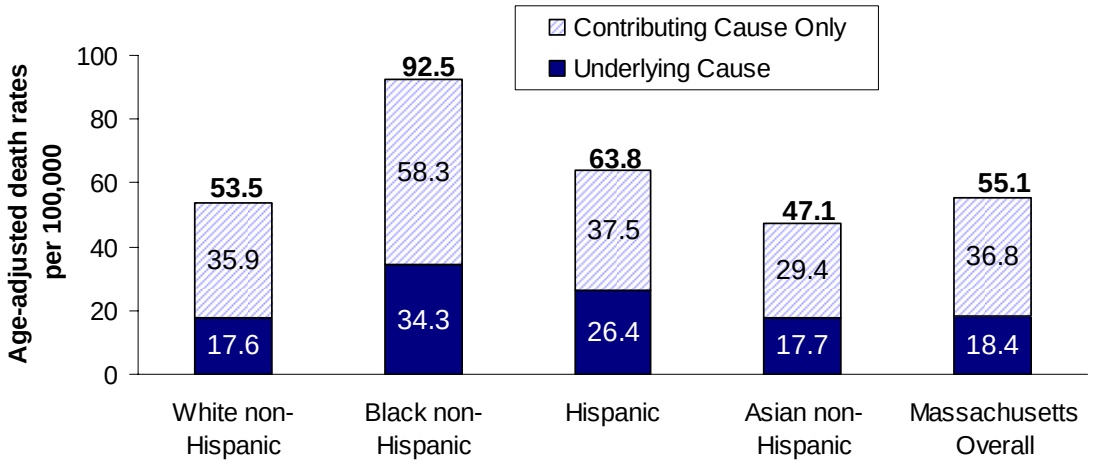


Figure 13c. Age Composition of Diabetes Deaths Massachusetts: 2004

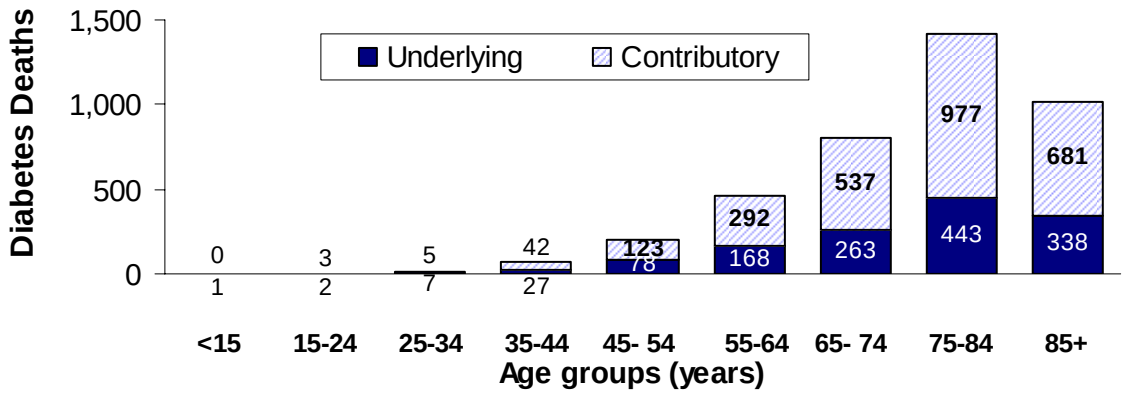


Figure 13d. Diabetes Death Rates Massachusetts: 1999-2004

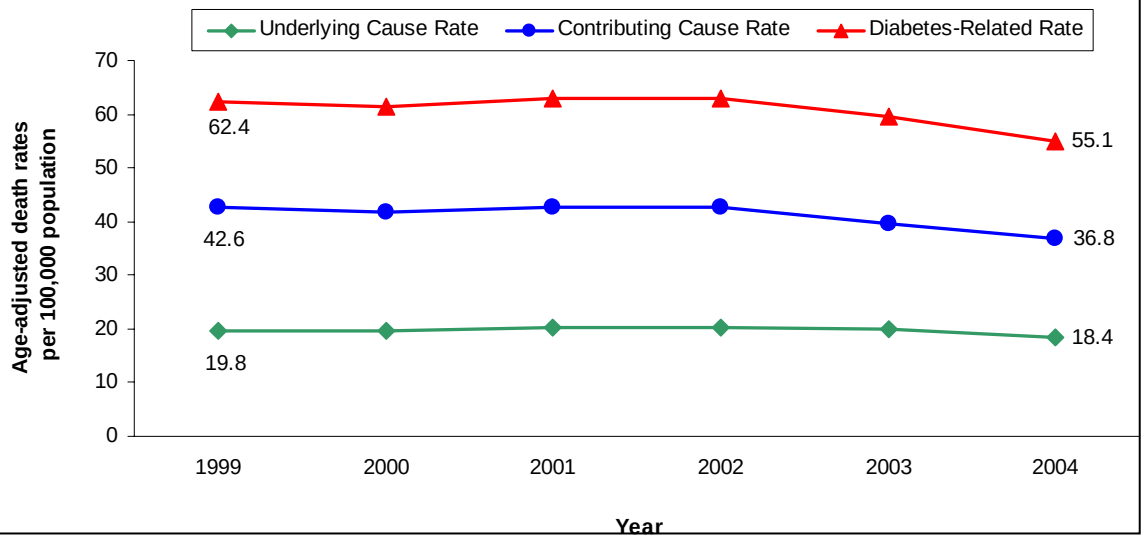


Table 15c. Underlying Cause of Death where Diabetes is a Contributing Cause[1], Massachusetts: 2004

Underlying Cause of Death	Number	Proportion (%)
Cardiovascular Diseases	1,292	48.6
Heart Disease	1,029	38.7
Stroke	131	4.9
Cancer	487	18.3
Diseases of the respiratory system	283	10.6
CLRD	131	4.9
Influenza and pneumonia	92	3.5
Diseases of the digestive system	108	4.1
Diseases of the nervous system and sense organs	103	3.9
Alzheimer's Disease	56	2.1
Parkinson's Disease	18	0.7
Diseases of the genito-urinary system	112	4.2
Nephritis	75	2.8
Infectious and parasitic diseases	85	3.2
HIV/AIDS	7	0.3
Injury and poisoning	42	1.6
Endocrine, nutritional and metabolic diseases and immunity disorders	28	1.1
Diseases of the musculoskeletal systems and connective tissue	20	0.8
Other	100	3.8
Total deaths where diabetes is a contributing cause	**2,660**	**100%**

Table 15d. Associated Causes of Death where Diabetes is the Underlying Cause of Death, Massachusetts: 2004

Associated Causes of Death	Number	Proportion (%)
Cardiovascular Disease	621	46.8
Cardiovascular Disease and Diseases of the Genitourinary System	214	16.1
Cardiovascular Disease and Diseases of the Respiratory System	116	8.7
No Associated Causes	111	8.4
Diseases of the Genitourinary System	82	6.2
Other Associated Cause Combinations less than 10	78	5.9
Diseases of the Respiratory System	29	2.2
Cardiovascular Disease & Diseases of the Nervous System	27	2.0
Cardiovascular Disease, Diseases of the Respiratory System, and Diseases of the Genitourinary System	27	2.0
Cancer and Cardiovascular Disease	22	1.7
Total deaths where diabetes is the underlying cause of death	**1,327**	**100%**

ICD-10: E10-E14

INJURIES

Injuries

In 2004, 2,615 deaths were the result of injuries among Massachusetts residents. In 2003, there were 2,726 injury deaths. Injuries is the 4th leading cause of death for the overall Massachusetts population. As seen in Table 16a, poisonings, which include drug overdoses, was the leading cause of injury death, accounting for 29% of all injury deaths.

Injuries can be accidentally or intentionally inflicted. The assignment of the manner (similar to intent) of an injury death is the responsibility of the Massachusetts Office of the Medical Examiner.

National Violent Death Reporting System (NVDRS)

With federal funding, the Massachusetts Department of Public Health is now collecting detailed information on violent deaths as part of the National Violent Death Reporting System (NVDRS). NVDRS is a state-based surveillance system that compiles information on violent deaths in order to provide a detailed picture of how and why they occur. NVDRS collects information about homicides, suicides, deaths by legal intervention (excluding executions), deaths of undetermined intent, and unintentional firearm injury deaths. It utilizes multiple data sources, including death certificates, medical examiner files, law enforcement records, and newspaper articles in creating its data records. The NVDRS also relies upon an incident-based approach to surveillance, affording an easy link between multiple deaths from the same incident or between victims and perpetrators. For information about the NVDRS, contact the MDPH Injury Surveillance Program at (617) 624-5663.

Overall Age Patterns

Injuries are a major public health concern among all age groups. Injuries were the leading cause of death for persons ages 1 to 44 years, accounting for 43% of all deaths among Massachusetts residents in this age group (data not shown) and also were responsible for 71% of all deaths among youth ages 15 to 24. These proportions have not changed from 2003.

The leading causes of injury deaths vary by age group. Motor vehicle-related deaths accounted for the highest proportion of injury deaths among 1 to 24 year-olds (35% of injury deaths among 15 to 24 year-olds were due to motor vehicle crashes) followed by poisonings (which include drug overdoses) and firearm. Twenty percent of injury deaths among persons ages 15 to 24 were due to firearms. Poisonings were the leading cause of injury deaths among 25 to 64 year-olds accounting for nearly half (48%) of injury deaths among 25 to 44 year-olds. Among persons 65 years and over, falls were the leading cause of injury deaths accounting for 28% of injury deaths among this age group (Table 16a).

Nearly one third (31%) of all injury deaths occurred among 25 to 44 year-olds. This age group is over represented in poisoning deaths (53%), firearm deaths (30%), motor vehicle-related deaths (29%), and in “hanging, strangulation or suffocation” deaths (28%). Persons age 85 and older were over represented in deaths due to falls (31%) (Table 16a).

Overall Gender Patterns

For all types of injuries, age-adjusted death rates for males were higher than for females, regardless of race and ethnicity. Males were 2.4 times more likely to die from an injury than females, and 15.5 times more likely to die from a firearm injury than females in Massachusetts (Table 16a).

Overall Race and Ethnicity Patterns

Black non-Hispanics (41.6 deaths per 100,000) and white non-Hispanics (39.2) had injury death rates higher than Hispanics (29.2) and Asian non-Hispanics (16.2). These differences were accentuated among males overall and for specific causes of injury. Black non-Hispanic and white non-Hispanic males had the highest death rate of poisonings (including drug overdoses) among all race and ethnic groups (17.5 and 16.7 deaths per 100,000, respectively). Black non-Hispanic and Hispanic males had the highest rates of firearm deaths (25.4 and 9.0, respectively). Black non-Hispanic males (6.4 times) and Hispanic males (2.3 times) were more likely to be killed by firearms than their white counterparts (Table 16a).

In addition, there were large differences in homicide rates by race and ethnicity: the rates for black non-Hispanics (15.7) and Hispanics (6.9) were substantially higher than for white non-Hispanics (1.1). The homicide rate among black non-Hispanic males (29.4) was 6.5 times higher than the overall male homicide rate (4.5) (Table 16b).

The suicide rate was highest among white non-Hispanics (7.1). This rate was between 2 and 3 times higher than the rate of black non-Hispanics (2.9), Asian non-Hispanics (2.7), and Hispanics (2.3) (Table 16b).

Injuries by Cause

The leading causes of injury deaths in order of percentages were: poisonings (28%), motor vehicle-related deaths (20%), "hanging, strangulation or suffocation" (11%), falls (11%) and firearm-related deaths (8%) (Table 16a). Poisonings was the leading cause of death for persons ages 25 to 44 (390 deaths).

Poisoning Injuries

Poisoning refers to the damaging physiologic effects of ingestion, inhalation, or other exposure to a range of pharmaceuticals, illicit drugs, and chemicals, including pesticides, heavy metals, gases/vapors, and common household substances such as bleach and ammonia.

In 2004, the number of poisoning deaths and the poisoning death rate declined by 12% from 2003. This decrease from 2003 was observed in all age groups except for persons ages 45-64. A similar pattern was seen in the age-specific death rates for poisonings. The largest decline in the poisoning death rate was seen among Hispanics (by 35%) and black non-Hispanics (by 31%). Sixty-two percent of poisoning deaths were due to narcotics and other hallucinogens and the majority of poisoning deaths (74%) were of undetermined intent. Injury death of undetermined intent means that the medical examiner lacked sufficient evidence to classify the deaths as homicide, suicide, or accidental.

Fall Injuries

The number of deaths and the death rate due to falls remained unchanged in 2004 from the previous year (Table 16a). However, the number of deaths due to falls and age-specific death rates declined from 2003 for all age groups except among persons 45-84. The largest increase in this rate was observed among persons ages 65 to 84 (5.2 in 2003 compared with 8.6 deaths per 100,000 in 2004).

Firearm Injuries

In 2004, a total of 205 persons died from firearm injuries in Massachusetts. This number and the death rate were similar to 2003. Of all firearm deaths in 2004, firearm suicide and

firearm homicide accounted for 45% and 51%, respectively, of all firearm deaths in 2004 (Table 16d).

Injuries by Intent

About 52% of all injury-related deaths were due to unintentional injuries and 23% were intentional injuries (16% suicide and 7% homicide) (Table 16c). Twenty-three percent of all injury deaths were injuries of undetermined intent (most of these were due to poisoning, including fatal drug overdoses). This proportion has decreased by 15% from 2003. The distribution of injury deaths by intention varied markedly by race and ethnicity. Thirty percent of all injury deaths were of undetermined intent among Hispanics, whereas 10% of all injury deaths among Asian non-Hispanics were of undetermined intent.

Unintentional injuries

In 2004, there were 1,350 unintentional injury deaths among Massachusetts residents, accounting for 52% of all injury deaths. The death rate for these injuries in 2004 (19.4) was similar as in 2003 (20.1). Males were nearly two times more likely to die to unintentional injuries than females (25.8 deaths per 100,000 vs. 13.3 deaths per 100,000). The leading causes of unintentional injury deaths were motor vehicle-related deaths (39%), falls (20%), and "hanging, strangulation or suffocation" (8%) (Table 16c).

In 2004, there were 524 motor vehicle-related deaths, 3 more deaths than in 2003. Although the greatest *number* of motor vehicle-related deaths occurred to men ages 25 to 44 years (116 deaths), males ages 15-24 had the highest *rate* for motor vehicle-related deaths (23.4 deaths per 100,000). Deaths to motorcyclists went up by 75%, from 40 deaths in 2003 to 70 deaths in 2004. This increase was seen among males (Table 16c).

Intentional injuries: Suicides and Homicides

Intentional injury deaths are classified as suicide or homicide. In 2004, almost 7 out of 10 intentional injury deaths were suicides (71%) (Table 16b). There were 6 more suicides and 36 more homicides in 2004, compared with 2003. Suicide accounted for 87% of white non-Hispanic intentional injury deaths, whereas, homicide accounted for 86% of the black non-Hispanic and Hispanic intentional injury deaths.

The suicide rate for Massachusetts in 2004 was about the same as it was in 2003. In 2004, white non-Hispanics accounted for 91% of all suicides and the white non-Hispanic suicide rate was significantly higher than that of all other race and ethnicity groups. Among white non Hispanic males, the suicide death rate (11.8) was 84% higher than the overall suicide death rate in Massachusetts (6.4).

Overall, the age-specific suicide death rate increased with age up to age 74, then leveled off between ages 75 to 84, and increased again at ages 85 and older. Persons ages 85 and older and persons ages 45-64 had the highest suicide death rates among age groups (10.3 and 8.9, respectively) (Table 16b).

The leading causes of suicide deaths were hanging, strangulation, or suffocation (42%), followed by firearm (22%) and poisoning (22%). In 2004, males accounted for 98% of deaths due to self-inflicted firearm wounds. Among females, the leading causes of suicide injury deaths were poisonings (47%) and "hanging, strangulation, or suffocation" (37%). For males, the leading causes of suicide injury deaths were "hanging, strangulation, or suffocation" (43%) and firearms (27%) (Table 16c).

The number of homicides increased between 2003 and 2004 from 139 to 175 deaths. This increase was seen among men (by 25%) and women (by 28%) and varied by race-ethnicity. The increase in homicide was driven by the increase in deaths among black non-Hispanics who accounted for 67% of the total increase in 2004. In 2004, homicides were among the top 10 leading causes of death (as the sixth cause) for black non-Hispanics. The leading causes of homicide deaths were firearm (60%) and cut or piercing (22%).

While the homicide rate for Massachusetts in 2004 was about the same as it was in 2003, it has increased 40% since 2000. There were increases in the homicide rate for black non-Hispanics (by 45%) and white non-Hispanics (by 22%) between 2003 and 2004. The black non-Hispanic homicide rate continued to be significantly higher than all other race and ethnicity groups.

Injuries of Undetermined Intent

About 23% of all injury-related deaths in 2004 were of undetermined intent, where investigation has not determined whether the injuries were accidental or intentional. Ninety percent of these deaths involved poisoning (540 deaths), which includes drug overdoses (Table 16c). The majority of poisoning deaths of undetermined intent was due to narcotics and other hallucinogens (84%) (Table 16e).

In 2004, nearly 3 out of 4 (74%) Massachusetts poisoning deaths were of undetermined intent (Table 16e), compared with 81% in 2003. This proportion decreased for the first time in 2004, after a continuous increase since the 1990's. Poisoning deaths are often classified as "injuries of undetermined intent" rather than unintentional injuries, due to the lack of evidence for the Medical Examiner to determine the intent.

Table 16a. Injury Deaths[1] by Leading Causes, Gender, Age, Race and Hispanic Ethnicity: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2004

	ALL		Poisoning[2]		Motor Vehicle-related [3]		Hanging, strangulation, or suffocation		Falls		Firearm		Other[4]	
	Number	Rate[5]	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
All Persons	**2,615**	**38.6**	**734**	**11.2**	**526**	**8.0**	**299**	**4.4**	**291**	**4.0**	**205**	**3.2**	**560**	**7.9**
<1	8	10.0	0	--[6]	0	--[6]	2	--[6]	1	--[6]	0	--[6]	5	6.2
1-14	55	4.9	3	--[6]	21	1.9	6	0.5	3	--[6]	2	--[6]	20	1.8
15-24	373	43.8	83	9.7	132	15.5	27	3.2	5	0.6	75	8.8	51	6.0
25-44	818	42.8	390	20.4	151	7.9	95	5.0	25	1.3	62	3.2	95	5.0
45-64	642	40.4	237	14.9	122	7.7	80	5.0	53	3.3	35	2.2	115	7.2
65-74	137	34.6	8	2.0	24	6.1	17	4.3	34	8.6	14	3.5	40	10.1
75-84	283	87.9	8	2.5	49	15.2	35	10.9	81	25.1	12	3.7	98	30.4
85+	299	219.7	5	3.7	27	19.8	37	27.2	89	65.4	5	3.7	136	99.9
All Females	**891**	**23.0**	**234**	**6.9**	**168**	**4.6**	**89**	**2.2**	**141**	**3.0**	**13**	**0.4**	**246**	**5.7**
<1	0	--[6]0	0	--[6]	0	--[6]	0	--[6]	0	--[6]	0	--[6]	0	--[6]
1-14	21	3.8	2	--[6]	9	1.6	0	--[6]	1	--[6]	0	--[6]	9	1.6
15-24	72	17.1	17	4.0	31	7.4	7	1.7	2	--[6]	3	--[6]	12	2.9
25-44	215	22.2	126	13.0	35	3.6	16	1.7	6	0.6	6	0.6	26	2.7
45-64	183	22.3	79	9.6	33	4.0	19	2.3	16	1.9	1	--[6]	35	4.3
65-74	52	23.9	2	--[6]	11	5.1	8	3.7	11	5.1	3	--[6]	17	7.8
75-84	147	75.3	4	--[6]	29	14.8	17	8.7	44	22.5	0	--[6]	53	27.1
85+	201	210.7	4	--[6]	20	21.0	22	23.1	61	63.9	0	--[6]	94	98.5
All Males	**1,724**	**55.3**	**500**	**15.6**	**358**	**11.4**	**210**	**6.7**	**150**	**5.1**	**192**	**6.2**	**314**	**10.4**
<1	8	19.5	0	--[6]	0	--[6]	2	--[6]	1	--[6]	0	--[6]	5	12.2
1-14	34	5.9	1	--[6]	12	2.1	6	1.0	2	--[6]	2	--[6]	11	1.9
15-24	301	69.8	66	15.3	101	23.4	20	4.6	3	--[6]	72	16.7	39	9.0
25-44	603	64.0	264	28.0	116	12.3	79	8.4	19	2.0	56	5.9	69	7.3
45-64	459	59.8	158	20.6	89	11.6	61	8.0	37	4.8	34	4.4	80	10.4
65-74	85	47.6	6	3.4	13	7.3	9	5.0	23	12.9	11	6.2	23	12.9
75-84	136	107.2	4	--[6]	20	15.8	18	14.2	37	29.2	12	9.5	45	35.5
85+	98	240.7	1	--[6]	7	17.2	15	36.8	28	68.8	5	12.3	42	103.1

1. Data presented in this table are classified according to ICD-10. Please refer to Appendix for list of ICD-10 codes used in this table. 2. Includes drug overdoses, which account for the largest percentage (74%). 3. Motor vehicle deaths to occupants, pedestrians, motorcyclists and bicyclists. 4. All remaining injury causes. 5. Number of deaths per 100,000 persons in each age group; rates for all rows except the age group rows are age-adjusted to the 2000 US standard population. 6. Calculations based on fewer than five events are excluded.

Table 16a. (continued) Injury Deaths[1] by Leading Causes, Gender, Age, Race and Hispanic Ethnicity: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2004

	ALL		Poisoning[2]		Motor Vehicle-related [3]		Hanging, strangulation, or suffocation		Falls		Firearm		Other[4]	
	Number	Rate[5]	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
White non- Hispanic	**2,244**	**39.1**	**643**	**12.1**	**452**	**8.3**	**274**	**4.7**	**279**	**4.2**	**114**	**2.1**	**482**	**7.7**
Females	815	24.2	**211**	7.6	**150**	4.9	86	2.5	135	3.2	9	0.3	224	5.8
Males	1,429	55.1	432	16.7	302	11.8	188	7.2	144	5.5	105	4.0	258	9.9
Black non- Hispanic	**161**	**41.6**	**38**	**10.3**	**25**	**6.3**	**5**	**1.5**	**2**	**--[6]**	**60**	**13.3**	**31**	**9.4**
Females	31	15.8	8	3.9	10	5.0	2	--[6]	2	--[6]	3	1.4	6	3.3
Males	130	70.9	30	17.5	15	8.0	3	--[6]	0	--[6]	57	25.4	25	17.5
Asian non- Hispanic	**42**	**16.2**	**3**	**--[6]**	**13**	**5.1**	**5**	**1.8**	**5**	**3.5**	**2**	**--[6]**	**14**	**4.8**
Females	14	11.8	2	--[6]	5	3.4	0	--[6]	4	--[6]	0	--[6]	3	--[6]
Males	28	20.0	1	--[6]	8	7.2	5	3.7	1	--[6]	2	--[6]	11	6.9
Hispanic	**144**	**29.2**	**43**	**8.6**	**29**	**5.6**	**13**	**3.5**	**4**	**--[6]**	**27**	**4.7**	**28**	**5.8**
Females	26	11.8	11	3.8	3	--[6]	1	--[6]	0	--[6]	1	--[6]	10	5.5
Males	118	46.9	32	13.7	26	10.5	12	6.3	4	--[6]	26	9.0	18	5.3

1. Data presented in this table are classified according to ICD-10. Please refer to Appendix for list of ICD-10 codes used in this table. 2. Includes drug overdoses, which account for the largest percentage (74%). 3. Motor vehicle deaths to occupants, pedestrians, motorcyclists and bicyclists. 4. All remaining injury causes. 5. Number of deaths per 100,000 persons in each age group; rates for all rows except the age group rows are age-adjusted to the 2000 US standard population. 6. Calculations based on fewer than five events are excluded.

