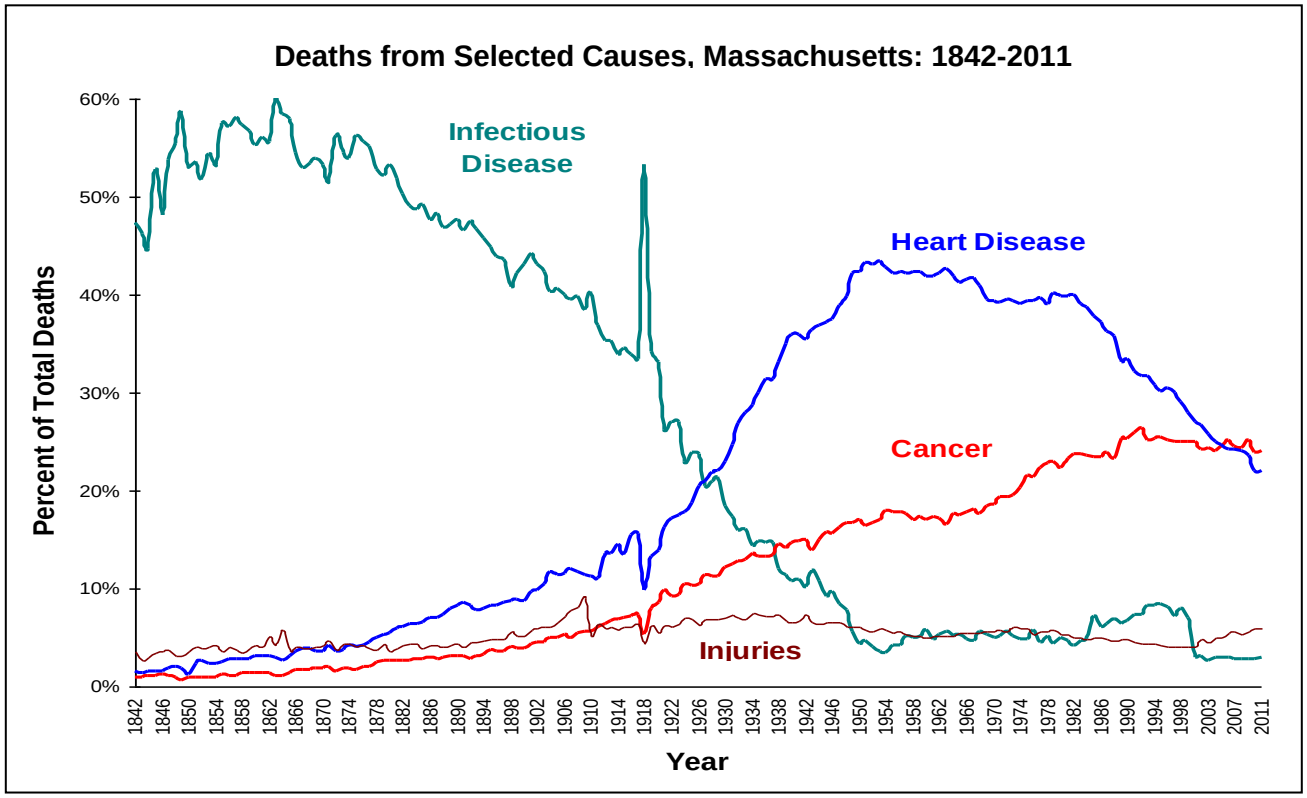
Massachusetts Provisional Deaths 2011



Bureau of Health Information, Statistics, Research, and Evaluation

Massachusetts Department of Public Health

December 2013

Massachusetts Provisional Deaths 2011

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December 2013

Acknowledgments

This report was prepared by Malena Hood, Dana Bernson, and Bruce Cohen, of the Division of Research and Epidemiology, Bureau of Health Information, Statistics, Research, and Evaluation.

Special thanks go to: Jerry O'Keefe, Director, Bureau of Health Information, Statistics, Research, and Evaluation; Antonio Sousa, Registrar, Registry of Vital Records and Statistics, Kevin Foster, Sharon Pagnano, Charlene Zion, Maria Vu, and Karin Barrett, Registry of Vital Records and Statistics; Paul Oppedisano and Jamie Wilkins, MassCHIP. We also wish to thank DPH peer reviewers for their comprehensive review of this publication.

Data in this report have been collected through the efforts of the Registry of Vital Records and Statistics and Registration staff, including: Mike Baker, Donna Barlow, Marsha Grabau, Annette Luc, Maureen McKean, Jennifer O'Hearn, Joseph Andelman, Tara Andrews, Christina Bocolos, Althea Booker, Pamela Corbin, June Deloney, Alex Forman, Robert McMahan, Marta Mercado, Jerry Plante, Denise O'Gara, Margaret Riley, Mary Risser, Monica Smith, Crystal Steward and Carina Veliz.

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Note to Readers

Please review the information below before reading the report.

1. After preparing this report, we were informed by The National Center for Health Statistics (NCHS) that there were some problems with their medical coding systems that affected the cause of death coding for 2011 data. These problems affected a small set of records in Massachusetts. We received a provisional file[1] that resolved these issues and compared the updated file with the original file that was used for this publication. While there were small differences in the counts for some causes of death, we did not find any statistical differences in the rates of these causes between the two files. In the interest of disseminating the 2011 deaths report in a timely manner, we have chosen not to re-create the entire report using the updated file as of December 9, 2013. We have included several summary tables in the Appendix (Table A11 and Table A12) of this report comparing the corrected results with what appears in the main body of this report.

   The updated files will be used in MassCHIP and provision of data to researchers. This may lead to minor discrepancies between this report and results obtained using updated