Table 16b. Intentional Injury Deaths[1] by Gender, Age, Race and Hispanic Ethnicity: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2004

	All Intentional		Suicide		Homicide	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
All Persons	**604**	**9.2**	**429**	**6.4**	**175**	**2.8**
<1	3	--[3]	0	--[3]	3	--[3]
1-14	10	0.9	3	--[3]	7	0.6
15-24	131	15.4	51	6.0	80	9.4
25-44	225	11.8	165	8.6	60	3.1
45-64	161	10.1	141	8.9	20	1.3
65-74	32	8.1	29	7.3	3	--[3]
75-84	28	8.7	26	8.1	2	--[3]
85+	14	10.3	14	10.3	0	--[3]
All Females	**119**	**3.5**	**87**	**2.5**	**32**	**1.0**
<1	0	--[3]	0	--[3]	0	--[3]
1-14	2	--[3]	0	--[3]	2	--[3]
15-24	15	3.6	8	1.9	7	1.7
25-44	46	4.7	33	3.4	13	1.3
45-64	39	4.7	32	3.9	7	0.9
65-74	8	3.7	6	2.8	2	--[3]
75-84	5	2.6	4	--[3]	1	--[3]
85+	4	--[3]	4	--[3]	0	--[3]
All Males	**485**	**15.4**	**342**	**10.9**	**143**	**4.5**
<1	3	--[3]	0	--[3]	3	--[3]
1-14	8	1.4	3	--[3]	5	0.9
15-24	116	26.9	43	10.0	73	16.9
25-44	179	19.0	132	14.0	47	5.0
45-64	122	15.9	109	14.2	13	1.7
65-74	24	13.4	23	12.9	1	--[3]
75-84	23	18.1	22	17.3	1	--[3]
85+	10	24.6	10	24.6	0	--[3]

1. Data presented in this table are classified according to ICD-10. Please refer to Appendix for list of ICD-10 codes used in this table. 2. Number of deaths per 100,000 persons in each age group; rates for all rows except the age group rows are age-adjusted to the 2000 US standard population. 3. Calculations based on fewer than five events are excluded.

Table 16b. (continued) Intentional Injury Deaths[1] by Gender, Age, Race and Hispanic Ethnicity: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2004

	All Intentional		Suicide		Homicide	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
White non- Hispanic	**447**	**8.2**	**391**	**7.1**	**56**	**1.1**
Females	102	3.6	81	2.8	21	0.8
Males	345	13.2	310	11.8	35	1.4
Black non- Hispanic	**81**	**18.6**	**11**	**2.9**	**70**	**15.7**
Females	8	3.8	3	--[3]	5	2.3
Males	73	33.4	8	4.0	65	29.4
Asian non- Hispanic	**14**	**4.3**	**10**	**2.7**	**4**	**--[3]**
Females	2	--[3]	2	--[3]	0	--[3]
Males	12	7.9	8	4.8	4	3.1
Hispanic	**53**	**9.2**	**12**	**2.3**	**41**	**6.9**
Females	5	1.9	0	--[3]	5	1.9
Males	48	16.5	12	4.6	36	11.9

1. Data presented in this table are classified according to ICD-10. Please refer to Appendix for list of ICD-10 codes used in this table. 2. Number of deaths per 100,000 persons in each age group; rates for all rows except the age group rows are age-adjusted to the 2000 US standard population. 3. Calculations based on fewer than five events are excluded.

Figure 14

Distribution of Injury Deaths by Intent
Massachusetts: 2004

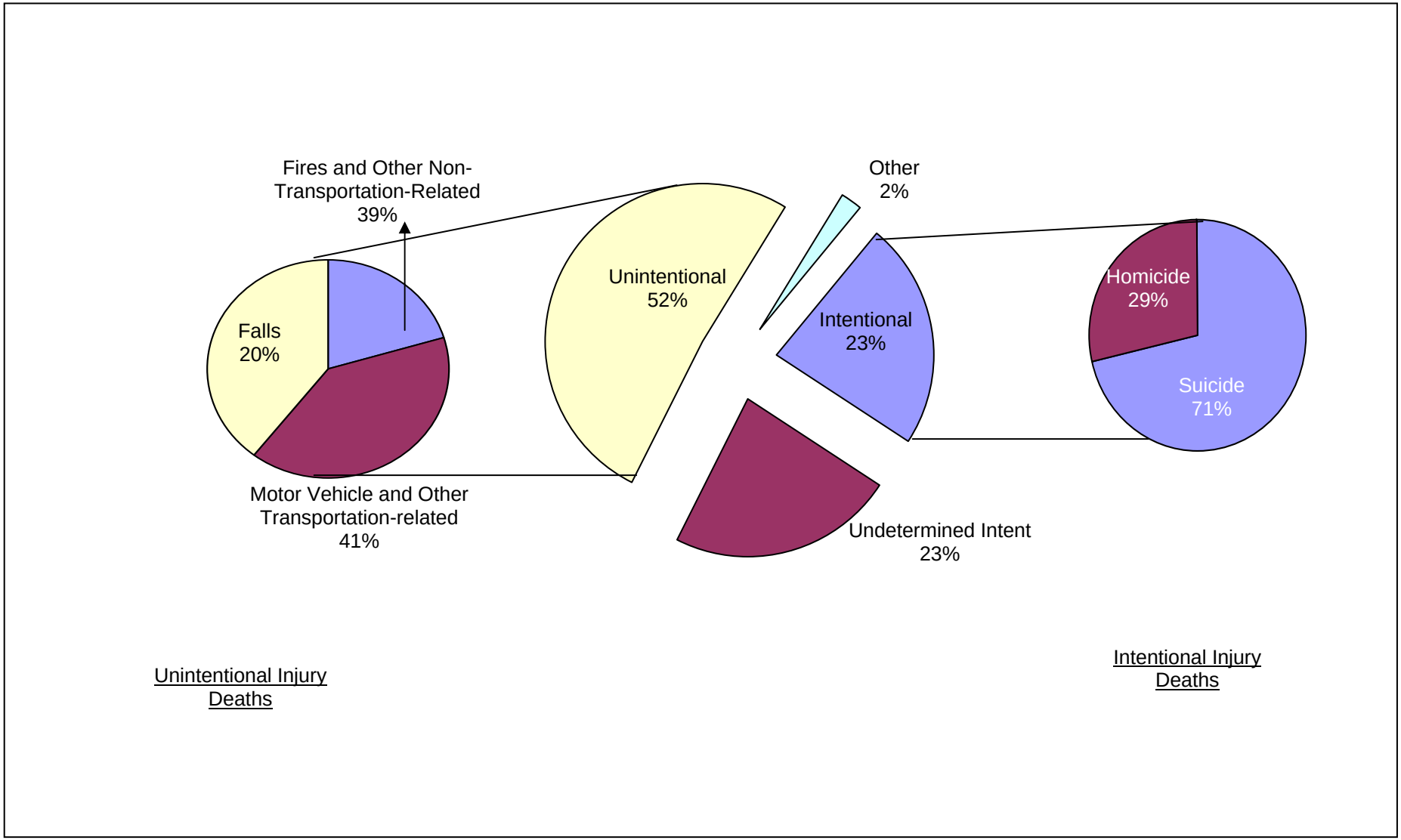


Table 16c. Injury[1] Deaths by Intent, Method and Gender: Number and Age-Adjusted Rates[2], Massachusetts: 2004

Type of Injury	All		Female		Male	
	Number	Rate	Number	Rate	Number	Rate
Suicide	**429**	**6.4**	**87**	**2.5**	**342**	**10.9**
Hanging, strangulation or suffocation	180	2.7	32	0.9	148	4.7
Poisoning	95	1.4	41	1.2	54	1.7
Firearm	94	1.4	2	--[3]	92	3.0
Other and unspecified	60	0.9	12	0.3	48	1.5
Homicide*	**175**	**2.8**	**32**	**1.0**	**143**	**4.5**
Firearm	105	1.7	10	0.3	95	3.0
Cut or pierce	39	0.6	10	0.3	29	0.9
Other and unspecified	31	0.5	12	0.4	19	0.6
Unintentional Injuries (Accidents)	**1,352**	**19.4**	**564**	**13.4**	**788**	**25.8**
Motor Vehicle-related	526	8.0	168	4.6	358	11.4
Injury to pedestrian	89	1.3	43	0.2	46	1.5
Injury to pedal cyclist	4	--[3]	0	--[3]	4	--[3]
Injury to motorcyclist	70	1.1	3	--[3]	67	2.1
Injury to occupant	111	1.7	38	1.0	73	2.3
Other and unspecified	252	3.8	84	2.4	168	5.3
Falls	272	3.7	135	2.9	137	4.7
Hanging, strangulation or suffocation	109	1.5	53	1.2	56	1.9
Poisoning	99	1.5	30	0.8	69	2.2
Drowning or submersion	42	0.6	13	0.4	29	0.9
Smoke, fire and flames	33	0.5	15	0.4	18	0.6
Firearm	4	--[3]	1	--[3]	3	--[3]
Other and unspecified	267	3.5	149	3.0	118	4.0
Injury Deaths of Undetermined Intent	**602**	**9.2**	**176**	**5.3**	**426**	**13.2**
Poisoning	540	8.3	163	4.9	377	11.7
Drowning or submersion	23	0.3	5	0.1	18	0.5
Fall	6	0.1	2	--[3]	4	--[3]
Other and unspecified	33	0.5	6	0.2	27	0.8
Legal Intervention	**2**	**--[3]**	**0**	**--[3]**	**2**	**--[3]**
Firearm	1	--[3]	0	--[3]	1	--[3]
Other and unspecified	1	--[3]	0	--[3]	1	--[3]
Adverse Effects	**55**	**0.8**	**32**	**0.8**	**23**	**0.8**
Medical Care	49	0.7	26	0.6	23	0.8
Drugs	6	0.1	6	0.2	0	--[3]
ALL INJURIES	**2,615**	**38.6**	**891**	**23.0**	**1,724**	**55.3**

1. Data presented in this table are classified according to ICD-10. Please refer to Appendix for list of ICD-10 codes used in this table. 2. Number of deaths per 100,000 persons; rates are adjusted to the 2000 US standard population. 3. Calculations based on fewer than five events are excluded. * Does not include terrorist-related deaths.

Table 16d. Type of Injury[1] Deaths by Method / Intent Categories: Number and Age-Adjusted Rates[2], Massachusetts: 2004

Method	Intent											
	ALL		Unintentional		Intentional				Undetermined		Other[3]	
	Total		"Accidents"		Suicide		Homicide				Legal Intervention	
	Total Number	Rate	Total Number	Rate	Total Number	Rate	Total Number	Rate	Total Number	Rate	Total Number	Rate
Poisoning	**734**	**11.2**	99	1.5	95	1.4	0	--[4]	540	8.3	0	--[4]
Transport Injuries	**549**	**8.3**	549	8.3	0	--[4]	0	--[4]	0	--[4]	0	--[4]
Motor vehicle-related	**526**	**8.0**	526	8.0	0	--[4]	0	--[4]	0	--[4]	0	--[4]
Injury to pedestrian	**89**	**1.3**	89	1.3	0	--[4]	0	--[4]	0	--[4]	0	--[4]
Injury to pedal cyclist	**4**	**--**[4]	4	--[4]	0	--[4]	0	--[4]	0	--[4]	0	--[4]
Injury to motorcyclist	**70**	**1.1**	70	1.1	0	--[4]	0	--[4]	0	--[4]	0	--[4]
Injury to occupant	**111**	**1.7**	111	1.7	0	--[4]	0	--[4]	0	--[4]	0	--[4]
Other and unspecified	**252**	**3.8**	252	3.8	0	--[4]	0	--[4]	0	--[4]	0	--[4]
Other transport	**23**	**0.4**	23	0.4	0	--[4]	0	--[4]	0	--[4]	0	--[4]
Hanging, strangulation or suffocation	**299**	**4.4**	109	1.5	180	2.7	4	--[4]	6	0.1	0	--[4]
Falls	**291**	**4.0**	272	3.7	12	0.2	1	--[4]	6	0.1	0	--[4]
Firearm	**205**	**3.2**	4	--[4]	94	1.4	105	1.7	1	--[4]	1	--[4]
Drowning and submersion	**75**	**1.1**	42	0.6	10	0.2	0	--[4]	23	0.3	0	--[4]
Cut or pierce	**63**	**1.0**	1	--[4]	21	0.3	39	0.6	2	--[4]	0	--[4]
Smoke, fire and flames	**40**	**0.6**	33	0.5	4	--[4]	0	--[4]	3	--[4]	0	--[4]
Other and unspecified	**304**	**4.1**	243	3.2	13	0.2	26	0.4	21	0.3	1	--[4]
Adverse Effects	**55**	**0.8**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ALL INJURIES	**2,615**	**38.6**	**1,352**	**19.4**	**429**	**6.4**	**175**	**2.8**	**602**	**9.2**	**2**	**--**[4]

1. Data presented in this table are classified according to ICD-10. Please refer to Appendix for list of ICD-10 codes used in this table. 2. Number of deaths per 100,000; rates are adjusted to the 2000 US standard population. 3. Includes legal intervention and operations of war. 4. Calculations based on fewer than five events are excluded.

Table 16e. Poisoning Deaths[1] by Intent and by Agent
Massachusetts: 2004

Poisoning Agent	Total	Undetermined Intent	Unintentional	Intentional
Narcotics and hallucinogens*	**524**	453	52	19
Other and unspecified drugs, medicaments, biological substances	**114**	50	37	27
Antiepileptic, sedative-hypnotic, antiparkinsonism & psychotropic	**48**	29	6	13
Gases and vapors	**28**	1	3	24
Nonopioid analgesics, antipyretics & antirheumatics	**8**	2	0	6
Alcohol	**5**	3	1	1
Organic solvents and halogenated hydrocarbons and their vapors	**4**	1	0	3
Other and unspecified chemicals and noxious substances	**2**	0	0	2
Other drugs acting on autonomic nervous system	**1**	1	0	0
TOTAL	**734**	**540**	**99**	**95**

1. Data presented in this table are classified according to ICD-10. Please refer to Appendix for list of ICD-10 codes used in this table. 2. Calculations based on fewer than five events are excluded.

* Includes: cannabis, cocaine, codeine, heroin, lysergic acid diethylamide (LSD), mescaline, methadone, morphine, and opium (alkaloids).

HIV/AIDS

HIV/AIDS

In 2004, 211 Massachusetts residents died from HIV/AIDS, one of the three lowest annual numbers of HIV/AIDS deaths in Massachusetts (lowest years: 1997, 1998, and 2004) since the peak in the epidemic in 1994 (981 HIV/AIDS deaths) (Table 17a). This decline was mainly due to the decline among non-Hispanic women. The overall age-adjusted death rate from HIV/AIDS was 3.1 in 2004 and 3.4 in 2003.

In 2004, 64% of all HIV/AIDS deaths occurred in the hospital, while 21% occurred at home, and 15% in hospice or nursing homes (Table 17a).

The age distribution of HIV/AIDS deaths is changing. The proportion of HIV/AIDS deaths for persons ages 45 and older has more than doubled since 1994 (57% vs. 20%). In 2004, 88 persons ages 24 to 44 died from HIV/AIDS, accounting for 42% of all HIV deaths, compared with 48% in 2003. The decline of HIV/AIDS deaths between 2003 and 2004 was among people ages 44 and younger, among non-Hispanic whites and blacks, and women (Tables 17b and 17c).

In 2004, 28% of HIV/AIDS deaths were females, compared with 34% in 2003. This proportion has nearly tripled since 1989 (28% vs. 11%) and was highest in 2003. In 2004, Hispanic women accounted for 35% of all HIV female deaths. This proportion among Hispanics nearly doubled from 18% in 2003 (Table 17d).

Disparities continue in the HIV/AIDS death rate among race and ethnic groups, with Hispanics dying at a rate 8 times that of white non-Hispanics (13.9 vs. 1.7 deaths per 100,000) (Table 17d). For black non-Hispanics, the HIV/AIDS rate is 9 times higher than that of white non-Hispanics (15.8 vs. 1.7 deaths per 100,000).

In 2004, HIV/AIDS was the 4th leading cause of death for Hispanics and the 8th leading cause of death for black non-Hispanics. It was the 27th leading cause of death for white non-Hispanics. HIV/AIDS was the 6th leading cause of death for Massachusetts residents ages 25 to 44. In 1995, it was the leading cause of death in this age group overall.

The age-specific HIV/AIDS death rate among 25 to 44 year-olds varied considerably by race, Hispanic ethnicity, and gender (Table 18). For this age group, Hispanic (22.1) and black non-Hispanic (18.9) men had significantly higher HIV death rates than white non-Hispanic men (4.1). Similarly, among 25 to 44 year-olds females, Hispanic and Black non-Hispanic women had significantly higher HIV death rates than white non-Hispanic women (Table 18).

Table 17a. HIV/AIDS[1] Deaths by Place of Occurrence, Massachusetts: 1992-2004

Year		Total		Place of Occurrence: At Home		Hospital		Out of State		Hospice/Nursing Home/Other	
		Comparability Unmodified	Comparability Modified[2]	Comparability Unmodified	Comparability Modified[2]	Comparability Unmodified	Comparability Modified[2]	Comparability Unmodified	Comparability Modified[2]	Comparability Unmodified	Comparability Modified[2]
1992	#	701	NA	171	NA	394	NA	14	NA	122	NA
	%	100.0		24.4		56.2		2.0		17.4	
1993	#	777	NA	218	NA	413	NA	14	NA	127	NA
	%	100.0		28.1		53.2		1.8		16.3	
1994	#	938	998	265	282	514	547	13	14	142	151
	%	100.0		28.3	28.3	54.8	54.8	1.4	1.4	15.1	15.1
1995	#	937	997	303	322	500	532	7	7	127	135
	%	100.0		32.3	32.3	53.4	53.4	0.7	0.7	13.6	13.5
1996	#	609	648	154	164	336	357	9	10	110	117
	%	100.0		25.3	25.3	55.2	55.1	1.5	1.5	18.1	18.1
1997	#	242	277	59	68	158	181	4	5	21	24
	%	100.0		24.4	24.5	65.3	65.3	-[5]	1.8	8.6	8.7
1998	#	213	244	46	53	130	149	2	2	35	40
	%	100.0		21.6	21.7	61.0	61.1	-[5]	-[5]	16.4	16.4
1999	#	242[4]		55		142		2		43	
	%	100.0		22.7		58.7		-[5]		17.8	
2000	#	226[4]		48		145		0		33	
	%	100.0		21.2		64.2		-[5]		14.6	
2001	#	249[4]		47		164		4		34	
	%	100.0		18.9		65.9		-[5]		13.7	
2002	#	229[4]		33		156		4		36	
	%	100.0		14.4		68.1		-[5]		15.7	
2003	#	226[4]		55		134		5		32	
	%	100.0		24.3		59.3		2.2		14.2	
2004	#	211[4]		45		134		1		31	
	%	100.0		21.3		63.5		-[5]		14.7	

**PLEASE NOTE: this table has been updated June 2001 to reflect the revised comparability ratio of HIV Disease Deaths, issued by the National Center for Health Statistics. 1. AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus. The deaths reported are cases for which AIDS or HIV-related disease was the underlying cause of death. Deaths for 1992-1998 were coded according to the ICD-9 classification schedule, which began with 1987 death data (codes 042-044). Deaths for 1999-2004 were coded according to the ICD-10 (codes B20-B24). 2. Comparability Modified (CM): this number has been adjusted using the preliminary comparability ratio (CR) from NCHS (revised June 2001). CM data for 1994-1996 use 1996 based CR; CM data for 1997-1998 use revised 1998 based CR. 3. NA: Comparability ratio is not applicable for years prior to 1994. 4. When comparing data over time between 1994 through 2004, please use the comparability modified number for years 1994-1998. Please see Appendix for a detailed explanation. 5. Calculations based on fewer than 5 events are excluded.

Table 17b. HIV/AIDS[1] Deaths by Age, Massachusetts: 1992-2004

Year		Age (in years) <15 Comparability Unmodified	<15 Comparability Modified[2]	15-24 Comparability Unmodified	15-24 Comparability Modified[2]	25-34 Comparability Unmodified	25-34 Comparability Modified[2]	35-44 Comparability Unmodified	35-44 Comparability Modified[2]	45+ Comparability Unmodified	45+ Comparability Modified[2]
1992	#	6	NA	5	NA	243	NA	304	NA	143	NA
	%	0.8		0.7		34.7		43.4		20.4	
1993	#	10	NA	5	NA	234	NA	359	NA	169	NA
	%	1.3		0.6		30.1		46.2		21.8	
1994	#	7	7	8	9	272	289	464	494	187	199
	%	0.7	0.7	0.9	0.9	29.0	29.0	49.5	49.5	19.9	19.9
1995	#	11	12	5	5	272	289	443	471	206	219
	%	1.2	1.2	0.5	0.5	29.0	29.0	47.3	47.2	22.0	22.0
1996	#	4	4	8	9	154	164	300	319	143	152
	%	0.7	0.6	1.3	1.4	25.3	25.3	49.3	49.2	23.5	23.5
1997	#	5	6	1	1	35	40	135	155	66	76
	%	2.1	2.2	-[5]	-[5]	14.5	14.4	55.8	56.0	27.3	27.4
1998	#	0	0	0	0	47	54	106	121	60	69
	%	-[5]	-[5]	-[5]	-[5]	22.1	22.1	49.8	50.0	28.2	28.3
1999	#	2[4]		9[4]		34[4]		112[4]		85[4]	
	%	-[5]		3.7		14.0		46.3		35.1	
2000	#	4[4]		0[4]		26[4]		104[4]		92[4]	
	%	-[5]		0.0[4]		11.5[4]		46.0[4]		40.7[4]	
2001	#	1[4]		2[4]		25[4]		111[4]		110[4]	
	%	-[5]		-[5]		10.0		44.6		44.2[4]	
2002	#	1[4]		1[4]		10[4]		91[4]		126[4]	
	%	-[5]		-[5]		4.4		39.7		55.0[4]	
2003	#	1[4]		3[4]		14[4]		94[4]		114[4]	
	%	-[5]		-[5]		6.2		41.6		50.4	
2004	#	0[4]		2[4]		9[4]		79[4]		121[4]	
	%	-[5]		-[5]		4.3		37.4		57.4	

**PLEASE NOTE: this table has been updated June 2001 to reflect the revised comparability ratio of HIV Disease Deaths, issued by the National Center for Health Statistics. 1. AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus. The deaths reported are cases for which AIDS or HIV-related disease was the underlying cause of death. Deaths for 1992-1998 were coded according to the ICD-9 classification schedule, which began with 1987 death data (codes 042-044). Deaths for 1999-2004 were coded according to the ICD-10 (codes B20-B24). 2. Comparability Modified (CM): this number has been adjusted using the preliminary comparability ratio (CR) from NCHS (revised June 2001). CM data for 1994-1996 use 1996 based CR; CM data for 1997-1998 use revised 1998 based CR. 3. NA: Comparability ratio is not applicable for years prior to 1994. 4. When comparing data over time between 1994 through 2004, please use the comparability modified number for years 1994-1998. Please see Appendix for a detailed explanation. 5. Calculations based on fewer than 5 events are excluded

Table 17c. HIV/AIDS[1] Deaths by Gender, Race and Hispanic Ethnicity, Massachusetts: 1992-2004

		Gender				Race and Ethnicity							
		Male		Female		White, non-Hispanic[2]		Black, non-Hispanic[2]		Other[3]		Hispanic[2]	
		Comparability Unmodified	Comparability Modified[4]	Comparability Unmodified	Comparability Modified[4]	Comparability Unmodified	Comparability Modified[4]	Comparability Unmodified	Comparability Modified[4]	Comparability Unmodified	Comparability Modified[4]	Comparability Unmodified	Comparability Modified[4]
Year													
1992	#	605	NA	96	NA	463	NA	141		2	NA	95	NA
	%	86.3		13.7		66.0		20.1	NA	-[5]		13.6	
1993	#	663	NA	114	NA	518	NA	160		5	NA	94	NA
	%	85.3		14.7		66.7		20.6	NA	0.6		12.1	
1994	#	763	812	175	186	581	618	193	205	7	7	157	167
	%	81.3	81.4	18.7	18.6	61.9	61.9	20.6	20.5	0.7	0.7	16.7	16.7
1995	#	753	801	184	196	554	589	223	237	5	5	155	165
	%	80.4	80.3	19.6	19.7	59.1	59.1	23.8	23.8	0.5	0.5	16.5	16.5
1996	#	494	525	115	122	341	363	161	171	5	5	101	107
	%	81.1	81.0	18.9	18.8	56.0	56.0	26.4	26.4	0.8	0.8	16.6	16.5
1997	#	190	218	52	60	121	139	74	85	0	0	47	54
	%	78.5	78.7	21.5	21.7	50.0	50.2	30.6	30.7	-[5]	-[5]	19.4	19.5
1998	#	169	193	44	50	104	119	51	58	0	0	58	66
	%	79.3	79.1	20.7	20.5	48.8	48.8	23.9	23.8	-[5]	-[5]	27.2	27.0
1999	#	177[6]		65[6]		126[6]		51[6]		2[6]		63[6]	
	%	73.1		26.9		52.1		21.1		-[5]		26.0	
2000	#	161[6]		65[6]		104[6]		61[6]		2[6]		59[6]	
	%	71.2		28.8		46.0		27.0		-[5]		26.1	
2001	#	182[6]		67[6]		125[6]		73[6]		0[6]		51[6]	
	%	73.1		26.9		50.2		29.3		-[5]		20.5	
2002	#	163[6]		66[6]		108[6]		68[6]		1[6]		52[6]	
	%	71.2		28.8		47.1		29.7		-[5]		22.7	
2003	#	150[6]		76[6]		113[6]		58[6]		2[6]		53[6]	
	%	66.4		33.6		50.0		25.7		-[5]		23.5	
2004	#	151[6]		60[6]		97[6]		55[6]		4[6]		55[6]	
	%	71.6		28.4		46.0		26.1		-[5]		26.1	

**PLEASE NOTE: this table was updated in June 2001 to reflect the revised comparability ratio of HIV Disease Deaths, issued by the National Center for Health Statistics. 1. AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus. The deaths reported are cases for which AIDS or HIV-related disease was the underlying cause of death. Deaths for 1992-1998 were coded according to the ICD-9 classification schedule, which began with 1987 death data (codes 042-044). Deaths for 1999-2004 were coded according to the ICD-10 (codes B20-B24). 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in a race category. Please refer to the Technical Notes in the Appendix for a more detailed explanation. 3. The "Other" category represents Asian, non-Hispanics, American Indian, non-Hispanics, and other non-Hispanics. 4. Comparability Modified: this number has been adjusted using the preliminary comparability ratio (CR) from NCHS (June 2001). CM data for 1994-1996 use 1996 based CR; CM data for 1997-1998 use revised 1998 based CR. 5. Calculations based on fewer than 5 events are excluded. 6. When comparing data over time between 1994 through 2004, please use the comparability modified number for years 1994-1998. Please see Appendix for a detailed explanation.

Table 17d. HIV/AIDS[1] Deaths by Gender, Race and Hispanic Ethnicity Numbers, Percent and Age-adjusted Rates, Massachusetts: 2000-2004

TOTAL	White non-Hispanic[2]			Black non-Hispanic[2]			Hispanic		
Year	**#**	**Percent**	**Rate[3]**	**#**	**Percent**	**Rate[3]**	**#**	**Percent**	**Rate[3]**
2000	104	46%	1.9	61	27%	18.3	59	26%	17.4
2001	125	50%	2.2	73	29%	21.1	51	20%	13.5
2002	108	47%	1.9	68	30%	20.3	52	23%	13.5
2003	113	50%	2.0	58	26%	17.2	53	23%	14.9
2004	97	46%	1.7	55	26%	15.8	55	26%	13.9
MALE									
2000	77	48%	2.8	40	25%	26.0	42	26%	27.7
2001	92	51%	3.3	50	27%	31.4	40	22%	22.5
2002	86	53%	3.1	43	26%	27.9	34	21%	18.7
2003	74	49%	2.7	36	24%	23.4	39	26%	23.8
2004	74	49%	2.7	39	26%	24.0	34	23%	18.4
FEMALE									
2000	27	42%	1.0	21	32%	11.4	17	26%	8.6
2001	33	49%	1.2	23	34%	12.1	11	16%	5.4
2002	22	33%	0.8	25	38%	13.8	18	27%	8.7
2003	39	51%	1.4	22	29%	12.0	14	18%	7.1
2004	23	38%	0.8	16	27%	8.7	21	35%	10.0

1. AIDS and HIV disease deaths coded using ICD-10: B20-B24. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in a race category. Please refer to the Technical Notes in the Appendix for a more detailed explanation. 3. Number of deaths per 100,000 persons; rates are age-adjusted to the 2000 U.S. standard population. **Resident deaths rates for 2000-2004 have been recalculated using 2000-2004 new population estimates**

Table 18. HIV/AIDS[1] Deaths by Race, Hispanic Ethnicity, and Gender
Persons Ages 25-44, Massachusetts: 1994 – 2004

Year	White, non-Hispanic[2]				Black, non-Hispanic[2]				Hispanic			
TOTAL	#	Rate[3]	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate
	Comparability Unmodified		Comparability Modified[4]		Comparability Unmodified		Comparability Modified[4]		Comparability Unmodified		Comparability Modified[4]	
1994	451	25.6	480	27.2	152	162.0	162	172.3	127	118.3	135	125.8
1995	428	24.3	455	25.8	159	169.7	169	180.5	124	113.0	132	120.2
1996	251	14.2	267	15.1	113	121.1	120	128.8	85	75.4	90	80.2
1997	86	4.9	98	5.6	48	51.3	55	58.7	36	31.1	41	35.6
1998	68	3.9	78	4.5	38	40.7	44	46.6	47	39.8	54	45.6
1999	74[6]	4.4			32[6]	31.2			40[6]	30.5		
2000	60	3.7			28	23.8			40	27.6		
2001	70	4.4			35	29.3			31	20.3		
2002	42	2.7			24	20.1			35	22.1		
2003	63	4.1			19	15.8			25	15.1		
2004	38	2.6			17	14.0			31	18.0		
MALE												
1994	388	44.5	413	47.3	113	244.3	120	259.9	93	174.2	99	185.3
1995	367	42.1	390	44.8	112	242.2	119	257.6	90	164.5	96	175.0
1996	221	25.3	235	26.9	73	158.1	78	168.2	61	108.5	65	115.4
1997	71	8.1	81	9.3	30	64.6	34	74.0	28	48.5	32	55.5
1998	57	6.6	65	7.6	27	58.2	31	66.6	34	57.7	39	66.1
1999	54[6]	6.5			20[6]	39.9			30[6]	46.2		
2000	39	4.9			17	30.1			27	37.9		
2001	46	5.8			19	33.3			23	30.6		
2002	29	3.8			15	26.3			21	26.8		
2003	42	5.6			10	17.3			19	23.1		
2004	30	4.1			11	18.9			19	22.1		
FEMALE												
1994	63	7.1	67	7.6	39	82.0	41	87.2	34	63.0	36	67.0
1995	61	6.9	65	7.3	47	99.0	50	105.3	34	61.8	36	65.7
1996	30	3.4	32	3.6	40	84.9	43	90.3	24	42.4	26	45.1
1997	15	1.7	17	1.9	18	38.2	21	43.7	8	13.8	9	15.8
1998	11	1.3	13	1.5	11	23.4	13	26.8	13	22.0	15	25.2
1999	20[6]	2.3			12[6]	22.9			10[6]	15.1		
2000	21	2.5			11	17.9			13	17.6		
2001	24	2.9			16	25.7			8	10.3		
2002	13	1.6			9	14.4			14	17.4		
2003	21	2.7			9	14.4			6	7.2		
2004	8	1.1			6	9.6			12	13.9		

1. AIDS and HIV disease deaths for years 1994-1998 coded using ICD-9: 042-044; 1999–2004 deaths coded using ICD-10: B20-B24. Please refer to Appendix for comparability ratios. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in a race category. Please refer to the Technical Notes in the Appendix for a more detailed explanation. 3. Number of deaths per 100,000 residents in the specified population group. 4. Comparability Modified (CM) number and rate based on preliminary comparability ratios (CR) from NCHS (June 2001). CM data for 1994-1996 use 1996 based CR; CM data for 1997-1998 use revised 1998 based CR. Please see Appendix for detailed explanation. 5. NA = not applicable. 6. When comparing data over time between 1994 through 2004, please use comparability modified data for years 1994-1998. **Resident deaths rates for 2000-2004 have been recalculated using 2000-2004 new population estimates.**

INFANT DEATHS

Causes of Infant Death

In 2004, there were a total of 376 infant deaths (deaths of infants less than one year of age) and 78,460 live births among Massachusetts residents, which means an infant mortality rate (IMR) of 4.8 per 1,000 live births, the second lowest rate since 1980 (Table 19) and the same as in 2003. The infant mortality rate decreased by 20% in the last decade. Massachusetts infant mortality rate for 2004 was 29% lower than the preliminary infant mortality rate for the United States (6.8 deaths per 1,000 live births) (National Vital Statistics Report, April 19, 2006). (Please note: more information on 2004 births can be found in *Massachusetts Births: 2004,* published in February 2006, or online at http://www.mass.gov/dph/bhsre/resep/resep.htm#birth). **Please note that the number of infant deaths reported on *Massachusetts Births: 2004* was based on a preliminary Death file, while this report is based on the final file for Deaths 2004, which includes 4 additional deaths.**

The IMR varies by race and ethnicity. In 2004, the IMR for white non-Hispanics was 3.8 deaths per 1,000 live births compared with 11.4 for black non-Hispanics, 7.4 for Hispanics, and 2.7 for Asian non-Hispanics (Table 18). In 2004, the IMR increased only for Hispanics (by 32%), whereas it decreased for both black non-Hispanics (by 10%) and white non-Hispanics by 7%, and it remained the same for Asians as in 2003. The change for Hispanics may be a result of year to year fluctuation rather than a trend since the 2004 rate is similar to the 2001 and 2002 rates (7.3 and 7.0 respectively). None of these changes were statistically significant.

Infant deaths occurring within the first 27 days of an infant's life, which are referred as neonatal mortality, accounted for 77% of all infant deaths. This proportion increased by 4% from 2003 after declining during the past 4 years (74.4% in 2003 compared with 77.4% in 2004) (Table 19). The neonatal race-specific IMR in 2004, compared with previous year, had similar changes to those seen in the overall race-specific IMR (Table 19).

In 2004, the overall leading causes of infant death were conditions arising in the perinatal period (232 deaths) and congenital malformations (59 deaths). Other causes of infant death were Sudden Infant Death Syndrome (SIDS) (33 deaths), diseases of the respiratory system (12 deaths), nervous system and ear (3 deaths), and unintentional injuries (3 deaths) (Table 20).

The leading causes of infant death varied by the age of the infant (Table 20). Disorders relating to short gestation and low birthweight continue to be the leading cause of death in the neonatal period (22.1%), while SIDS continues as the leading cause of death in the post neonatal period (28-365 days) (31.8%).

The distribution of the leading causes of infant death varied among race and ethnicity groups. Seventeen percent of all Hispanic infant deaths were due to congenital malformations compared with 14.8% of all white non-Hispanic infant deaths, and 14.3% of all black non-Hispanic infant deaths (Table 21).

Table 19. Trends in Infant, Neonatal, and Post Neonatal Mortality, by Race and Hispanic Ethnicity, Massachusetts: 1994-2004

INFANT MORTALITY (less than one year of age)

	State Total[1]		White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian, non-Hispanic		Other[2]	
Year	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**
1994	499	6.0	343	5.3	79	12.6	64	7.6	8	2.4	5	5.3
1995	419	5.1	275	4.4	65	11.1	58	7.2	19	5.5	2	--[4]
1996	403	5.0	289	4.7	63	11.4	40	5.1	8	2.2	2	--[4]
1997	425	5.3	294	4.8	64	11.7	55	6.7	10	2.6	2	--[4]
1998	414	5.1	287	4.6	59	10.6	58	6.7	10	2.7	0	--[4]
1999	418	5.2	285	4.7	72	12.3	49	5.5	8	1.9	4	--[4]
2000	377	4.6	232	3.8	74	12.8	48	5.2	19	4.1	4	--[4]
2001	407	5.0	245	4.1	71	12.1	69	7.3	15	3.1	7	4.1
2002	397	4.9	239	4.1	69	11.6	67	7.0	16	3.0	6	3.8
2003	383	4.8	235	4.1	75	12.7	55	5.6	14	2.7	4	--[4]
2004	376	4.8	210	3.8	70	11.5	75	7.6	15	2.7	6	3.5

NEONATAL MORTALITY (birth to 27days)

	State Total[1]		White, non-Hispanic		Black, non-Hispanic		Hispanic		Asian, non-Hispanic		Other[2]	
Year	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**
1994	349	4.2	240	3.7	58	9.3	40	4.7	7	2.1	4	--[4]
1995	298	3.6	198	3.1	50	8.5	39	4.8	10	2.9	1	--[4]
1996	290	3.6	222	3.6	34	6.2	27	3.5	5	1.4	1	--[4]
1997	323	4.0	228	3.7	44	8.0	43	5.2	7	1.8	1	--[4]
1998	315	3.9	218	3.5	47	8.5	43	5.0	7	1.9	0	--[4]
1999	332	4.1	226	3.7	58	9.9	39	4.4	5	1.2	4	--[4]
2000	288	3.5	177	2.9	57	9.9	37	4.0	14	3.0	3	--[4]
2001	308	3.8	190	3.2	56	9.5	49	5.2	10	2.1	3	--[4]
2002	299	3.7	185	3.2	49	8.2	50	5.2	13	2.4	2	--[4]
2003	285	3.6	179	3.1	56	9.5	38	3.9	10	1.9	2	--[4]
2004	291	3.7	167	3.0	51	8.4	57	5.8	12	2.2	4	--[4]

POST NEONATAL MORTALITY (28-365 days)

	State Total[1]		White, non-Hispanic		Black, Non-Hispanic		Hispanic		Asian, non-Hispanic		Other[2]	
Year	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**	#	**Rate[3]**
1994	150	1.8	103	1.6	21	3.3	24	2.8	1	--[4]	1	--[4]
1995	121	1.5	77	1.2	15	2.6	19	2.3	9	2.6	1	--[4]
1996	113	1.4	67	1.1	29	5.3	13	1.7	3	--[4]	1	--[4]
1997	102	1.3	66	1.1	20	3.7	12	1.5	3	--[4]	1	--[4]
1998	99	1.2	69	1.1	12	2.2	15	1.7	3	--[4]	0	--[4]
1999	86	1.1	59	1.0	14	2.4	10	1.1	3	--[4]	0	--[4]
2000	89	1.1	55	0.9	17	2.9	11	1.2	5	1.1	1	--[4]
2001	99	1.2	55	0.9	15	2.6	20	2.1	5	1.0	4	--[4]
2002	98	1.2	54	0.9	20	3.4	17	1.8	3	--[4]	4	--[4]
2003	98	1.2	56	1.0	19	3.2	17	1.7	4	--[4]	2	--[4]
2004	85	1.1	43	0.8	19	3.1	18	1.8	3	--[4]	2	--[4]

1. Deaths of infants of unknown race are included in the total calculation. For rate computations, births of infants of unknown race are allocated into the race categories according to the distribution of births of known race. 2. Other: American Indian and Other races. 3. Rates are expressed per 1,000 live births. 4. Calculations based on fewer than five events are excluded.

Table 20. Infant, Neonatal, and Post Neonatal Deaths by Cause, Massachusetts: 2004

Cause of Death[1]	ICD-10 Code	Infant (<1 year) #	Infant (<1 year) %[2,3]	Neonatal (<28 days) #	Neonatal (<28 days) %[2,3]	Post Neonatal (28-365 days) #	Post Neonatal (28-365 days) %[2,3]
TOTAL		**376**	**100.0**	**291**	**100.0**	**85**	**100.0**
Infectious and parasitic diseases	**A00-B99**	**2**	**--[3]**	**1**	**--[3]**	**1**	**--[3]**
Cancer	**C00-C97**	**0**	**--[3]**	**0**	**--[3]**	**0**	**--[3]**
Diseases of the blood and blood forming organs (anemia)	**D50-D89**	**1**	**--[3]**	**1**	**--[3]**	**0**	**--[3]**
Diseases of nervous system and ear	**G00-G98, H60-H93**	**3**	**--[3]**	**0**	**--[3]**	**3**	**--[3]**
Diseases of the respiratory system	**J00-J98**	**12**	**3.2**	**2**	**--[3]**	**10**	**11.8**
Diseases of digestive system	**K00-K92**	**3**	**--[3]**	**0**	**--[3]**	**3**	**--[3]**
Congenital malformations	**Q00-Q99**	**59**	**15.7**	**46**	**15.8**	**13**	**15.3**
Congenital malformations of nervous system	Q00-Q07	7	1.9	5	1.7	2	--[3]
Anencephalus and similar malformations	Q00	3	--[3]	3	--[3]	0	--[3]
Congenital malformations of eye, ear, face, and neck	Q10-Q18	0	--[3]	0	--[3]	0	--[3]
Congenital malformations of heart	Q20-Q24	9	2.4	8	2.7	1	--[3]
Other congenital malformations of circulatory system	Q25-Q28	6	1.6	5	1.7	1	--[3]
Congenital malformations of respiratory system	Q30-Q34	12	3.2	12	4.1	0	--[3]
Cleft palate and other digestive tract malformations	Q35-Q45	0	--[3]	0	--[3]	0	--[3]
Congenital malformations of genitourinary system	Q50-Q64	0	--[3]	0	--[3]	0	--[3]
Congenital malformations of musculoskeletal system	Q65-Q85	7	1.9	5	1.7	2	--[3]
Chromosomal abnormalities	Q90-Q99	13	3.5	8	2.7	5	5.9
Certain conditions originating in the perinatal period	**P00-P96**	**232**	**61.7**	**226**	**77.7**	**6**	**7.1**
Newborn affected by maternal conditions which may be unrelated to present pregnancy	P00	0	--[3]	0	--[3]	0	--[3]
Newborn affected by maternal complications of pregnancy	P01	39	10.4	38	13.1	1	--[3]
Newborn affected by complications of placenta, cord and membrane	P02	28	7.4	28	9.6	0	--[3]
Newborn affected by other complications of labor and delivery	P03	1	--[3]	0	--[3]	1	--[3]
Disorders relating to short gestation and low birthweight	P07	83	22.1	82	28.2	1	--[3]
Birth trauma	P10-P15	1	--[3]	0	--[3]	1	--[3]
Intrauterine hypoxia and birth asphyxia	P20-P21	13	3.5	13	4.5	0	--[3]
Respiratory distress of newborn	P22	9	2.4	9	3.1	0	--[3]
Other respiratory conditions of newborn	P23-P28	14	3.7	13	4.5	1	--[3]
Infections specific to the perinatal period	P35-P39	6	1.6	6	2.1	0	--[3]
Neonatal hemorrhage	P50-P52, P54	5	1.3	5	1.7	0	--[3]
Other and ill-defined conditions originating in the perinatal period	P90-P96	0	0	0	0	0	--[3]
Symptoms, signs, and ill-defined conditions	**R00-R99**	**43**	**11.4**	**10**	**3.4**	**33**	**38.8**
Sudden Infant Death Syndrome (SIDS)	R95	33	8.8	6	2.1	27	31.8
Unintentional Injuries	**V01-X59**	**3**	**--[3]**	**1**	**--[3]**	**2**	**--[3]**
Homicide	**X85-Y09**	**3**	**--[3]**	**0**	**--[3]**	**3**	**--[3]**
All other causes	**Residual**	**15**	**4.0**	**4**	**--[3]**	**11**	**12.9**

1. Please refer to the Technical Notes in the Appendix for an explanation of ICD-10 codes. 2. Percents not calculated for subcategories. 3. Calculations based on fewer than five events are excluded.

Table 21. Infant Deaths by Major Causes, Race and Hispanic Ethnicity, Massachusetts: 2004

Cause of Death[2]	ICD-10 Code	White non-Hispanic[1] #	White non-Hispanic[1] %	Black non-Hispanic[1] #	Black non-Hispanic[1] %	Asian non-Hispanic[1] #	Asian non-Hispanic[1] %	Hispanic #	Hispanic %
TOTAL		**210**	**100.0%**	**70**	**100.0%**	**15**	**100.0%**	**75**	**100.0%**
Congenital malformations	Q00-Q99	31	14.8%	10	14.3%	5	33.3%	13	17.3%
Certain conditions originating in the perinatal period	P00-P96	130	61.9%	46	65.7%	7	46.7%	44	58.7%
Symptoms, signs, and ill-defined conditions	R00-R99	25	11.9%	7	10.0%	2	--[3]	9	12.0%
SIDS	R95	19	9.0%	6	9.0%	0	--[3]	8	11.0%
Unintentional Injuries	V01-X59	3	--[3]	0	--[3]	0	--[3]	0	--[3]
Homicide	X85-Y09	1	--[3]	0	--[3]	0	--[3]	2	--[3]
All other causes	Residual	20	9.5%	7	10.0%	1	--[3]	7	9.3%

1. Race and ethnicity data in this table are presented as mutually exclusive categories and Cape Verdeans are not included with Blacks. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in a race category. Please refer to the Technical Notes in the Appendix for a more detailed explanation. 2. Deaths are coded according to ICD-10. Please refer to Appendix for comparability ratios. 3. Calculations based on fewer than five events are excluded.

HEALTHY PEOPLE 2010

Healthy People 2010 Objectives

In January 2000, the U.S. Department of Health and Human Services launched Healthy People 2010 (HP2010), a comprehensive, nationwide health promotion and disease prevention agenda. Healthy People 2010 contains 467 objectives designed to serve as a road map for improving the health of all people in the United States. In its report, the U.S. Department of Health and Human Services set mortality target objectives to be met by the year 2010. These objectives have two overarching goals: 1) to increase quality and years of healthy life, and 2) to eliminate health disparities.

Table 21 presents the two most recent Massachusetts data for selected HP2010 Mortality Objectives. This report presents only mortality objectives that use underlying cause of death data. Massachusetts either achieved or moved toward many of these targets. Out of 40 objectives presented, Massachusetts 2004 death data showed that the state had already met or exceeded 16 of the 2010 targets: Uterine cervix cancer deaths, prostate cancer deaths, coronary heart disease deaths, stroke, firearm deaths, motor vehicle crashes, homicide, child and adolescent mortality death rates (1 to 4, 5 to 9, and 10 to 14 years old), postneonatal deaths, deaths due to birth defects, deaths due to congenital heart defects, and asthma death rates for children under 5 years of age, 5 to 14 years of age, and persons 65 years and older.

For nine objectives, the 2004 Massachusetts indicators were within 25% of the target goals. These objectives included: overall cancer deaths, lung cancer deaths, female breast cancer deaths, cervical cancer deaths, malignant melanoma deaths, unintentional injury deaths, infant mortality rate, child mortality death rates (15-19 years old), and asthma death rates for adults ages 35-64 years.

The fifteen indicators for which Massachusetts was the furthest from the HP2010 targets were: colorectal cancer deaths, cirrhosis deaths, HIV deaths, poisoning deaths, fall deaths, fire deaths, hanging/suffocation/strangulation deaths, deaths due to drowning, suicide deaths, drug-induced deaths, neonatal deaths, SIDS, maternal deaths, death rates for adolescents ages 20-24 years, and asthma death rates for person ages 15 to 34. Although these rates were greater than 25% from the target goals, most were still lower than the rates for the United States overall.

Table 22. Target Status for Selected Healthy People 2010 Mortality Objectives

Objective Number	HEALTHY PEOPLE 2010 OBJECTIVE	TARGET 2010[1]	MA 2003[2]	MA 2004[2]	US 2004[3]	TARGET STATUS
	Age-adjusted rates (per 100,000 population)					
3-1	Overall Cancer death rate	159.9	193.0	188.4	184.6	○
3-2	Lung Cancer	44.9	54.5	52.0	52.9	○
3-3	Female Breast Cancer (per 100,000 females)	22.3	24.5	24.2	NA[5]	○
3-4	Uterine Cervix (per 100,000 females)	2.0	1.3	1.7	1.3	✓
3-5	Colorectal Cancer	13.9	18.8	17.7	17.9	●
3-6	Oropharyngeal Cancer	2.7	2.5	2.8	2.6	○
3-7	Prostate Cancer (per 100,000 males)	28.8	26.1	23.4	9.7	✓
3-8	Malignant Melanoma	2.5	3.1	2.7	2.6	○
12-1	Coronary Heart Disease	166.0	131.2	119.8	NA[5]	✓
12-7	Stroke	48.0	45.0	42.5	50.0	✓
13-14	HIV/AIDS	0.7	3.4	3.1	4.4	●
26-2	Cirrhosis	3.0	5.7	5.4	NA[5]	●
26-3	Drug-induced deaths	1.0	12.9	11.1	9.7	●
	Injury Deaths					
15-3	Firearm- related	4.1	3.1	3.2	9.8	✓
15-8	Poisonings	1.5	12.7	11.2	NA[5]	●
15-9	Hanging, strangulation or suffocation	3.0	4.5	4.4	NA[5]	●
15-13	Unintentional injuries (Accidents)	17.5	18.4	19.4	36.6	○
15-15	Motor vehicle crashes	9.0	7.9	8.0	14.8	✓
15-25	Residential fire deaths	0.2	1.1	0.4	NA[5]	●
15-27	Falls	3.0	3.7	4.0	NA[5]	●
15-29	Drowning	0.9	1.0	1.2	NA[5]	●
15-32	Homicide	3.0	2.2	2.8	5.6	✓
18-1	Suicide	5.0	6.4	6.4	10.7	●
	Death Rates (per 1,000 live births)					
16-1c	Infant deaths	4.5	4.8	4.7	6.8	○
16-1d	Neonatal deaths	2.9	3.6	3.7	4.5	●
16-1e	Postneonatal deaths	1.2	1.2	1.1	2.3	✓
16-1f	Birth defects	1.1	0.8	0.8	1.4	✓
16-1g	Congenital heart defects	0.38	0.16	0.11	0.34	✓
16-1h	Sudden infant death syndrome (SIDS)	0.25	0.21	0.42	0.51	●
16-4	Maternal deaths (per 100,000 live births)	3.3	2.4	6.3	NA[5]	●
	Child/Adolescent/Young Adults Death Rates (per 100,000 pop)					
16-2a	1-4 years old	25.0	17.2	14.6	29.9	✓
16-2b	5-9 years old	14.3	11.8	9.2	NA[5]	✓
16-3a	10-14 years old	16.8	11.1	12.9	NA[5]	✓
16-3b	15-19 years old	43.2	50.5	46.0	NA[5]	○
16-3c	20-24 years old	57.3	64.6	74.8	NA[5]	●
24-1	Asthma deaths (per million)					
24-1a	Children under age 5 years	1.0	0.0	0.0	NA[5]	✓
24-1b	Children aged 5-14 years	1.0	--[4]	--[4]	NA[5]	✓
24-1c	Ages 15-34 years	3.0	5.8	4.0	NA[5]	●
24-1d	Ages 35-64 years	9.0	10.0	10.3	NA[5]	○
24-1e	Ages 65+ years	60.0	43.2	52.7	NA[5]	✓

✓ = YES, met target ○ = NO, but within 25% of target ● = NO, > 25% from target

1. Data 2010 the Healthy People 2010 Database. CDC Wonder website. 2. Massachusetts 2003-2004 rates are calculated using new 2003-2004 population estimates. Figures for 2003 are different from previously published reports that use 2000 population estimates. 3. US data for 2004 obtained from NCHS. Deaths: Preliminary Data for 2004. National Vital Statistics Report, Vol. 54, No. 19, June 28, 2006. 4. Calculations based on fewer than 5 events are excluded. 5. Not available at time of publication.

SELECTED CAUSES OF DEATH BY COMMUNITY, COMMUNITY HEALTH NETWORK AREA (CHNA), COUNTY, AND EOHHS REGIONS

Table 23. Selected Causes of Death by Community, Massachusetts: 2004

COMMUNITY	Total Deaths	Crude Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	Chronic Lower Respiratory Disease[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Massachusetts	**54,419**	**848.1**	**13,792**	**13,312**	**3,607**	**971**	**3,252**	**2,573**	**1,327**	**1,955**	**524**	**175**	**429**	**524**
Abington	154	946.9	34	46	14	0	6	5	4	1	3	0	3	1
Acton	98	474.3	21	24	6	4	9	5	2	8	0	0	1	0
Acushnet	107	1,011.2	35	33	12	1	3	7	0	2	2	0	2	0
Adams	132	1,551.5	32	25	9	0	12	4	0	6	2	0	1	2
Agawam	327	1,142.7	69	82	28	5	15	20	9	11	1	0	2	0
Alford	4	--[4]	2	2	0	0	0	0	0	0	0	0	0	0
Amesbury	155	926.1	46	28	7	1	11	5	12	8	1	0	2	0
Amherst	120	350.3	33	21	6	0	8	9	1	2	2	1	0	0
Andover	220	684.5	62	53	15	4	18	10	5	5	0	1	3	0
Arlington	394	948.3	97	107	16	11	37	16	6	10	1	0	3	0
Ashburnham	29	491.4	11	6	2	0	4	1	1	1	1	0	0	0
Ashby	21	717.7	5	7	2	1	2	1	1	0	1	0	0	0
Ashfield	9	494.5	2	2	2	0	2	1	0	0	1	0	0	0
Ashland	85	547.4	21	27	11	1	7	3	1	1	0	0	1	0
Athol	131	1,122.2	37	29	10	3	8	3	4	9	3	0	1	1
Attleboro	379	871.1	101	95	28	5	18	13	11	10	4	1	5	0
Auburn	179	1,092.7	49	48	12	3	11	11	2	8	3	0	1	1
Avon	40	912.2	10	11	2	0	5	3	1	0	0	0	0	0
Ayer	66	915.1	16	14	2	0	2	4	1	6	1	0	0	0
Barnstable	521	1,073.5	130	149	41	16	35	22	8	18	4	0	6	8
Barre	40	746.7	8	9	4	1	3	2	2	2	2	0	0	0
Becket	12	676.1	6	4	0	1	0	1	0	0	0	0	0	0
Bedford	143	1,142.3	26	37	9	0	5	8	1	6	2	0	0	1
Belchertown	73	527.2	18	19	3	0	2	3	1	1	0	0	4	0
Bellingham	86	545.6	24	33	12	2	5	2	0	2	2	0	0	0
Belmont	159	673.6	36	36	8	1	17	9	3	6	1	1	2	0
Berkley	23	362.1	4	11	3	0	0	1	0	0	0	0	0	1
Berlin	20	747.1	9	2	0	0	1	1	0	0	0	0	1	0
Bernardston	19	857.8	5	4	1	1	2	0	0	1	2	0	0	0
Beverly	394	980.9	105	83	26	3	32	23	11	14	3	0	1	5
Billerica	250	625.8	57	81	23	11	12	14	6	4	0	1	1	3
Blackstone	75	828.3	22	17	7	2	3	1	4	2	1	0	0	1
Blandford	7	553.8	1	5	1	1	1	0	0	0	0	0	0	0
Bolton	14	319.0	4	1	0	0	1	0	0	0	0	0	0	0
Boston	4,063	713.9	910	977	255	71	245	172	101	140	25	58	26	66

Table 23. Selected Causes of Death by Community, Massachusetts: 2004 (continued)

COMMUNITY	Total Deaths	Crude Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	Chronic Lower Respiratory Disease[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Bourne	226	1,158.0	64	49	17	3	18	18	4	7	4	1	1	1
Boxborough	16	317.2	5	4	0	0	1	1	0	1	0	0	0	0
Boxford	39	474.4	10	13	4	1	3	3	2	1	0	0	0	0
Boylston	24	574.0	5	7	3	1	1	2	1	1	0	0	0	0
Braintree	362	1,068.7	104	78	20	5	23	18	8	16	3	0	3	1
Brewster	157	1,514.3	29	40	15	1	11	8	6	5	0	0	2	0
Bridgewater	155	602.6	43	50	15	3	4	6	4	6	2	1	2	3
Brimfield	30	833.3	9	11	4	1	2	0	0	1	0	0	1	0
Brockton	848	892.5	242	178	49	15	43	41	23	19	12	9	8	11
Brookfield	39	1,257.7	8	12	4	0	3	3	0	0	0	0	4	1
Brookline	369	656.7	87	98	21	6	24	8	9	18	1	0	4	1
Buckland	14	704.9	2	4	1	0	0	0	1	2	1	0	0	0
Burlington	153	658.8	38	42	14	3	9	5	7	1	1	0	1	0
Cambridge	526	522.0	131	135	30	9	33	15	8	17	3	0	4	7
Canton	217	1,009.1	42	49	15	3	9	16	1	6	0	0	0	2
Carlisle	15	310.6	3	2	0	0	1	0	2	2	1	0	0	0
Carver	103	896.3	38	25	10	1	3	1	2	5	1	0	1	0
Charlemont	10	716.3	2	4	1	2	0	0	0	1	0	0	0	0
Charlton	91	740.1	25	22	8	2	3	7	8	2	2	0	0	2
Chatham	139	2,026.2	38	29	8	2	8	4	1	5	0	0	0	0
Chelmsford	282	835.1	76	69	16	8	16	9	7	14	3	0	3	0
Chelsea	299	899.9	68	61	20	3	14	15	14	11	4	2	3	6
Cheshire	25	745.2	5	9	3	1	2	0	2	2	0	0	0	0
Chester	10	754.1	2	0	0	0	0	1	1	0	2	0	0	0
Chesterfield	9	713.2	0	4	1	2	0	0	1	1	0	0	0	0
Chicopee	589	1,074.1	142	137	36	14	34	39	18	22	4	1	3	3
Chilmark	4	--[4]	1	2	0	0	1	0	0	0	0	0	0	0
Clarksburg	15	899.8	2	6	2	0	0	1	0	2	0	0	0	0
Clinton	144	1,036.7	33	42	7	3	7	10	3	4	3	1	2	1
Cohasset	62	852.4	17	10	1	1	7	6	1	3	0	0	0	0
Colrain	10	537.6	2	4	2	1	0	0	1	0	0	1	0	0
Concord	136	803.8	28	33	6	6	11	2	0	3	0	0	1	0
Conway	9	476.4	2	1	1	0	0	1	0	0	0	0	0	0
Cummington	5	503.0	0	2	2	0	0	0	1	0	0	0	0	0
Dalton	86	1276.7	17	18	6	1	7	3	4	6	1	0	1	0
Danvers	291	1134.1	74	66	14	4	20	12	9	10	2	0	1	2
Dartmouth	258	823.8	68	66	14	4	14	14	3	18	1	0	1	1

Table 23. Selected Causes of Death by Community, Massachusetts: 2004 (continued)

COMMUNITY	Total Deaths	Crude Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	Chronic Lower Respiratory Disease[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Dedham	233	1,003.2	60	58	17	4	16	12	3	11	2	0	1	1
Deerfield	30	625.3	6	5	2	1	6	4	0	0	0	0	0	0
Dennis	230	1,426.5	62	60	12	4	14	10	5	6	0	0	4	1
Dighton	48	724.2	13	10	3	1	10	2	2	1	1	0	0	0
Douglas	47	605.5	12	12	2	2	1	2	0	1	2	0	1	0
Dover	29	512.6	5	10	3	0	0	0	0	0	1	0	0	0
Dracut	226	788.0	45	67	18	0	8	14	4	8	1	0	5	2
Dudley	68	631.1	22	15	2	4	1	8	0	0	1	0	0	0
Dunstable	13	419.2	3	1	0	0	3	2	0	0	0	0	0	0
Duxbury	114	776.0	25	26	8	2	10	6	3	6	2	0	3	0
East Bridgewater	99	723.0	24	33	9	2	7	5	2	5	1	1	1	1
East Brookfield	24	1,131.5	2	8	4	1	4	0	0	1	2	0	0	0
East Longmeadow	152	1,026.3	35	39	10	3	4	7	1	6	1	0	1	0
Eastham	70	1,245.1	15	20	1	4	7	4	0	0	0	0	0	1
Easthampton	146	907.5	44	33	10	2	6	6	5	5	0	0	2	2
Easton	136	589.7	32	40	10	7	5	6	5	3	1	0	2	0
Edgartown	37	939.1	9	10	2	1	1	1	1	2	2	0	0	0
Egremont	15	1,112.8	6	3	2	0	1	0	0	0	2	0	1	1
Erving	13	849.7	2	3	1	0	2	1	1	0	0	0	1	0
Essex	35	1,043.2	8	16	2	2	0	1	1	1	1	0	0	0
Everett	352	946.4	81	93	24	4	19	17	9	13	1	0	4	7
Fairhaven	206	1,261.1	75	39	11	1	7	12	3	20	2	0	0	1
Fall River	1,036	1,119.7	280	215	54	14	78	41	39	41	11	2	6	24
Falmouth	381	1,127.0	81	96	28	6	28	22	18	11	5	0	3	1
Fitchburg	366	917.1	91	73	15	10	29	24	16	9	4	1	3	2
Florida	6	907.7	1	2	2	0	0	0	0	1	1	0	0	0
Foxborough	101	617.6	20	28	8	4	4	3	3	5	0	1	3	1
Framingham	549	836.9	159	124	34	12	34	21	13	22	1	1	1	4
Franklin	161	533.3	47	44	14	5	5	4	5	4	1	0	2	1
Freetown	55	613.1	12	16	4	0	2	0	4	2	1	0	1	0
Gardner	223	1,063.6	74	39	3	4	10	11	9	13	2	0	2	2
Gay Head (Aquinnah)	0	--[4]	0	0	0	0	0	0	0	0	0	0	0	0
Georgetown	48	602.9	17	10	3	1	1	5	0	3	1	0	1	0
Gill	16	1,149.4	7	2	0	1	2	2	0	1	0	0	0	0
Gloucester	292	947.5	73	67	23	3	18	21	7	9	6	1	2	7
Goshen	4	--[4]	1	0	0	0	0	1	0	1	1	0	0	0

Table 23. Selected Causes of Death by Community, Massachusetts: 2004 (continued)

COMMUNITY	Total Deaths	Crude Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	Chronic Lower Respiratory Disease[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Gosnold	1	--[4]	0	1	0	0	0	0	0	0	0	0	0	0
Grafton	95	582.9	20	30	8	3	4	11	2	5	1	0	2	1
Granby	33	520.6	13	6	1	0	0	1	2	0	0	0	1	0
Granville	11	676.9	0	3	0	0	1	0	0	0	0	0	1	2
Great Barrington	104	1,399.0	23	20	7	3	7	11	6	4	2	0	0	0
Greenfield	227	1,266.3	46	61	7	12	14	12	9	11	1	0	2	3
Groton	40	385.8	10	14	0	1	3	3	2	1	0	0	0	0
Groveland	35	540.8	8	11	4	0	0	4	2	0	0	0	1	0
Hadley	61	1,255.1	15	15	3	1	4	3	2	1	0	0	0	1
Halifax	69	886.8	14	23	7	1	2	6	0	3	3	0	1	0
Hamilton	46	545.9	6	14	2	0	4	1	1	3	1	0	0	0
Hampden	44	827.7	10	8	2	1	4	2	1	0	2	0	0	0
Hancock	1	--[4]	0	0	0	0	0	0	0	0	0	0	0	0
Hanover	91	656.9	25	18	5	0	7	5	3	3	1	1	2	3
Hanson	74	747.6	15	17	3	3	3	3	1	2	5	1	1	1
Hardwick	29	1,088.2	4	6	2	0	2	1	1	0	1	0	1	1
Harvard	39	641.1	10	8	3	1	2	1	1	1	0	0	0	1
Harwich	178	1,389.6	47	43	8	2	15	3	1	9	0	1	4	2
Hatfield	29	875.9	7	7	0	0	2	2	2	1	0	0	0	0
Haverhill	567	937.5	151	126	30	10	37	32	18	28	6	1	5	5
Hawley	6	1,734.1	1	0	0	0	0	2	0	1	2	0	0	0
Heath	6	743.5	0	3	1	0	0	0	0	0	1	0	0	0
Hingham	180	849.1	67	40	4	6	11	6	5	3	1	2	2	0
Hinsdale	13	712.3	2	5	2	1	1	0	1	2	1	0	0	0
Holbrook	106	978.6	25	34	15	1	4	3	4	4	1	0	1	1
Holden	133	801.4	21	43	9	5	8	5	2	3	0	0	4	0
Holland	13	523.1	3	5	1	0	2	1	2	0	0	0	0	0
Holliston	73	524.5	16	25	6	4	4	1	3	1	0	0	0	1
Holyoke	488	1,218.2	117	101	28	4	33	29	18	14	2	2	2	2
Hopedale	46	739.3	17	8	2	0	2	0	1	1	1	0	0	0
Hopkinton	60	427.6	13	17	6	3	1	4	1	3	3	0	0	2
Hubbardston	21	491.5	4	6	1	0	0	2	1	1	1	0	0	0
Hudson	129	688.9	30	45	12	6	4	7	2	4	0	0	2	2
Hull	101	892.2	27	35	11	2	2	3	0	7	0	1	0	1

Table 23. Selected Causes of Death by Community, Massachusetts: 2004 (continued)

COMMUNITY	Total Deaths	Crude Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	Chronic Lower Respiratory Disease[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Huntington	20	910.3	5	6	1	0	0	0	1	1	0	0	1	0
Ipswich	110	822.5	28	33	5	1	12	7	2	7	1	0	1	0
Kingston	136	1,101.7	28	42	10	2	8	2	4	6	2	0	1	1
Lakeville	63	598.1	12	16	5	1	6	4	2	3	3	0	1	0
Lancaster	55	818.6	12	18	1	1	1	4	1	5	0	0	0	0
Lanesborough	19	641.9	5	4	0	1	1	0	0	1	0	0	0	0
Lawrence	473	658.2	124	101	33	7	23	24	28	8	5	3	1	6
Lee	76	1,290.8	11	18	5	1	7	4	1	5	0	0	1	0
Leicester	107	981.3	26	26	8	1	6	10	1	5	4	0	0	2
Lenox	82	1,588.5	24	11	3	0	6	3	0	2	0	0	0	0
Leominster	400	954.4	100	96	29	10	31	19	13	18	2	0	2	6
Leverett	9	510.2	2	4	0	1	0	0	0	1	0	0	0	0
Lexington	247	812.0	44	64	19	2	25	14	1	8	1	0	1	1
Leyden	2	--[4]	1	0	0	0	0	0	0	0	0	0	0	0
Lincoln	36	450.0	8	8	4	0	3	0	1	1	0	0	0	0
Littleton	61	711.1	12	18	4	1	3	2	2	2	0	0	1	0
Longmeadow	160	1,023.6	42	26	7	2	13	7	5	7	0	0	1	0
Lowell	863	832.6	194	208	53	13	76	41	21	24	4	7	6	12
Ludlow	173	788.7	50	39	16	3	10	9	4	7	2	0	2	1
Lunenburg	66	661.3	16	17	5	2	5	2	0	3	0	0	0	1
Lynn	819	915.2	236	209	58	17	42	25	17	17	6	5	11	16
Lynnfield	88	756.0	25	24	3	3	9	2	2	3	1	0	0	0
Malden	464	838.5	124	120	42	9	21	17	7	18	5	2	2	11
Manchester	40	744.9	6	13	3	1	2	2	1	1	0	0	0	0
Mansfield	93	404.4	21	26	6	4	5	3	0	4	0	0	0	5
Marblehead	168	824.7	43	45	12	5	14	4	4	3	2	0	0	0
Marion	60	1,129.9	22	9	3	0	5	4	2	4	1	0	0	0
Marlborough	299	793.1	74	66	12	6	14	16	5	12	2	2	3	3
Marshfield	178	717.3	48	54	19	4	9	4	6	7	2	0	1	1
Mashpee	105	734.2	21	41	13	5	4	7	1	3	1	0	1	1
Mattapoisett	54	835.0	21	12	4	2	1	3	0	3	0	0	0	1
Maynard	73	707.2	10	15	4	0	5	5	3	6	0	0	1	0
Medfield	77	621.1	19	26	10	2	2	3	6	1	1	0	0	0
Medford	553	1,020.4	114	159	48	13	37	27	12	28	2	3	1	8
Medway	74	574.3	16	17	4	2	7	4	1	2	1	0	1	1
Melrose	242	912.1	74	56	16	6	27	9	4	12	1	0	3	2
Mendon	28	486.0	12	2	0	0	1	0	1	0	1	0	0	1

Table 23. Selected Causes of Death by Community, Massachusetts: 2004 (continued)

COMMUNITY	Total Deaths	Crude Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	Chronic Lower Respiratory Disease[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics
Merrimac	42	664.5	10	9	1	0	2	2	0	2	2	0	1	0
Methuen	411	916.5	132	109	27	6	26	16	13	10	4	0	3	3
Middleborough	176	833.3	47	40	15	3	7	5	0	10	2	0	4	1
Middlefield	2	--[4]	0	1	0	0	1	0	0	0	0	0	0	0
Middleton	55	603.9	14	10	2	0	2	6	1	2	1	0	1	0
Milford	222	809.9	59	56	13	7	10	9	5	8	1	0	2	2
Millbury	153	1,143.8	42	39	16	4	11	4	2	4	2	0	1	2
Millis	47	587.7	10	17	4	0	1	2	0	0	0	0	0	0
Millville	12	408.7	3	1	1	0	2	1	0	0	1	0	0	0
Milton	243	939.9	58	63	15	5	16	10	7	9	1	1	0	1
Monroe	1	--[4]	1	0	0	0	0	0	0	0	0	0	0	0
Monson	79	909.7	17	15	4	1	6	2	0	2	3	0	1	1
Montague	97	1,148.9	26	21	8	4	3	5	3	9	1	1	1	1
Monterey	6	628.9	4	1	0	0	0	0	0	0	0	0	0	0
Montgomery	4	--[4]	0	2	2	0	0	1	0	0	0	0	0	0
Mount Washington	1	--[4]	1	0	0	0	0	0	0	0	0	0	0	0
Nahant	37	1,022.1	10	10	4	0	2	3	0	1	0	0	1	0
Nantucket	64	632.2	15	22	2	2	4	2	2	2	0	1	0	0
Natick	241	750.5	70	62	21	6	15	12	6	8	1	1	2	1
Needham	240	827.0	61	65	14	4	16	7	1	9	1	0	3	1
New Ashford	0	--[4]	0	0	0	0	0	0	0	0	0	0	0	0
New Bedford	1,117	1,188.6	298	218	62	12	65	65	23	67	9	6	8	29
New Braintree	3	--[4]	1	1	0	1	0	0	0	0	0	0	0	0
New Marlborough	3	--[4]	1	1	0	0	0	0	0	0	0	0	0	0
New Salem	8	809.7	2	0	0	0	0	1	0	0	0	0	0	0
Newbury	44	639.0	10	13	5	1	2	5	1	0	0	0	0	0
Newburyport	210	1,196.4	50	54	15	5	14	14	5	6	1	0	3	2
Newton	602	718.4	151	159	33	9	37	25	10	29	5	0	2	3
Norfolk	42	400.3	11	16	7	2	0	1	1	0	0	0	0	0
North Adams	193	1,362.3	40	47	17	3	9	17	5	12	1	0	1	0
North Andover	204	729.1	66	47	8	2	8	12	2	12	2	0	3	3
North Attleboro	199	706.3	50	49	16	3	11	7	6	9	3	1	4	1
North Brookfield	30	623.1	8	6	0	1	2	3	2	1	1	0	0	0

Table 23. Selected Causes of Death by Community, Massachusetts: 2004 (continued)

COMMUNITY	Total Deaths	Crude Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	Chronic Lower Respiratory Disease[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
North Reading	75	536.5	19	13	6	1	8	4	5	0	0	0	0	0
Northampton	285	985.1	58	47	11	2	30	20	3	23	1	1	3	1
Northborough	94	656.4	17	25	3	2	5	4	3	6	0	0	1	0
Northbridge	132	950.9	35	25	7	0	6	6	5	8	6	0	0	0
Northfield	21	661.8	4	4	0	0	4	2	2	1	1	0	0	0
Norton	119	621.2	25	31	10	2	2	10	3	4	3	0	4	1
Norwell	92	885.5	22	27	7	3	5	1	3	7	1	0	0	0
Norwood	324	1,134.9	99	74	19	4	22	14	8	5	3	0	1	1
Oak Bluffs	45	1,175.5	9	10	6	0	4	5	1	1	1	0	0	0
Oakham	10	532.2	3	3	1	0	0	0	0	1	0	0	0	0
Orange	76	1,004.9	30	15	4	1	5	6	0	2	0	0	1	0
Orleans	103	1,591.0	14	39	7	2	8	2	1	6	0	0	3	0
Otis	10	723.1	3	4	1	0	0	1	0	0	0	0	0	0
Oxford	104	757.2	27	18	5	0	6	5	5	3	2	0	1	1
Palmer	123	953.3	40	25	3	2	7	3	1	4	4	0	1	0
Paxton	32	704.7	9	9	0	1	1	2	0	1	0	0	1	0
Peabody	582	1,155.4	178	143	38	12	43	26	12	20	3	0	4	5
Pelham	5	351.6	1	3	1	1	0	0	0	0	1	0	0	0
Pembroke	94	530.6	31	28	11	0	2	5	2	2	0	0	2	0
Pepperell	69	603.5	20	20	6	0	2	3	1	1	0	0	1	2
Peru	2	--[4]	2	0	0	0	0	0	0	0	0	0	0	0
Petersham	14	1,107.6	5	1	1	0	0	3	1	1	0	0	0	0
Phillipston	7	404.9	3	1	1	0	0	0	0	0	0	0	0	0
Pittsfield	543	1,226.1	134	136	36	10	16	29	13	18	8	0	7	5
Plainfield	3	--[4]	0	2	0	0	0	0	0	0	0	0	0	0
Plainville	50	630.8	9	17	4	1	3	3	1	1	0	0	0	0
Plymouth	471	862.6	126	123	30	9	14	22	9	21	6	1	5	0
Plympton	14	508.2	3	4	2	0	0	2	0	0	0	0	0	0
Princeton	11	314.4	3	3	1	0	1	0	0	0	1	0	0	0
Provincetown	44	1,275.4	10	8	4	0	3	2	2	0	1	0	0	0
Quincy	871	968.8	225	223	67	16	44	42	18	25	4	0	7	17
Randolph	292	949.7	78	63	24	1	17	14	11	9	1	1	1	1
Raynham	104	780.5	30	28	6	0	7	6	1	2	1	0	0	1
Reading	197	843.2	50	42	12	2	11	15	3	2	0	0	0	4
Rehoboth	61	547.7	20	10	2	1	3	1	4	1	5	0	1	0
Revere	491	1,063.5	137	130	35	7	20	30	19	13	2	2	3	12
Richmond	14	858.9	1	7	2	0	0	1	0	0	1	0	0	0
Rochester	21	403.7	4	8	2	1	0	0	1	0	1	0	0	0

Table 23. Selected Causes of Death by Community, Massachusetts: 2004 (continued)

COMMUNITY	Total Deaths	Crude Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	Chronic Lower Respiratory Disease[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Rockland	180	1,007.8	46	44	12	5	10	11	4	7	2	0	0	1
Rockport	60	768.7	16	16	4	0	6	0	1	2	0	0	0	0
Rowe	4	--[4]	1	1	0	0	0	0	0	0	0	0	0	0
Rowley	44	769.2	12	8	2	2	5	2	0	0	1	0	0	0
Royalston	7	517.0	2	0	0	0	0	2	0	0	0	0	0	0
Russell	7	408.6	1	2	1	0	0	1	1	0	1	0	0	0
Rutland	38	524.5	10	14	3	1	2	3	0	0	0	0	0	1
Salem	375	894.7	101	89	23	3	23	14	10	8	3	1	2	8
Salisbury	57	698.6	14	15	7	0	3	4	0	3	3	0	0	0
Sandisfield	10	1,215.1	2	1	0	0	0	1	0	0	0	0	0	0
Sandwich	151	725.1	34	46	13	0	8	8	2	3	3	0	0	2
Saugus	266	993.9	73	69	23	4	14	18	3	9	2	2	3	2
Savoy	2	--[4]	0	1	0	0	0	0	0	0	0	0	0	0
Scituate	167	917.8	50	43	10	5	9	5	1	7	2	0	0	0
Seekonk	92	670.1	27	32	14	4	2	1	0	1	3	0	1	2
Sharon	96	553.4	18	20	2	2	7	3	2	1	3	0	1	0
Sheffield	37	1,101.2	9	4	2	0	1	3	0	1	3	0	1	0
Shelburne	23	1,116.0	4	4	0	1	1	2	0	3	0	0	0	0
Sherborn	25	591.0	8	8	2	0	1	2	0	1	0	0	1	0
Shirley	45	592.0	9	19	7	0	3	1	0	0	0	0	1	2
Shrewsbury	204	615.2	62	54	15	6	8	15	4	9	2	1	3	1
Shutesbury	5	270.9	1	2	0	1	0	0	0	0	0	0	0	0
Somerset	217	1,160.9	66	44	11	1	9	11	6	7	6	0	1	2
Somerville	485	641.4	138	111	35	8	30	18	7	12	7	1	4	2
South Hadley	167	972.0	39	46	14	3	11	8	3	3	0	0	2	2
Southampton	38	658.4	14	10	2	0	2	4	1	2	0	0	1	0
Southborough	45	471.3	16	10	0	0	1	2	1	4	0	0	0	0
Southbridge	182	1,051.2	52	31	11	0	6	15	7	7	0	0	3	1
Southwick	84	891.0	16	27	6	2	3	3	0	2	2	0	1	0
Spencer	92	765.8	26	28	8	3	2	6	1	1	1	0	1	0
Springfield	1,321	868.6	315	291	81	16	60	61	37	34	20	17	9	15
Sterling	47	607.1	11	11	5	2	2	3	2	3	0	0	0	1
Stockbridge	24	1,066.7	7	7	1	1	1	0	2	1	1	0	0	0
Stoneham	241	1,106.5	60	71	21	2	16	10	2	11	0	0	1	0
Stoughton	250	929.3	61	60	22	2	11	12	6	9	2	0	0	5
Stow	26	424.9	4	4	0	2	5	2	0	3	1	0	0	0
Sturbridge	69	793.8	21	12	6	3	3	5	2	1	0	0	2	1
Sudbury	107	623.4	23	29	3	1	7	3	1	6	0	0	0	1

Table 23. Selected Causes of Death by Community, Massachusetts: 2004 (continued)

COMMUNITY	Total Deaths	Crude Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	Chronic Lower Respiratory Disease[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Sunderland	18	473.2	6	1	1	0	0	0	0	0	1	0	0	0
Sutton	50	563.2	12	19	5	2	2	2	1	2	0	0	0	0
Swampscott	146	1,011.6	37	30	4	2	12	7	1	4	0	0	1	1
Swansea	133	815.1	33	44	22	2	5	7	1	2	2	0	0	1
Taunton	448	790.8	136	104	35	8	16	18	15	34	5	2	2	5
Templeton	72	983.3	23	14	5	2	4	3	0	7	2	0	1	0
Tewksbury	226	775.8	51	67	19	5	6	14	3	9	4	0	1	1
Tisbury	30	779.0	8	7	4	0	4	1	0	1	0	0	3	0
Tolland	1	--[4]	0	0	0	0	1	0	0	0	0	0	0	0
Topsfield	52	834.9	13	14	1	1	3	2	0	3	1	0	0	0
Townsend	46	493.2	4	14	6	0	2	5	0	2	1	0	0	0
Truro	20	917.4	6	6	4	0	0	0	0	0	1	0	1	0
Tyngsborough	49	430.3	7	20	6	1	4	2	2	1	0	0	1	0
Tyringham	4	--[4]	0	1	0	0	1	0	0	0	0	0	0	0
Upton	42	670.7	9	13	3	0	3	2	3	0	1	0	0	0
Uxbridge	74	604.4	22	17	5	2	5	2	4	1	1	0	0	0
Wakefield	226	920.1	74	63	15	10	14	6	1	11	1	0	3	1
Wales	11	611.8	1	3	1	0	4	0	0	0	1	0	0	1
Walpole	174	772.7	47	43	8	3	9	6	8	4	3	0	2	0
Waltham	470	793.5	118	119	23	10	30	23	8	8	1	0	5	6
Ware	93	928.0	38	14	2	1	7	3	1	3	4	0	2	2
Wareham	251	1,182.6	70	60	8	7	15	10	12	8	5	2	0	3
Warren	35	703.0	8	7	3	0	2	1	0	2	1	0	0	0
Warwick	10	1,317.5	1	4	0	0	0	1	0	2	0	0	0	0
Washington	2	--[4]	0	0	0	0	0	0	0	1	0	0	0	0
Watertown	280	858.8	66	59	18	4	22	10	3	11	2	0	1	4
Wayland	104	796.1	27	26	5	3	3	2	1	10	0	0	0	1
Webster	200	1,184.8	51	52	13	4	10	11	6	3	1	0	1	1
Wellesley	192	724.1	52	44	6	3	10	7	4	8	0	0	3	0
Wellfleet	44	1,548.8	8	12	2	0	4	1	4	1	1	0	0	1
Wendell	5	486.4	0	3	1	1	1	1	0	0	0	0	0	0
Wenham	29	651.2	8	8	2	0	2	4	0	0	0	0	0	1
West Boylston	68	892.9	11	17	7	1	5	1	1	2	1	0	0	0
West Bridgewater	82	1,198.1	27	19	7	1	4	6	1	2	1	0	0	0
West Brookfield	47	1,205.7	11	6	1	0	1	3	2	3	2	0	1	0
West Newbury	18	418.9	3	3	0	1	3	0	0	1	1	0	2	0

Table 23. Selected Causes of Death by Community, Massachusetts: 2004 (continued)

COMMUNITY	Total Deaths	Crude Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	Chronic Lower Respiratory Disease[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
West Springfield	269	959.1	63	54	11	6	20	11	13	7	4	2	2	2
West Stockbridge	10	689.2	3	1	0	0	0	1	1	1	1	0	0	0
West Tisbury	12	449.4	5	3	1	0	0	0	0	0	0	0	1	1
Westborough	175	934.0	36	41	10	1	11	8	5	12	0	0	2	1
Westfield	373	919.6	101	81	23	3	31	16	7	6	4	1	2	3
Westford	107	498.3	33	29	10	0	10	1	2	4	1	0	1	0
Westhampton	8	511.8	2	4	2	0	0	0	0	1	0	0	0	0
Westminster	52	712.1	17	14	3	1	4	1	1	3	1	0	0	0
Weston	98	845.2	19	24	2	2	13	3	5	4	1	0	1	0
Westport	114	773.4	25	33	14	0	8	8	0	8	1	0	1	2
Westwood	137	977.2	37	35	11	3	11	5	4	3	1	0	0	1
Weymouth	517	953.8	138	141	43	12	26	26	11	16	6	0	5	6
Whately	13	819.7	5	0	0	0	1	1	0	0	0	0	0	0
Whitman	77	536.5	21	17	7	1	5	6	2	2	2	0	1	1
Wilbraham	136	975.7	35	30	3	3	10	3	2	3	2	0	0	1
Williamsburg	23	941.5	3	9	2	0	3	0	1	0	0	0	1	0
Williamstown	92	1,112.2	19	22	5	1	8	7	2	1	3	0	0	0
Wilmington	159	737.2	39	34	8	1	6	10	6	5	3	0	1	1
Winchendon	69	687.5	19	16	4	1	6	8	1	2	1	0	1	0
Winchester	167	789.0	36	43	13	7	13	11	2	7	0	0	0	0
Windsor	1	--[4]	0	0	0	0	0	0	0	0	1	0	0	0
Winthrop	197	1,128.2	34	61	24	5	9	5	6	7	1	0	2	2
Woburn	333	889.2	63	99	32	9	23	21	8	10	3	2	2	9
Worcester	1,718	976.3	444	372	101	28	101	69	51	73	12	10	10	10
Worthington	12	923.1	4	1	0	0	1	1	0	0	0	0	0	0
Wrentham	109	983.2	32	25	4	1	11	1	4	5	1	0	0	0
Yarmouth	407	1,629.8	94	109	36	12	23	29	10	7	2	1	3	4

1. All rates are crude death rates calculated using the Census Bureau 2004 Sub-county population estimates. Data presented in this table are classified according to ICD-10. Please refer to Appendix for list of ICD-10 codes used in this table. 2. Includes only female breast cancer. 3. The title of this cause of death changed between ICD-10 an ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title). 4. Rates based on fewer than five events are excluded. 5. Deaths due to narcotics and hallucinogens including cannabis, cocaine, codeine, heroin, lysergic acid diethylamide (LSD), mescaline, methadone, morphine, and opium (alkaloids).

Table 24. Selected Causes of Death by Community Health Network Area (CHNA), Massachusetts: 2004

CHNA (Name and Number)	Total Deaths	Crude Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[4]
Massachusetts	**54,419**	**848.1**	**13,792**	**13,312**	**3,607**	**971**	**3,252**	**2,573**	**1,327**	**1,955**	**524**	**175**	**429**	**524**
Community Health Network of Berkshire (1)	1,544	1,165.0	362	360	105	24	80	87	37	66	28	0	13	8
Upper Valley Health Web (Franklin County) (2)	820	929.1	208	183	45	30	51	50	22	45	14	2	6	5
Partnership for Health in Hampshire County (Northampton) (3)	1,116	735.7	290	244	60	12	77	61	24	44	9	2	16	8
The Community Health Connection (Springfield) (4)	2,725	923.0	644	609	159	42	145	121	70	76	40	19	19	21
Community Health Network of Southern Worcester County (5)	1,035	873.4	274	236	71	19	51	68	35	25	14	0	14	8
Community Partners for Health (Milford) (6)	1,049	658.7	290	264	75	24	52	35	30	31	19	0	6	6
Community Health Network of Greater Metro West (Framingham) (7)	2,685	706.8	672	696	174	60	147	111	68	115	13	5	19	17
Community Wellness Coalition (Worcester) (8)	2,713	907.3	689	645	179	53	156	130	66	111	25	11	22	17
Fitchburg/Gardner Community Health Network (9)	2,035	783.7	527	487	117	42	129	113	57	83	24	2	15	20
Greater Lowell Community Health Network (10)	2,016	743.5	466	542	145	38	135	97	45	64	13	8	18	18
Greater Lawrence Community Health Network (11)	1,363	733.1	398	320	85	19	77	68	49	37	12	4	11	12
Greater Haverhill Community Health Network (12)	1,259	846.1	331	290	78	22	81	76	40	52	16	1	15	7
Community Health Network North (Beverly/Gloucester) (13)	1,058	881.7	263	264	68	11	79	61	24	40	13	1	4	13
North Shore Community Health Network (14)	2,772	975.2	777	685	179	50	179	111	58	75	19	8	23	34
Greater Woburn/Concord/Littleton Community Health Network (15)	1,564	743.4	323	408	115	33	109	79	32	54	11	2	8	12
North Suburban Health Alliance (Medford/Malden/Melrose) (16)	2,350	914.6	596	617	184	47	153	105	43	95	10	5	14	33
Greater Cambridge/Somerville Community Health Network (17)	1,844	672.6	468	448	107	33	139	68	27	56	14	2	14	13
West Suburban Health Network (Newton/Waltham) (18)	2,001	790.7	503	514	109	35	133	82	35	72	12	0	15	12
Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	5,419	750.3	1,236	1,327	355	92	312	230	149	189	33	62	38	87
Blue Hills Community Health Alliance (Greater Quincy) (20)	3,524	951.5	945	866	238	65	198	164	76	114	25	5	20	30
Four (For) Communities (Holyoke, Chicopee, Ludlow, Westfield) (21)	1,653	1,027.0	417	364	104	24	108	94	49	50	14	4	10	9
Greater Brockton Community Health Network (22)	1,947	821.3	519	488	150	32	94	93	52	51	25	11	18	23
South Shore Community Partners in Prevention (Plymouth) (23)	1,524	811.4	399	404	117	27	68	67	34	62	24	3	17	7
Greater Attleboro-Taunton Health & Education Response (24)	1,805	712.6	486	452	143	32	87	71	44	79	30	4	22	17
Partners for a Healthier Community (Fall River) (25)	1,500	1,054.0	404	336	101	17	100	67	46	58	20	2	8	29
Greater New Bedford Health & Human Services Coalition (26)	2,129	1,068.0	605	461	120	28	112	115	48	124	22	8	12	35
Cape Cod & Islands Community Health Network (27)	2,969	1,167.0	700	802	224	60	200	149	67	87	25	4	32	23

1. All rates are crude death rates calculated using the Census Bureau 2004 Sub-county population estimates. Data presented in this table are classified according to ICD-10. Please refer to Appendix for list of ICD-10 codes used in this table. 2. Includes only female breast cancer. 3. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title). 4. Deaths due to narcotics and hallucinogens including cannabis, cocaine, codeine, heroin, lysergic acid diethylamide (LSD), mescaline, methadone, morphine, and opium (alkaloids).

Table 25. Selected Causes of Death by County, Massachusetts: 2004

County	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	Chronic Lower Respiratory Disease[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[4]
Massachusetts	**54,419**	**739.3**	**13,792**	**13,312**	**3,607**	**971**	**3,252**	**2,573**	**1,327**	**1,955**	**524**	**175**	**429**	**524**
Barnstable	2,776	674.4	653	747	209	57	186	140	63	81	22	3	28	22
Berkshire	1,544	794.5	362	360	105	24	80	87	37	66	28	0	13	8
Bristol	4,945	773.2	1,351	1,144	337	70	270	233	126	236	61	12	39	76
Dukes	129	674.2	32	33	13	1	10	7	2	4	3	0	4	1
Essex	6,452	742.8	1,769	1,559	410	102	416	316	171	204	60	14	53	66
Franklin	661	761.7	161	152	33	27	43	42	17	35	11	2	5	4
Hampden	4,412	804.8	1,069	986	268	67	261	216	120	126	55	23	29	31
Hampshire	1,136	671.0	295	250	61	12	77	61	25	45	9	2	17	8
Middlesex	11,001	686.8	2,659	2,853	748	218	730	495	211	397	66	21	75	104
Nantucket	64	663.6	15	22	2	2	4	2	2	2	0	1	0	0
Norfolk	5,501	686.7	1,412	1,402	392	94	315	235	128	176	39	3	38	42
Plymouth	4,104	825.9	1,132	1,037	287	79	198	177	96	149	61	19	39	30
Suffolk	5,050	794.6	1,149	1,229	334	86	288	222	140	171	32	62	34	86
Worcester	6,643	775.4	1,732	1,538	408	132	374	340	189	263	77	13	55	46

1 All rates are age-adjusted using the 2000 U.S. standard population. Data presented in this table are classified according to ICD-10. Please refer to Appendix for list of ICD-10 codes used in this table.
2 Includes only female breast cancer. 3. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title). 4. Deaths due to narcotics and hallucinogens including cannabis, cocaine, codeine, heroin, lysergic acid diethylamide (LSD), mescaline, methadone, morphine, and opium (alkaloids).

APPENDIX

Table A1. Age-Adjusted Death Rates[1] for Selected Causes of Death by Race and Gender, Massachusetts: 2004

Cause	ICD-10 Code	White[2]			Black[2]		
		Total	Male	Female	Total	Male	Female
All Deaths		**744.2**	**882.3**	**637.9**	**792.7**	**1,030.2**	**627.0**
Heart Disease	I00-I09, I11, I13, I20-I51	184.8	231.9	149.5	182.8	245.8	137.0
Cancer	C00-C97	191.0	228.8	166.8	183.2	256.0	141.5
Stroke	I60-I69	42.1	43.1	40.6	52.3	48.0	54.7
Chronic Lower Respiratory Disease[3]	J40-J47	36.2	41.0	33.4	18.0	18.9	16.6
Influenza and Pneumonia	J10-J18	25.4	30.7	22.0	16.6	25.2	12.2
Diabetes	E10-E14	17.9	22.0	14.8	31.7	38.2	27.1
Alzheimer's Disease	G30	21.2	16.4	23.5	15.2	13.1	15.9
Nephritis	N00-N07, N17-N19, N25-N27	15.9	20.5	13.1	34.6	48.1	26.6
Septicemia	A40-A41	12.8	14.4	11.7	22.3	24.5	20.9
HIV Diseases	B20-B24	2.5	3.7	1.4	14.1	21.5	7.5
Perinatal Conditions	P00-P96	3.7	4.2	3.1	7.4	8.5	6.2
All Injuries	V01-Y98	39.3	55.7	23.8	37.1	63.6	14.0
Motor Vehicle-Related Injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2	8.2	11.8	4.7	5.8	7.8	4.3
Suicide	X60-X84, Y87.0	6.8	11.4	2.6	2.7	3.8	1.4
Homicide	X85-Y09, Y87.1	1.7	2.6	0.9	13.6	25.5	1.9

1. Age-adjusted to the 2000 U.S. standard population, per 100,000. 2. Race categories presented in this table are consistent with Federal definitions of race and ethnicity. Persons of Hispanic ethnicity are included in any race category. Please use data in this table to compare to national data by race. 3. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title).

Technical Notes

Effective since our 1999 publication, the *Advance Data: Deaths* series has been renamed *Massachusetts Deaths*.

NOTE
Please note that death statistics are presented as both *numbers* (or percentages, proportions) and *rates. Numbers* are, of course, the basic, raw counts of deaths, while *rates* are population-based statistics. The *number* of x *per* 100,000, for example.

DATA SOURCES

Data for this document are derived from Massachusetts death certificates, Massachusetts birth certificates, the U.S. Census, the Massachusetts Institute for Social and Economic Research (MISER) (population data pre-2000), and the National Center for Health Statistics (NCHS).

CHANGES TO MORTALITY DATA, EFFECTIVE 1999

Beginning with data year 1999, two major changes in Federal classification and tabulation procedures occurred that affects the tabulation and analyses of mortality data over time. First, a new revision for classifying causes of death was implemented: The International Classification of Diseases, Tenth Revision (ICD-10) replaced the International Classification of Diseases, Ninth Revision (ICD-9) for coding all mortality data. Second, a new standard population for the tabulation of age-adjusted mortality rates was also implemented.

CHANGES TO THE PRESENTATION OF RACE AND ETHNICITY DATA

In response to readers' feedback, the presentation of race and ethnicity data beginning with the 1999 publication has been changed. Previously, race and ethnicity data were presented according to Federal definitions of race and ethnicity; that is, persons of Hispanic ethnicity can be of any race group. Beginning with the 1999 report, race and ethnicity data are presented as mutually exclusive categories, that is, persons of Hispanic ethnicity are not included in a race group. All race and ethnicity data presented in trend tables have been updated to reflect this change. Thus, race and ethnicity data tables include the categories white non-Hispanic; black non-Hispanic; Asian non-Hispanic; and Hispanic. In addition, Table A1 in the Appendix contains data according to the Federal definitions so data can be compared with the nation and other states. Race data presented in Table A1 are for whites (including persons of Hispanic ethnicity) and blacks (including persons of Hispanic ethnicity). Furthermore, starting with the 2001 publication, there has been a nomenclature change in the way data for Asians are presented: the Asian/Pacific Islander non-Hispanics category will be renamed Asian non-Hispanics, which includes Pacific Islanders.

CAPE VERDEANS

The U.S. Federal Census and the National Center for Health Statistics (NCHS) places persons who are Cape Verdean in the race category "Black". Historically, we have followed this federal definition in order to be consistent with the National Center for Health Statistics. Beginning with 1999 data, we have separated the concept of "Race" from "Ethnic group" for reporting birth statistics. This enables us to place Cape Verdeans where they self-identify: Cape Verdeans are

classified as “Cape Verdeans” in ethnicity tables. With respect to race, 70% of Cape Verdeans classified their race as “Other” while only 24% classified themselves as Black, and 6% as White in 1999. We do not currently have accurate Cape Verdean population counts or estimates that we need to calculate rates either statewide or at the substate level. Thus, we can remove Cape Verdeans from the numerator (the count of deaths) but not from the denominator (population data) when we calculate rates. Beginning with our 2000 report, a more detailed table and figure summarizing age and cause specific patterns of deaths among Cape Verdeans were added.

POPULATION ESTIMATES

Starting with this year’s publication, new population estimates were used for 2000-2004. The population estimates were produced by the National Center for Health Statistics (NCHS) in collaboration with the Census Bureau’s Population Estimation Program[1]. Each year, in addition to the most recent year’s population estimates, the Census Bureau also revises the previous year’s estimates including the Census 2000 estimates. The 2004 population estimates file includes new estimates for 2000-2003. The NCHS takes the Census Bureau population estimates file and reallocates the multiple race categories required by the 1997 Office of Management and Budget (OMB) back into the four race categories specified in the 1977 OMB specifications so that the estimates will be compatible with previous years’ populations.

Census Bureau Population Estimates methodology is available at the following web site: http://www.census.gov/popest/topics/methodology/ and the source population file and NCHS methodology are available at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm.

Please note that the statewide age-adjusted rates published in this report cannot be compared with those published in previous years because the overall population count and the age distribution of the population, which were based on the Census 2000 count, differ. The difference in the new population estimates is pronounced for Hispanics and black non-Hispanics. The Hispanic and black non-Hispanic populations have increased 15% since 2000, while the overall population has increased by 1%. It is important to remember that age-adjusted death rates are not a measure of the actual risk of death, but rather, age-adjusted death rates are summary measures used to compare mortality trends over time or among different populations whose age distributions differ.

2004 DEATH RATES

Death rates for 2004 are calculated using the new population estimates from the Census Bureau and NCHS (see above, “population estimates”.)

LIMITATIONS OF SMALL NUMBERS

Cells in some tables contain small numbers. Rates and proportions based on fewer than five observations are suppressed, and trends based upon small numbers should be interpreted cautiously.

APPLYING COMPARABILITY RATIOS TO EXAMINE TRENDS IN MORTALITY

Beginning with 1999, mortality data are coded according to the International Classification of Diseases-10th revision (ICD-10). Due to the changes in coding rules, comparison of mortality trends over time using different revisions of ICD is challenging. A method was devised to assess if changes in causes of death are "real" changes, or due to the new classification system. Using this method, death data for 1996 were coded twice; once according to ICD-9 and again according to ICD-10. A comparability ratio (CR) was then calculated by dividing the number of deaths coded according to ICD-10 by the number of deaths coded according to the most similar codes in ICD-9 (please refer to Table A7. Preliminary Comparability Ratios for a list of codes and CR used in this publication).

A CR of 1.00 indicates that the same number of deaths was assigned to a cause of death whether ICD-9 or ICD-10 was used. A CR of less then 1.00 results from 1) a decrease in the number of deaths assigned to a cause in ICD-10 compared with ICD-9 or 2) the cause described in ICD-10 is only a part of the ICD-9 title to which it is being compared. A CR of more than 1.00 results from 1) an increase in the assignments of deaths to a cause in ICD-10 compared with ICD-9 or 2) the ICD-10 title is broader than the ICD-9 title to which it is being compared.

EXAMPLE: **Influenza and Pneumonia[1] Deaths: Massachusetts, 1996-2000**

Year	Age-adjusted rate[2]	Comparability Ratio	Comparability Modified Rate (=age-adjusted rate* Comparability Ratio)
1996	41.5	0.6982	29.0
1997	39.1	0.6982	27.3
1998	40.2	0.6982	28.1
1999	30.3		
2000	29.3		

1. Influenza and pneumonia defined as ICD-9: 480-487 for years 1996-1998 and ICD-10: J10-J18 for year 1999 and 2000.
2. age-adjusted to the 2000 U.S. standard population, per 100,000.

If you look only at the age-adjusted rate over time, not taking the ICD coding changes into account, it appears that deaths from influenza and pneumonia have decreased between 1996-1999. However, because the coding rules changed between ICD-9 and ICD-10 revisions, we need to apply the comparability ratio to the rates for 1996-1998. (This is done by multiplying the age-adjusted rate by the comparability ratio). Now we can make a fairer comparison and examine the changes between the comparability modified rate and the 1999 or 2000 rate, we see that deaths to influenza and pneumonia have remained fairly constant between 1996-2000, and have actually increased between 1998 and 1999 (28.1 to 30.3 per 100,000, respectively) after taking the changes in the classification system into account.

PLEASE NOTE: the comparability ratios used in this report are based on the Preliminary Comparability Study conducted by the National Center for Health Statistics (NCHS), February 2001, and are subject to change once the Final Comparability Study is completed.

GLOSSARY

Age-Adjusted Rate

A summary rate designed to minimize the distortions created by differences in age distribution when comparing rates for populations with different age compositions. Age-adjusted rates are useful when comparing death rates from different populations or in the same population over time. For example, if one wished to compare the 1998 death rates between Barnstable County (Cape Cod) and Hampshire County, the age-adjusted formula would account for the fact that 24% of the Barnstable County residents were 65 years of age or older, whereas only 11% of the Hampshire County residents were in this age group.

Age-adjusted rates are calculated by weighting the age-specific rates for a given year by the age distribution of a standard population. The weighted age-specific rates are then added to produce the adjusted rate for all ages combined. (Please see example below).

The 2000 U.S. projected population is used as the standard population in this document for consistency with data published by the National Center for Health Statistics (NCHS). **ONLY RATES USING THE SAME STANDARD POPULATION CAN BE COMPARED**. All age-adjusted rates published in this report have been re-calculated using the 2000 U.S. standard population. These rates should NOT be compared with age-adjusted rates previously published which used the 1940 U.S. standard population.

Example: Calculation of 1999 Age-adjusted Mortality Rate, Massachusetts: All Causes of Death

A	B	C	D	E	F	G
Age group (in years)	# of deaths (1999)	Population (1998)	1940 US standard	2000 US standard	Age-adjusted rate (using1940 standard) =[((B/C)*D)*100,000]	Age-adjusted rate (using 2000 standard) =[((B/C)*E)*100,000]
< 1	418	79,860	0.015343	0.013818	8.0	7.2
1-4	65	320,000	0.064718	0.055317	1.3	1.1
5-14	100	806,670	0.170355	0.145565	2.1	1.8
15-24	407	883,830	0.181677	0.138646	8.4	6.4
25-34	701	1,005,337	0.162066	0.135573	11.3	9.5
35-44	1,696	1,019,365	0.139237	0.162613	23.2	27.1
45-54	2,870	818,660	0.117811	0.134834	41.3	47.3
55-64	4,561	495,555	0.080294	0.087247	73.9	80.3
65-74	9,782	442,003	0.048426	0.066037	107.2	146.1
75-84	17,397	299,482	0.017303	0.044842	100.5	260.5
85+	17,765	120,501	0.002770	0.015508	40.8	228.6
Total					**418.0**	**815.9**

Age-Specific Rate

A rate for a specified age group. Age-specific death rates are calculated by dividing the actual number of deaths in a given year for a specific age group by the population in that age group for that year. The numerator and denominator refer to the same age group.

$$\text{Age-specific death rate (ages 25-34)} = \frac{\text{Number of deaths among residents ages 25-34 in a given year}}{\text{population ages 25-34 in that year}} \times 100{,}000$$

Community Health Network Areas (CHNA)

The Department of Public Health, in collaboration with health service providers, coalition members, and interested citizens, has designated 27 areas for community health planning. It is the Department's intention to foster in each of these areas the development of Community Health Networks -- consortia of health care providers, human service agencies, schools, churches, youth, parents, elders, advocacy groups, and individual consumers -- to address the health needs of the community. The Community Health Network Area (CHNA) mobilize around key health issues impacting the community, promote prevention efforts, enhance access to care, provide opportunities for more collaboration among agencies, and create a client-centered, outcome-oriented health service delivery system. Community Health Network Areas also promote efficiency in service delivery by working to reduce duplication and overlap, and by identifying gaps in service. These community coalitions participate in monitoring outcomes and progress of strategies and responses to those health needs. To determine which cities and towns make up a particular CHNA, Table A10. Population Estimates for Massachusetts Communities provides the appropriate CHNA code for each city and town based on the geographic definitions established in 1997.

Comparability Modified Rate

A rate designed to assist in the analysis of mortality trends between revisions of the International Classification of Diseases (ICD). A comparability modified rate is calculated by multiplying the cause-specific comparability ratio by the cause-specific rate for years 1994-1998. Comparability modified rates should be used to compare trends between causes of death in 1994-1998 with causes of death in 1999.

Comparability Ratio (CR)

A factor used to adjust mortality statistics for causes of death classified in ICD-9 to be comparable with mortality statistics classified in ICD-10. It is calculated by dividing the number of deaths for a selected cause of death classified by the new revision (i.e. ICD-10) by the number of deaths for a selected cause of death classified by the old revision (i.e. ICD-9).

More specifically, the comparability ratios used in this report were calculated by the National Center for Health Statistics (NCHS) based on a national sample of death records. Death records for 1996 were doubled coded, once according to ICD-9 and again according to ICD-10. Secondly, the leading causes of death were grouped according to ICD-10 titles, using the ICD-10 codes for data coded in ICD-10, and the most similar ICD-9 titles for data coded in ICD-9. Finally, the number of deaths coded in ICD-10 were divided by the number of deaths in ICD-9 to produce a comparability ratio for the cause of death.

A CR of 1.00 indicates that the same number of deaths was assigned to a cause of death whether ICD-9 or ICD-10 was used.

A CR of less then 1.00 results from 1) a decrease in the number of deaths assigned to a cause in ICD-10 compared with ICD-9 or 2) the cause described in ICD-10 is only a part of the ICD-9 title to which it is being compared.

A CR of more than 1.00 results from 1) an increase in the assignments of deaths to a cause in ICD-10 compared with ICD-9 or 2) the ICD-10 title is broader than the ICD-9 title to which it is being compared.

Preliminary comparability ratios supplied by the National Center for Health Statistics (NCHS) in February 2001 are used in this report (see Table A7 and A8).

See also, comparability modified rate.

Crude Death Rate

An estimate of the proportion of a population that died during the year. The numerator is the number of persons who died during the year and the denominator is the size of the population. The death rate in a population is calculated by the formula:

$$\text{Crude death rate} = \frac{\text{Number of resident deaths in a year}}{\text{Number of residents}} \times 100{,}000$$

Death Certificate

A vital record signed by a licensed physician that includes cause of death, decedent's name, gender, birth date, place of residence, and place of occurrence. (A copy of the Massachusetts death certificate used in 2004 is in the Appendix. In a properly completed death certificate, the immediate cause of death is recorded on line 29a. The other mentioned causes are written on lines 29 b-d. The underlying cause of death is the disease or injury that initiated the events leading to the death. All causes of death are data entered and processed by a software program supplied by NCHS. This software assigns the appropriate ICD-10 codes. Trained nosologists review the ICD-10 codes assigned.

International Classification of Diseases, Ninth Revision (ICD-9)

The International Classification of Diseases (ICD) classifies mortality information for statistical purposes. The ICD was first used in 1900 and has since been revised about every 10 years, with the exception of the ICD-9, which was in use between 1979-1998. ICD-9 codes used in this publication are listed on Tables A2-Table A6.

Because of coding changes between the Ninth and Tenth revision, caution should be used when comparing data coded under ICD-9 and ICD-10.

International Classification of Diseases, Tenth Revision (ICD-10)

The tenth revision of the International Classification of Diseases was used to code mortality data beginning in 1999. For a list of ICD-10 codes used in the publication, please see Tables A2-A6.

Because of coding changes between the Ninth and Tenth revision, caution should be used when comparing data coded under ICD-9 and ICD-10.

Life expectancy at birth

Life expectancy at birth is based on the expected age at death for a newborn infant, based upon the actual experience of mortality of the population in Massachusetts.

NCHS

National Center for Health Statistics (U.S. Department of Health and Human Services, Centers for Disease Control and Prevention).

Occurrence Death

Occurrence deaths include all deaths that occur within the state, including deaths of nonresidents. An interstate exchange agreement among the 50 states and Canada provides for exchanges of copies of birth and death records. These out of state records are used for statistical purposes only and allow each state or province to track the births and deaths of their own residents.

Population

Population counts before 2000 are based on U.S. decennial census counts, and population estimates calculated for intercensal years. For 1981-1989, population estimates are derived as linear interpolations from the 1980 and 1990 census. For 1991-1995, population estimates are based on MISER's annual estimates released in September 1999. Population estimates for 1996 and 1997 are based on MISER's annual estimates released in November 1999. Population estimates for 1998 population are based on MISER's annual estimates released in September 2000. 1999 rates in this publication are based on the DPH 1999 Population file, which is a linear interpolation between the preliminary draft Population 2000 file and the 1998 MISER population estimates.

Starting in 2004, new population estimates were used for 2000-2004. The population estimates were produced by the National Center for Health Statistics (NCHS) in collaboration with the Census Bureau's Population Estimation Program[1]. Each year, in addition to the most recent year's population estimates, the Census Bureau also revises the previous year's estimates including the Census 2000 estimates. The 2004 population estimates file includes new estimates for 2000-2003. The NCHS takes the Census Bureau population estimates file and reallocates the multiple race categories required by the 1997 Office of Management and Budget (OMB) back into the four race categories specified in the 1977 OMB specifications so that the estimates will be compatible with previous years' populations.

Potential Years of Life Lost

Total potential years of life lost is calculated by multiplying the number of deaths for each group by the years of life lost (the difference between life expectancy and the midpoint of the age group, then adding the figures for all age groups).

A measure of the impact of death from various diseases on society, highlighting the total loss to society, especially the loss contributed by early deaths. For the purpose of calculating PYLL, since *Massachusetts Deaths 2002*, we have adjusted the maximum age to be 75 years so that we do not include deaths beyond average life expectancy. Data after 2002 are not comparable with previous publications because we used a different maximum age cutoff

Premature Mortality Rate

Premature mortality rate (PMR) measures the rate of premature death, that is, death before the age of 75 years, and it is given as a rate per 100,000 and it is adjusted to the 2000 U.S. population. PMR is considered the best single measure to reflect the health status of a population.

Race and Hispanic Ethnicity

For death records, race and Hispanic ethnicity are specified by the death record informant (for example, spouse or next of kin). Prior to 1989, death certificates included a question on race, but a separate question on Hispanic origin was added to the death record beginning on January 1, 1989.

Beginning with the 1999 report, race and ethnicity categories are presented as mutually exclusive categories, except for Table A1 which provides race and ethnicity data consistent with federal guidelines so that national comparisons can be made. All trend data from 1989-2003 presented in this report have been re-tabulated to reflect this modification. Data presented by race in this report are not directly comparable to previously published data by race.

Resident Death

The death of a person whose usual place of residence or permanent address (as reported by the informant) is in one of the 351 cities or towns of Massachusetts, regardless of where the death took place. Unless otherwise noted, all data in this publication are resident data. An interstate exchange agreement among the 50 states and Canada provides for exchange of copies of birth and death records. These records are used for statistical purposes only, and allow each state or province to track the births and deaths of residents.

Total Rate of Change

The total rate of change is calculated as follows:

$$\frac{P_n - P_o}{P_o}$$

where P_n is the rate during the later time period and P_o is the rate during the earlier time period.

Underlying Cause of Death

The disease or injury that initiated the series of events leading to death, or the circumstances of the unintentional or intentional injury that resulted in the death. The underlying cause of death is used for all analyses published in this report.

Table A2. ICD-10 and ICD-9 Codes Used in this Publication

(Sorted by ICD-10 Codes)

Cause of Death	ICD-10 Code	ICD-9 Code
Infectious and parasitic diseases	A00-B99	001-139
Septicemia	A40-A41	038
Human Immunodeficiency Virus (HIV) disease	B20-B24	042-044
Cancer (Malignant Neoplasms)	C00-C97	140-208
of esophagus	C15	150
of stomach	C16	151
of colon, rectum, rectum and anus	C18-C21	153-154, 159.9
of pancreas	C25	157
of trachea, bronchus and lung	C33-C34	162
of female breast	C50	174
of cervix uteri	C53	180
of corpus uteri and uterus, part unspecified	C54-C55	179,182
of ovary	C56	183.0
of prostate	C61	185
of kidney and renal pelvis	C64-C65	189.0-189.1
of bladder	C67	188
of meninges, brain & other parts of central nervous system	C70-C72	191-192
Hodgkin's Disease	C81	201
Non-Hodgkin's lymphoma	C82-C85	200, 202 (except 202.4)
Leukemia	C91-C95	202.4, 204-208
Multiple myeloma and immunoproliferative neoplasms	C88, C90	203
Diabetes Mellitus	E10-E14	250
Alzheimer's disease	G30	331.0
Heart Disease	I00-I09, I11, I13, I20-I51	390-398, 402, 404-429
Stroke (Cerebrovascular disease)	I60-I69	430-438
Influenza and pneumonia	J10-J18	480-487
Chronic lower respiratory diseases[1]	J40-J47	490-496
Chronic liver disease and cirrhosis	K70, K73-K74	571
Nephritis	N00-N07, N17-N19, N25-N27	580-589
Congenital malformations, deformations, and chromosomal abnormalities	Q00-Q99	740-759
Certain conditions originating in the perinatal period (Perinatal Conditions)	P00-P96	760-779
Ill defined conditions	R00-R99	780-797, 798.1-798.9, 799
Sudden infant death syndrome (SIDS)	R95	798.0
External causes of injuries and poisonings (intentional, unintentional and of undetermined intent)	V01-Y89	E800-E999
Accidents (Unintentional Injuries)	V01-X59, Y85-Y86	E800-E949
Motor Vehicle-related injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2	E810-E825
Unintentional non-transport injuries	W00-X59, Y86	E850-E869, E880-E928, E929.2-E929.9
Suicide	X60-X84, Y87.0	E950-E959
Homicide	X85-Y09, Y87.1	E960-E969
Injuries of undetermined intent	Y10-Y34,Y87.2,Y89.9	E980-E989
Terrorism	U01-U02 (homicide), U03 (suicide)	

1. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title).

Table A3. ICD-10 and ICD-9 Codes Used in this Publication

(Sorted Cause of Death)

Cause of Death	ICD-10 Code	ICD-9 Code
Alzheimer's Disease	G30	331.0
Cancer (Malignant Neoplasms)	C00-C97	140-208
of bladder	C67	188
of cervix uteri	C53	180
of colon, rectum, rectum and anus	C18-C21	153-154, 159.9
of corpus uteri and uterus, part unspecified	C54-C55	179,182
of esophagus	C15	150
of female breast	C50	174
Hodgkin's Disease	C81	201
of kidney and renal pelvis	C64-C65	189.0-189.1
Leukemia	C91-C95	202.4, 204-208
of meninges, brain & other parts of central nervous system	C70-C72	191-192
Multiple myeloma and immunoproliferative neoplasms	C88, C90	203
Non-Hodgkin's lymphoma	C82-C85	200, 202 (except 202.4)
of ovary	C56	183.0
of prostate	C61	185
of stomach	C16	151
of pancreas	C25	157
of trachea, bronchus and lung	C33-C34	162
Certain conditions originating in the perinatal period (Perinatal Conditions)	P00-P96	760-779
Chronic liver disease and cirrhosis	K70, K73-K74	571
Chronic lower respiratory diseases[1]	J40-J47	490-496
Congenital malformations, deformations, and chromosomal abnormalities	Q00-Q99	740-759
Diabetes Mellitus	E10-E14	250
External causes of injuries and poisonings (intentional, unintentional and of undetermined intent)	V01-Y98	E800-E999
Homicide	X85-Y09, Y87.1	E960-E969
Injuries of undetermined intent	Y10-Y34,Y87.2,Y89.9	E980-E989
Suicide	X60-X84, Y87.0	E950-E959
Accidents (Unintentional Injuries)	V01-X59	E800-E949
Motor Vehicle-related injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2	E810-E825 E850-E869, E880-E928, E929.2-E929.9
Unintentional non-transport injuries	W00-X59, Y86	
Heart Disease	I00-I09, I11, I13, I20-I51	390-398, 402, 404-429
Infectious and parasitic diseases	A00-B99	001-139
Human Immunodeficiency Virus (HIV) disease (AIDS)	B20-B24	042-044
Septicemia	A40-A41	038
Influenza and pneumonia	J10-J18	480-487
Nephritis	N00-N07, N17-N19, N25-N27	580-589
Stroke (Cerebrovascular disease)	I60-I69	430-438
Ill defined conditions	R00-R99	780-797, 798.1-798.9, 799
Sudden infant death syndrome (SIDS)	R95	798.0
Terrorism	U01-U02 (homicide), U03 (suicide)	--

1. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title).

Table A4. ICD-10 Injury Codes Used in this Publication

Cause of Death	ICD-10 Code
Suicide	X60-X84, Y87.0
Poisoning	X60-X69
Hanging, strangulation or suffocation	X70
Firearm	X72-X74
Other and unspecified	Residual
Homicide	X85-Y09, Y87.1
Firearm	Y93-Y95
Cut or pierce	X99
Other and unspecified	Residual
Unintentional Injuries (Accidents)	V01-X59, Y85-Y86
Falls	W00-W19
Hanging, strangulation or suffocation	W75-W84
Drowning or submersion	W65-W74
Smoke, fire and flames	X00-X19
Poisoning	X40-X49
Firearm	W32-W34
Motor Vehicle-related	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
Injury to pedestrian	V02-V04, V09.0, V09
Injury to pedal cyclist	V12-V14, V19.0, V19.2, V19.4, V19.5, V19.6
Injury to motorcyclist	V20-V29
Injury to occupant	V30-V79, V80.3, V80.4, V80.5, V81.0,V81.1, V82.0, V82.1, V83-V86
Other and unspecified	Residual
Other and unspecified	Residual
Events of Undetermined Intent	Y10-Y34, Y87.2, Y89.9
Poisoning	Y10-Y19
Drowning or submersion	Y21
Other and unspecified	Residual
Legal Intervention	Y35.-Y36, Y89.0, Y89.1
Firearm	Y35.0
Adverse Effects	Y40-Y59, Y60-Y84, Y88
Drugs	Y40-Y59, Y88.0
Medical Care	Y60-Y84, Y88.1, Y88.2, Y88.3
Terrorism	U01-U02 (homicide), U03 (suicide)

Table A5. ICD-10 Poisoning Codes Used in this Publication

Manner of Death	ICD-10 Code
All Poisoning Deaths	X40-X49, X60-X69, X85-X90, Y87.0, Y10-Y19, Y35.2
Narcotics and psychodysleptics	X42, X62, Y12
Other and unspecified drugs, medicaments, biological substances	X44, X64, X89, Y14
Antiepileptic, sedative-hypnotic, antiparkinsonism & psychotropic	X41, X61, Y11
Gases and vapours	X47, X67, X86, X88, Y17, Y35.2
Nonopioid analgesics, antipyretics & antirheumatics	X40, X60, Y10
Alcohol	X45, X65, Y15
Organic solvents and halogenated hydrocarbons	X46, X66, Y16
Other drugs acting on autonomic nervous system	X43, X63, Y13
Other and unspecified chemicals and noxious substances	Remaining causes

Table A6. ICD-10 Codes for Selected Healthy People 2010 Mortality Objectives Used in this Publication

(Sorted by Objective Number)

Objective Number	Cause of Death*	ICD-10 Identifying Codes
3-1	Cancer (all sites)	C00-C97
3-2	Lung cancer	C33-C34
3-3	Female breast cancer	C50
3-4	Uterine Cervix cancer	C53
3-5	Colorectal cancer	C18-C21
3-6	Oropharyngeal cancer	C00-C14
3-7	Prostate cancer	C61
3-8	Malignant melanoma	C43
12-1	Coronary heart disease	I11, I20-I25
12-7	Stroke	I60-I69
13-14	HIV infection	B20-B24
15-3	Firearm-related deaths	W32-W34, X72-X74, Y22-Y24, Y93-Y95
15-8	Poisoning	X40-X49, X60-X69, X85-X90, Y10-Y19, Y35.2
15-9	Hanging, strangulation or suffocation	W75-W84, X70, X91, Y20
15-13	Unintentional injuries (Accidents)	V01-X59, Y85-Y86
15-15	Motor vehicle-related	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
15-25	Residential fire deaths	X00, X02
15-27	Falls	W00-W19
15-29	Drownings	W65-W74, X71, X92, Y21, V90, V92
15-32	Homicides	X85-Y09, Y87.1
16-1f	Birth defects	Q00-Q99
16-1g	Congenital heart and vascular defects	Q20-Q24
16-1h	Sudden infant death syndrome (SIDS)	R95
18-1	Suicide	X60-X84, Y87.0
24-1	Asthma	J45-J46
26-1	Motor-vehicle crash deaths	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
26-2	Cirrhosis	K74
26-3	Drug induced deaths	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,X60-64, X85,Y10-Y14

These Healthy People 2010 objectives use underlying cause-of-death data.

Table A7. Preliminary Comparability Ratios

Cause of Death	ICD-10 Code	ICD-9 Code (most similar title)	Comparability Ratio
Infectious and parasitic diseases	A00-B99		NA
Septicemia	A40-A41	038	1.1949
Human Immunodeficiency Virus (HIV) disease	B20-B24	042-044	1.0637[1] and 1.1448[2]
Cancer (Malignant Neoplasms)	C00-C97	140-208	1.0068
of esophagus	C15	150	0.9965
of stomach	C16	151	1.0063
of colon, rectum, rectum and anus	C18-C21	153-154	0.9993
of pancreas	C25	157	0.9980
of trachea, bronchus and lung	C33-C34	162	0.9837
of breast	C50	174-175	1.0056
of cervix uteri	C53	180	0.9871
of corpus uteri and uterus, part unspecified	C54-C55	179,182	1.0260
of ovary	C56	183.0	0.9954
of prostate	C61	185	1.0134
of kidney and renal pelvis	C64-C65	189.0-189.1	1.0000
of bladder	C67	188	0.9968
of meninges, brain & other parts of central nervous system	C70-C72	191-192	0.9691
Hodgkin's Disease	C81	201	0.9855
Non-Hodgkin's lymphoma	C82-C85	200, 202	0.9781
Leukemia	C91-C95	204-208	1.0119
Multiple myeloma and immunoproliferative neoplasms	C88, C90	203	1.0383
Diabetes Mellitus	E10-E14	250	1.0082
Alzheimer's Disease	G30	331.0	1.5536
Heart Disease	I00-I09, I11, I13, I20-I51	390-398, 402, 404, 410-429	0.9858
Stroke (Cerebrovascular disease)	I60-I69	430-434, 436-438	1.0588
Influenza and pneumonia	J10-J18	480-487	0.6982
Chronic lower respiratory diseases	J40-J47	490-494,496	1.0478
Chronic liver disease and cirrhosis	K70, K73-K74	571	1.0367
Nephritis	N00-N07, N17-N19, N25-N27	580-589	1.2320
Congenital malformations, deformations, and chromosomal abnormalities	Q00-Q99	740-759	0.8470
Certain conditions originating in the perinatal period (Perinatal Conditions)	P00-P96	760-771.2, 771.4-779	1.0658
External causes of injuries and poisonings (intentional, unintentional and of undetermined intent)	V01-Y89	E800-E999	NA
Accidents (Unintentional Injuries)	V01-X59, Y85-Y86	E800-E869, E880-E929	1.0305
Motor Vehicle-related injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2	E810-E825	0.9754[3]
Non-transport injuries	W00-X59, Y86	E850-E869, E880-E928, E929.2-E929.9	1.0763
Suicide	X60-X84, Y87.0	E950-E959	0.9962
Homicide	X85-Y09, Y87.1	E960-E969	0.9983
Injuries of undetermined intent	Y10-Y34,Y87.2,Y89.9	E980-E989	*

Source: National Center for Health Statistics, Preliminary Comparability Study. February 2001. NA: not available *: not reliable

Please refer to the Appendix for an example of how to apply comparability ratios. 1. Comparability Modified number and rate based on preliminary comparability ratios (CR) from NCHS based on 1996 data (February 2001). 2. Comparability Modified number and rate based on preliminary comparability ratios (CR) from NCHS based on 1998 data (revised June 2001). 3. This is the revised comparability ratio for motor vehicle-related injuries, effective May 2001.

Table A8. Preliminary Comparability Ratios
Causes of Infant Death

Cause of Death	ICD-10 Code	ICD-9 Code (most similar title)	Comparability Ratio
Certain infectious and parasitic diseases	A00-B99	001-033, 034.1-134, 136-139, 771.3	0.7339
Septicemia	A40-A41	038	1.3802
Human Immunodeficiency Virus (HIV) disease	B20-B24	042-044	1.0455
Cancer (Malignant Neoplasms)	C00-C97	140-208	1.0435
Influenza and pneumonia	J10-J18	480-487	0.7624
Certain conditions originating in the perinatal period (Perinatal Conditions)	P00-P96	760-771.2, 771.4-779	1.0581
Newborn affected by maternal complications of pregnancy	P01	761	1.0295
Newborn affected by complications of placenta, cord and membranes	P02	762	1.0470
Disorders relating to short gestation and low birthweight	P07	765	1.1060
Intrauterine hypoxia and birth asphyxia	P20-P21	768	1.4477
Respiratory distress of newborn	P22	769	1.0257
Other respiratory conditions originating in perinatal period	P23-P28	770	0.8455
Infections specific to the perinatal period	P35-P39	771.0-771.2, 771.4-771.8	1.0199
Neonatal hemorrhage	P50-P52, P54	772	1.4369
Congenital malformations, deformations, and chromosomal abnormalities	Q00-Q99	740-759	0.9064
Anecephaly and similar malformations	Q00	740	1.0000
Congenital malformations of heart	Q20-Q24	745-746	0.9951
Congenital malformations of respiratory system	Q30-Q34	748	0.6322
Congenital malformations of digestive system	Q35-Q45	749-751	*
Congenital malformations of genitourinary system	Q50-Q64	752-753	0.9432
Congenital malformations of musculoskeletal system	Q65-Q85	754-757	0.8650
Sudden Infant Death Syndrome (SIDS)	R95	798.0	1.0362
External causes of injuries and poisonings (intentional, unintentional and of undetermined intent)	V01-Y89	E800-E999	NA
Accidents (Unintentional Injuries)	V01-X59	E800-E869, E880-E929	1.0246
Motor Vehicle-related injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2	E810-E825	0.9167
Homicide	X85-Y09	E960-E969	0.9481
Injuries of undetermined intent	Y10-Y34,Y87.2,Y89.9	E980-E989	*

Source: National Center for Health Statistics, Preliminary Comparability Study. February 2001. NA: not available *: not reliable
Please refer to the Appendix for an example of how to apply comparability ratios

Table A9. Population Estimates for Massachusetts Counties, 2004[1]

COUNTY	POPULATION
Barnstable	228,683
Berkshire	132,486
Bristol	548,176
Dukes	15,669
Essex	738,984
Franklin	72,235
Hampden	461,844
Hampshire	153,894
Middlesex	1,464,628
Nantucket	10,124
Norfolk	653,617
Plymouth	490,655
Suffolk	666,022
Worcester	779,488
STATE	**6,416,505**

[1]National Center for Health Statistics. Estimates of the July 1, 2000-July 1, 2004 , United States resident population from the Vintage 2004 postcensal series by year, county, age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. Available on the Internet at: http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm. September 9, 2005.

Table A10. Population Estimates for Massachusetts Communities, 2004

TOWN NAME	COUNTY	CHNA	POPULATION
Abington	Plymouth	22	16,264
Acton	Middlesex	15	20,660
Acushnet	Bristol	26	10,582
Adams	Berkshire	1	8,508
Agawam	Hampden	4	28,616
Alford	Berkshire	1	393
Amesbury	Essex	12	16,737
Amherst	Hampshire	3	34,255
Andover	Essex	11	32,141
Arlington	Middlesex	17	41,546
Ashburnham	Worcester	9	5,901
Ashby	Middlesex	9	2,926
Ashfield	Franklin	2	1,820
Ashland	Middlesex	7	15,528
Athol	Worcester	2	11,673
Attleboro	Bristol	24	43,506
Auburn	Worcester	8	16,381
Avon	Norfolk	22	4,385
Ayer	Middlesex	9	7,212
Barnstable	Barnstable	27	48,535
Barre	Worcester	9	5,357
Becket	Berkshire	1	1,775
Bedford	Middlesex	15	12,519
Belchertown	Hampshire	3	13,846
Bellingham	Norfolk	6	15,762
Belmont	Middlesex	17	23,604
Berkley	Bristol	24	6,351
Berlin	Worcester	9	2,677
Bernardston	Franklin	2	2,215
Beverly	Essex	13	40,166
Billerica	Middlesex	10	39,951
Blackstone	Worcester	6	9,055
Blandford	Hampden	4	1,264
Bolton	Worcester	9	4,389
Boston	Suffolk	19	569,165
Bourne	Barnstable	27	19,516
Boxborough	Middlesex	15	5,044
Boxford	Essex	12	8,221
Boylston	Worcester	8	4,181
Braintree	Norfolk	20	33,873
Brewster	Barnstable	27	10,368
Bridgewater	Plymouth	22	25,723
Brimfield	Hampden	5	3,600
Brockton	Plymouth	22	95,009
Brookfield	Worcester	5	3,101
Brookline	Norfolk	19	56,188
Buckland	Franklin	2	1,986
Burlington	Middlesex	15	23,223
Cambridge	Middlesex	17	100,771
Canton	Norfolk	20	21,505
Carlisle	Middlesex	15	4,830
Carver	Plymouth	23	11,492
Charlemont	Franklin	2	1,396
Charlton	Worcester	5	12,295
Chatham	Barnstable	27	6,860
Chelmsford	Middlesex	10	33,769
Chelsea	Suffolk	19	33,227
Cheshire	Berkshire	1	3,355
Chester	Hampden	21	1,326
Chesterfield	Hampshire	3	1,262
Chicopee	Hampden	21	54,838
Chilmark	Dukes	27	934
Clarksburg	Berkshire	1	1,667
Clinton	Worcester	9	13,890
Cohasset	Norfolk	20	7,274
Colrain	Franklin	2	1,860
Concord	Middlesex	15	16,919
Conway	Franklin	2	1,889
Cummington	Hampshire	3	994
Dalton	Berkshire	1	6,736
Danvers	Essex	14	25,659
Dartmouth	Bristol	26	31,317
Dedham	Norfolk	18	23,225
Deerfield	Franklin	2	4,798
Dennis	Barnstable	27	16,123
Dighton	Bristol	24	6,628
Douglas	Worcester	6	7,762
Dover	Norfolk	18	5,657
Dracut	Middlesex	10	28,681
Dudley	Worcester	5	10,775
Dunstable	Middlesex	10	3,101
Duxbury	Plymouth	23	14,691
East Bridgewater	Plymouth	22	13,692
East Brookfield	Worcester	5	2,121
East Longmeadow	Hampden	4	14,811
Eastham	Barnstable	27	5,622
Easthampton	Hampshire	3	16,089
Easton	Bristol	22	23,061
Edgartown	Dukes	27	3,940
Egremont	Berkshire	1	1,348
Erving	Franklin	2	1,530
Essex	Essex	13	3,355
Everett	Middlesex	16	37,195
Fairhaven	Bristol	26	16,335
Fall River	Bristol	25	92,526
Falmouth	Barnstable	27	33,806
Fitchburg	Worcester	9	39,910
Florida	Berkshire	1	661
Foxborough	Norfolk	7	16,354
Framingham	Middlesex	7	65,598
Franklin	Norfolk	6	30,192
Freetown	Bristol	26	8,971
Gardner	Worcester	9	20,967
Gay Head (Aquinnah)	Dukes	27	359
Georgetown	Essex	12	7,961
Gill	Franklin	2	1,392
Gloucester	Essex	13	30,817
Goshen	Hampshire	3	958
Gosnold	Dukes	27	87
Grafton	Worcester	8	16,297
Granby	Hampshire	3	6,339
Granville	Hampden	4	1,625
Great Barrington	Berkshire	1	7,434
Greenfield	Franklin	2	17,926
Groton	Middlesex	9	10,369
Groveland	Essex	12	6,472
Hadley	Hampshire	3	4,860
Halifax	Plymouth	23	7,781
Hamilton	Essex	13	8,426
Hampden	Hampden	4	5,316
Hancock	Berkshire	1	1,012
Hanover	Plymouth	23	13,853
Hanson	Plymouth	23	9,898
Hardwick	Worcester	9	2,665
Harvard	Worcester	9	6,083
Harwich	Barnstable	27	12,809
Hatfield	Hampshire	3	3,311
Haverhill	Essex	12	60,482
Hawley	Franklin	2	346
Heath	Franklin	2	807
Hingham	Plymouth	20	21,198
Hinsdale	Berkshire	1	1,825
Holbrook	Norfolk	22	10,832
Holden	Worcester	8	16,595

Table A10. Population Estimates for Massachusetts Communities, 2004, continued

TOWN NAME	COUNTY	CHNA	POPULATION
Holland	Hampden	5	2,485
Holliston	Middlesex	7	13,919
Holyoke	Hampden	21	40,058
Hopedale	Worcester	6	6,222
Hopkinton	Middlesex	7	14,031
Hubbardston	Worcester	9	4,273
Hudson	Middlesex	7	18,726
Hull	Plymouth	20	11,320
Huntington	Hampshire	21	2,197
Ipswich	Essex	13	13,374
Kingston	Plymouth	23	12,345
Lakeville	Plymouth	24	10,533
Lancaster	Worcester	9	6,719
Lanesborough	Berkshire	1	2,960
Lawrence	Essex	11	71,858
Lee	Berkshire	1	5,888
Leicester	Worcester	8	10,904
Lenox	Berkshire	1	5,162
Leominster	Worcester	9	41,911
Leverett	Franklin	2	1,764
Lexington	Middlesex	15	30,419
Leyden	Franklin	2	808
Lincoln	Middlesex	15	8,000
Littleton	Middlesex	15	8,578
Longmeadow	Hampden	4	15,631
Lowell	Middlesex	10	103,655
Ludlow	Hampden	21	21,934
Lunenburg	Worcester	9	9,980
Lynn	Essex	14	89,485
Lynnfield	Essex	14	11,640
Malden	Middlesex	16	55,340
Manchester	Essex	13	5,370
Mansfield	Bristol	24	22,998
Marblehead	Essex	14	20,371
Marion	Plymouth	26	5,310
Marlborough	Middlesex	7	37,699
Marshfield	Plymouth	23	24,817
Mashpee	Barnstable	27	14,301
Mattapoisett	Plymouth	26	6,467
Maynard	Middlesex	7	10,322
Medfield	Norfolk	7	12,397
Medford	Middlesex	16	54,197
Medway	Norfolk	6	12,886
Melrose	Middlesex	16	26,533
Mendon	Worcester	6	5,761
Merrimac	Essex	12	6,321
Methuen	Essex	11	44,845
Middleborough	Plymouth	24	21,121
Middlefield	Hampshire	3	546
Middleton	Essex	11	9,107
Milford	Worcester	6	27,410
Millbury	Worcester	8	13,376
Millis	Norfolk	7	7,997
Millville	Worcester	6	2,936
Milton	Norfolk	20	25,855
Monroe	Franklin	2	98
Monson	Hampden	4	8,684
Montague	Franklin	2	8,443
Monterey	Berkshire	1	954
Montgomery	Hampden	4	736
Mt. Washington	Berkshire	1	133
Nahant	Essex	14	3,620
Nantucket	Nantucket	27	10,124
Natick	Middlesex	7	32,113
Needham	Norfolk	18	29,022
New Ashford	Berkshire	1	245
New Bedford	Bristol	26	93,979
New Braintree	Worcester	9	1,066
New Marlborough	Berkshire	1	1,514
New Salem	Franklin	2	988
Newbury	Essex	12	6,886
Newburyport	Essex	12	17,552
Newton	Middlesex	18	83,802
Norfolk	Norfolk	7	10,492
North Adams	Berkshire	1	14,167
North Andover	Essex	11	27,979
North Attleboro	Bristol	24	28,176
North Brookfield	Worcester	5	4,815
North Reading	Middlesex	16	13,980
Northampton	Hampshire	3	28,930
Northborough	Worcester	7	14,320
Northbridge	Worcester	6	13,882
Northfield	Franklin	2	3,173
Norton	Bristol	24	19,157
Norwell	Plymouth	20	10,390
Norwood	Norfolk	20	28,548
Oak Bluffs	Dukes	27	3,828
Oakham	Worcester	9	1,879
Orange	Franklin	2	7,563
Orleans	Barnstable	27	6,474
Otis	Berkshire	1	1,383
Oxford	Worcester	5	13,735
Palmer	Hampden	4	12,902
Paxton	Worcester	8	4,541
Peabody	Essex	14	50,370
Pelham	Hampshire	3	1,422
Pembroke	Plymouth	23	17,715
Pepperell	Middlesex	9	11,434
Peru	Berkshire	1	823
Petersham	Worcester	2	1,264
Phillipston	Worcester	2	1,729
Pittsfield	Berkshire	1	44,285
Plainfield	Hampshire	3	604
Plainville	Norfolk	7	7,926
Plymouth	Plymouth	23	54,604
Plympton	Plymouth	23	2,755
Princeton	Worcester	9	3,499
Provincetown	Barnstable	27	3,450
Quincy	Norfolk	20	89,909
Randolph	Norfolk	20	30,748
Raynham	Bristol	24	13,324
Reading	Middlesex	16	23,362
Rehoboth	Bristol	24	11,137
Revere	Suffolk	19	46,169
Richmond	Berkshire	1	1,630
Rochester	Plymouth	26	5,202
Rockland	Plymouth	23	17,861
Rockport	Essex	13	7,805
Rowe	Franklin	2	349
Rowley	Essex	12	5,720
Royalston	Worcester	2	1,354
Russell	Hampden	4	1,713
Rutland	Worcester	9	7,245
Salem	Essex	14	41,912
Salisbury	Essex	12	8,159
Sandisfield	Berkshire	1	823
Sandwich	Barnstable	27	20,826
Saugus	Essex	14	26,762
Savoy	Berkshire	1	720
Scituate	Plymouth	20	18,195
Seekonk	Bristol	24	13,730
Sharon	Norfolk	20	17,347
Sheffield	Berkshire	1	3,360
Shelburne	Franklin	2	2,061
Sherborn	Middlesex	7	4,230
Shirley	Middlesex	9	7,601

Table A10. Population Estimates for Massachusetts Communities, 2004, continued

TOWN NAME	COUNTY	CHNA	POPULATION	TOWN NAME	COUNTY	CHNA	POPULATION
Shrewsbury	Worcester	8	33,161	Warwick	Franklin	2	759
Shutesbury	Franklin	2	1,846	Washington	Berkshire	1	543
Somerset	Bristol	25	18,692	Watertown	Middlesex	17	32,603
Somerville	Middlesex	17	75,621	Wayland	Middlesex	7	13,063
South Hadley	Hampshire	3	17,181	Webster	Worcester	5	16,880
Southampton	Hampshire	3	5,772	Wellesley	Norfolk	18	26,515
Southborough	Worcester	7	9,549	Wellfleet	Barnstable	27	2,841
Southbridge	Worcester	5	17,314	Wendell	Franklin	2	1,028
Southwick	Hampden	4	9,428	Wenham	Essex	13	4,453
Spencer	Worcester	5	12,014	West Boylston	Worcester	8	7,616
Springfield	Hampden	4	152,091	West Bridgewater	Plymouth	22	6,844
Sterling	Worcester	9	7,742	West Brookfield	Worcester	5	3,898
Stockbridge	Berkshire	1	2,250	West Newbury	Essex	12	4,297
Stoneham	Middlesex	16	21,781	West Springfield	Hampden	4	28,048
Stoughton	Norfolk	22	26,902	West Stockbridge	Berkshire	1	1,451
Stow	Middlesex	7	6,119	West Tisbury	Dukes	27	2,670
Sturbridge	Worcester	5	8,692	Westborough	Worcester	7	18,737
Sudbury	Middlesex	7	17,164	Westfield	Hampden	21	40,559
Sunderland	Franklin	2	3,804	Westford	Middlesex	10	21,475
Sutton	Worcester	6	8,878	Westhampton	Hampshire	3	1,563
Swampscott	Essex	14	14,433	Westminster	Worcester	9	7,302
Swansea	Bristol	25	16,317	Weston	Middlesex	18	11,595
Taunton	Bristol	24	56,648	Westport	Bristol	25	14,741
Templeton	Worcester	9	7,322	Westwood	Norfolk	18	14,020
Tewksbury	Middlesex	10	29,130	Weymouth	Norfolk	20	54,202
Tisbury	Dukes	27	3,851	Whately	Franklin	2	1,586
Tolland	Hampden	4	443	Whitman	Plymouth	22	14,351
Topsfield	Essex	13	6,228	Wilbraham	Hampden	4	13,938
Townsend	Middlesex	9	9,326	Williamsburg	Hampshire	3	2,443
Truro	Barnstable	27	2,180	Williamstown	Berkshire	1	8,272
Tyngsborough	Middlesex	10	11,387	Wilmington	Middlesex	15	21,568
Tyringham	Berkshire	1	355	Winchendon	Worcester	9	10,037
Upton	Worcester	6	6,262	Winchester	Middlesex	15	21,167
Uxbridge	Worcester	6	12,243	Windsor	Berkshire	1	854
Wakefield	Middlesex	16	24,562	Winthrop	Suffolk	19	17,461
Wales	Hampden	5	1,798	Woburn	Middlesex	15	37,448
Walpole	Norfolk	7	22,518	Worcester	Worcester	8	175,966
Waltham	Middlesex	18	59,232	Worthington	Hampshire	3	1,300
Ware	Hampshire	3	10,022	Wrentham	Norfolk	7	11,086
Wareham	Plymouth	26	21,224	Yarmouth	Barnstable	27	24,972
Warren	Worcester	5	4,979				

Source: Census Bureau; Annual Estimates of the Population for Minor Civil Divisions in Massachusetts, Listed Alphabetically Within County: April 1, 2000 to July 1, 2004 (SUB-EST2004-05-25); Release Date: June 30, 2005

Table A11. 2004 Massachusetts Population Estimates[1]
By Age Group, Gender, Race and Hispanic Ethnicity[2] (mutually exclusive)

AGE	GENDER	TOTAL	WHITE Non-Hispanic	BLACK Non-Hispanic	ASIAN Non-Hispanic	HISPANIC
UNDER 1	MALE	41,070	29,296	3,661	2,479	5,571
	FEMALE	39,132	27,996	3,424	2,342	5,300
	TOTAL	80,202	57,292	7,085	4,821	10,871
1 TO 4	MALE	161,479	117,446	13,425	9,127	21,206
	FEMALE	153,981	111,645	12,886	8,800	20,364
	TOTAL	315,460	229,091	26,311	17,927	41,570
5 TO 14	MALE	417,639	317,469	32,753	19,362	46,952
	FEMALE	397,510	300,906	31,441	19,374	44,699
	TOTAL	815,149	618,375	64,194	38,736	91,651
15 TO 24	MALE	431,315	327,066	32,531	23,554	46,929
	FEMALE	420,110	318,320	32,041	25,160	43,351
	TOTAL	851,425	645,386	64,572	48,714	90,280
25 TO 34	MALE	433,983	320,047	28,852	35,436	48,631
	FEMALE	446,421	331,213	30,984	36,335	46,829
	TOTAL	880,404	651,260	59,836	71,771	95,460
35 TO 44	MALE	507,592	413,136	29,484	26,443	37,299
	FEMALE	522,815	424,452	31,811	26,030	39,263
	TOTAL	1,030,407	837,588	61,295	52,473	76,562
45 TO 54	MALE	455,884	394,108	22,699	16,367	21,578
	FEMALE	481,218	413,912	24,534	17,457	24,174
	TOTAL	937,102	808,020	47,233	33,824	45,752
55 TO 64	MALE	311,157	278,325	12,477	8,955	10,728
	FEMALE	340,856	302,151	15,409	9,511	13,080
	TOTAL	652,013	580,476	27,886	18,466	23,808
65 TO 74	MALE	178,664	162,394	6,317	5,037	4,591
	FEMALE	217,420	196,264	8,904	5,528	6,413
	TOTAL	396,084	358,658	15,221	10,565	11,004
75 TO 84	MALE	126,843	119,020	3,189	2,284	2,141
	FEMALE	195,291	183,164	5,672	3,053	3,154
	TOTAL	322,134	302,184	8,861	5,337	5,295
85 +	MALE	40,719	38,381	1,012	604	659
	FEMALE	95,406	90,841	2,148	1,004	1,276
	TOTAL	136,125	129,222	3,160	1,608	1,935
ALL AGES	MALE	3,106,345	2,516,688	186,400	149,648	246,285
	FEMALE	3,310,160	2,700,864	199,254	154,594	247,903
	TOTAL	6,416,505	5,217,552	385,654	304,242	494,188

1. National Center for Health Statistics. Estimates of the July 1, 2000-July 1, 2004 , United States resident population from the Vintage 2004 postcensal series by year, county, age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. 2. Persons of Hispanic ethnicity are NOT included in the race categories. These estimates are used to calculate population based rates in published in this report, except for Table A1.

Table A12. 2004 Massachusetts Population Estimates[1] By Age Group, Gender, Race and Hispanic Ethnicity [2]

AGE	GENDER	TOTAL	WHITE	BLACK	ASIAN	HISPANIC ETHNICITY
UNDER 1	MALE	41,070	33,300	5,197	2,492	5,571
	FEMALE	39,132	31,815	4,879	2,354	5,300
	TOTAL	80,202	65,115	10,076	4,846	10,871
1 TO 4	MALE	161,479	133,418	18,413	9,261	21,206
	FEMALE	153,981	127,145	17,523	8,932	20,364
	TOTAL	315,460	260,563	35,936	18,193	41,570
5 TO 14	MALE	417,639	355,900	39,934	19,993	46,952
	FEMALE	397,510	337,523	38,192	20,017	44,699
	TOTAL	815,149	693,423	78,126	40,010	91,651
15 TO 24	MALE	431,315	366,412	38,710	24,201	46,929
	FEMALE	420,110	354,212	38,244	25,765	43,351
	TOTAL	851,425	720,624	76,954	49,966	90,280
25 TO 34	MALE	433,983	361,920	34,301	36,052	48,631
	FEMALE	446,421	370,554	37,227	36,949	46,829
	TOTAL	880,404	732,474	71,528	73,001	95,460
35 TO 44	MALE	507,592	444,592	34,380	26,821	37,299
	FEMALE	522,815	457,025	37,403	26,535	39,263
	TOTAL	1,030,407	901,617	71,783	53,356	76,562
45 TO 54	MALE	455,884	411,980	25,814	16,640	21,578
	FEMALE	481,218	433,913	28,064	17,736	24,174
	TOTAL	937,102	845,893	53,878	34,376	45,752
55 TO 64	MALE	311,157	287,246	13,994	9,080	10,728
	FEMALE	340,856	313,195	17,115	9,670	13,080
	TOTAL	652,013	600,441	31,109	18,750	23,808
65 TO 74	MALE	178,664	166,238	6,957	5,083	4,591
	FEMALE	217,420	201,536	9,864	5,616	6,413
	TOTAL	396,084	367,774	16,821	10,699	11,004
75 TO 84	MALE	126,843	120,832	3,466	2,317	2,141
	FEMALE	195,291	185,804	6,136	3,073	3,154
	TOTAL	322,134	306,636	9,602	5,390	5,295
85 +	MALE	40,719	38,961	1,061	623	659
	FEMALE	95,406	91,924	2,298	1,028	1,276
	TOTAL	136,125	130,885	3,359	1,651	1,935
ALL AGES	MALE	3,106,345	2,720,799	222,227	152,563	246,285
	FEMALE	3,310,160	2,904,646	236,945	157,675	247,903
	TOTAL	6,416,505	5,625,445	459,172	310,238	494,188

1. National Center for Health Statistics. Estimates of the July 1, 2000-July 1, 2004 , United States resident population from the Vintage 2004 postcensal series by year, county, age, sex, race, and Hispanic origin, prepared under a collaborative arrangement with the U.S. Census Bureau. 2. Persons of Hispanic ethnicity are also included in the race categories, consistent with NCHS and U.S. Census population classification of race and ethnicity. These estimates are used to calculate population based rates in Table A1.

Massachusetts Death Certificate: 2004

[INSTRUCTIONS ON REVERSE SIDE]
FOR USE BY PHYSICIANS AND MEDICAL EXAMINERS

STATE USE ONLY

4a PLACE
4c HOSP.
5 TYPE
7 VET
8 HISP / RACE
9 EDUC
10 AGE
11 NATIVITY
12 MARITAL
15 RESID
15 OUT-STATE
23 DISP
31-32 AUTOP
33 MED EXAM
34 MANNER
35C WORK INJ
35F PLACE
36-37 CERT
40A RN PRO

BLACK INK ONLY

R-301-89

The Commonwealth of Massachusetts

STANDARD CERTIFICATE OF DEATH
REGISTRY OF VITAL RECORDS AND STATISTICS

REGISTERED NUMBER | STATE USE ONLY

DECEDENT

DECEDENT - NAME FIRST (1) | MIDDLE | LAST | SEX (2) | DATE OF DEATH (Mo., Day, Yr.) (3)

PLACE OF DEATH (City/Town) (4a) | COUNTY OF DEATH (4b) | HOSPITAL OR OTHER INSTITUTION - Name (If not in either, give street and number) (4c)

PLACE OF DEATH (Check only one): HOSPITAL: ☐ Inpatient ☐ ER/Outpatient ☐ DOA | OTHER: ☐ Nursing Home ☐ Residence ☐ Other (Specify) (5) | SOCIAL SECURITY NUMBER (6) | IF US WAR VETERAN SPECIFY WAR (7)

WAS DECEDENT OF HISPANIC ORIGIN? (If yes, Specify Puerto Rican, Dominican, Cuban, etc.) ☐ NO ☐ YES 8a Specify: | RACE (e.g. White, Black, American Indian, etc.) (Specify): (8b) | DECEDENT'S EDUCATION (Highest Grade Completed) Elem/Sec (0-12) College (1-4, 5+) (9)

AGE - Last Birthday (Yrs.) (10a) | UNDER 1 YEAR MOS (b) DAYS | UNDER 1 DAY HOURS (c) MINS | DATE OF BIRTH (Mo., Day, Yr.) (10d) | BIRTHPLACE (City and State or Foreign Country) (11)

MARRIED, NEVER MARRIED WIDOWED OR DIVORCED (12) | LAST SPOUSE (If wife, give maiden name) (13) | USUAL OCCUPATION (Prior - If retired) (14a) | KIND OF BUSINESS OR INDUSTRY (14b)

RESIDENCE - NO. & ST., CITY/TOWN, COUNTY, STATE/COUNTRY (15a) | ZIP CODE (15b)

FATHER - FULL NAME (16) | STATE OF BIRTH (If not in US, name country) (17) | MOTHER - NAME (GIVEN) (MAIDEN) (18) | STATE OF BIRTH (If not in US, name country) (19)

INFORMANT

INFORMANT'S NAME (20) | MAILING ADDRESS - NO. & ST., CITY/TOWN, STATE, ZIP CODE (21) | RELATIONSHIP (22)

DISPOSITION

METHOD OF DISPOSITION 23 ☐ BURIAL ☐ CREMATION ☐ ENTOMBMENT ☐ REMOVAL FROM STATE ☐ DONATION ☐ OTH. SPEC: | FUNERAL SERVICE LICENSEE (24) | LICENSE # (25)

PLACE OF DISPOSITION (Name of Cemetery, Crematory, or other) (26a) | LOCATION (City/Town, State) (26b)

DATE OF DISPOSITION (Mo., Day, Yr.) (27) | NAME AND ADDRESS OF FACILITY (26a/b)

CERTIFIER

29 PART I - Enter the diseases, injuries, or complications that caused the death. Do not use only the mode of dying, such as cardiac or respiratory arrest, shock or heart failure. List only one cause on each line (a through d). PRINT OR TYPE LEGIBLY. | Approximate Interval Between Onset and Death

IMMEDIATE CAUSE (Final disease or condition resulting in death) → a. _____ DUE TO (OR AS A CONSEQUENCE OF)

Sequentially list conditions, if any leading to immediate cause. Enter UNDERLYING CAUSE (disease or injury that initiated events resulting in death) LAST.
b. _____ DUE TO (OR AS A CONSEQUENCE OF)
c. _____ DUE TO (OR AS A CONSEQUENCE OF)
d. _____

PART II - Other significant conditions contributing to death but not resulting in underlying cause given in Part I. (30) | WAS AUTOPSY PERFORMED? (Yes or No) (31) | WERE AUTOPSY FINDINGS AVAILABLE PRIOR TO COMPLETION OF CAUSE OF DEATH? (Yes or No) (32)

WAS CASE REFERRED TO M.E.? (Yes or No) (33) | 34 MANNER OF DEATH ☐ NATURAL ☐ HOMICIDE ☐ COULD NOT BE DETERMINED ☐ ACCIDENT ☐ SUICIDE ☐ PENDING INVESTIGATION | DATE OF INJURY (Mo., Day, Yr.) (35a) | TIME OF INJURY (35b) M | INJURY AT WORK (Yes or No) (35c)

DESCRIBE HOW INJURY OCCURRED (35d) | PLACE OF INJURY - At home, farm, street, factory, office bldg., etc. Specify: (35e) | LOCATION (No. & St., City/Town, State) (35f)

To be Completed by CERTIFYING PHYSICIAN Only:
36a To the best of my knowledge, death occurred at the time, date, and place and due to the cause(s) stated (Signature and Title)
DATE SIGNED (Mo., Day, Yr.) (36b) | HOUR OF DEATH (36c) M
NAME OF ATTENDING PHYSICIAN IF NOT CERTIFIER (36d)

To Be Completed by MEDICAL EXAMINER Only:
37a On the basis of examination and/or investigation in my opinion death occurred at the time, date, and place and due to the cause(s) stated (Signature and Title)
DATE SIGNED (Mo., Day, Yr.) (37b) | HOUR OF DEATH (37c) M
PRONOUNCED DEAD (Mo., Day, Yr.) (37d) | PRONOUNCED DEAD (Hr.) (37e) M

NAME AND ADDRESS OF CERTIFYING PHYSICIAN OR MEDICAL EXAMINER (Type or Print) (38) | LICENSE NO. OF CERTIFIER (39)

WAS THERE AN R.N. PRONOUNCEMENT? Yes or No (40a) | IF YES, DATE PRONOUNCED (40b) | IF YES, TIME PRONOUNCED (40c) M | 40d NAME OF PRONOUNCING REGISTERED NURSE NAME

DATE BURIAL PERMIT ISSUED: | RECEIVED IN THE CITY/TOWN OF: | DATE OF RECORD (43)
SIGNATURE - BD. OF HEALTH AGENT (41) | CLERK'S SIGNATURE (42)

Circumstance for Referral to the Office of the Chief Medical Examiner (OCME)

http://www.mass.gov/legis/laws/mgl/38-3.htm

CHAPTER 38. MEDICAL EXAMINERS AND INQUESTS

Chapter 38: Section 3. Duty to report deaths; failure to report

Section 3. It shall be the duty of any person having knowledge of a death which occurs under the circumstances enumerated in this paragraph immediately to notify the office of the chief medical examiner, or the medical examiner designated to the location where the death has occurred, of the known facts concerning the time, place, manner, circumstances and cause of such death:

(1) death where criminal violence appears to have taken place, regardless of the time interval between the incident and death, and regardless of whether such violence appears to have been the immediate cause of death, or a contributory factor thereto;

(2) death by accident or unintentional injury, regardless of time interval between the incident and death, and regardless of whether such injury appears to have been the immediate cause of death, or a contributory factor thereto;

(3) suicide, regardless of the time interval between the incident and death;

(4) death under suspicious or unusual circumstances;

(5) death following an unlawful abortion;

(6) death related to occupational illness or injury;

(7) death in custody, in any jail or correctional facility, or in any mental health or mental retardation institution;

(8) death where suspicion of abuse of a child, family or household member, elder person or disabled person exists;

(9) death due to poison or acute or chronic use of drugs or alcohol;

(10) skeletal remains;

(11) death associated with diagnostic or therapeutic procedures;

(12) sudden death when the decedent was in apparent good health;

(13) death within twenty-four hours of admission to a hospital or nursing home;

(14) death in any public or private conveyance;

(15) fetal death, as defined by section two hundred and two of chapter one hundred and eleven, where the period of gestation has been twenty weeks or more, or where fetal weight is three

hundred and fifty grams or more;

(16) death of children under the age of 18 years from any cause;

(17) any person found dead;

(18) death in any emergency treatment facility, medical walk-in center, day care center, or under foster care; or

(19) deaths occurring under such other circumstances as the chief medical examiner shall prescribe in regulations promulgated pursuant to the provisions of chapter thirty A.

A physician, police officer, hospital administrator, licensed nurse, department of social services social worker, or licensed funeral director, within the commonwealth, who, having knowledge of such an unreported death, fails to notify the office of the chief medical examiner of such death shall be punished by a fine of not more than five hundred dollars. Such failure shall also be reported to the appropriate board of registration, where applicable.

Massachusetts Deaths: 2004 Evaluation Form

TO OUR READERS:
In an attempt to better serve our users, we are enclosing this evaluation form. Please take the time to complete this questionnaire and return it to the address at the bottom of the page. Thank you.

What tables and charts do you find most useful?
What tables and charts do you find least useful?
Are there other tables and charts that you would like added to this publication? If yes, please describe them in detail.
Do you have other comments or suggestions?
Name (optional): **Address:** **(For those who received the publication by mail)** Is the mailing label address correct? If not, please correct the address. Thank you.

Please return your comments to:

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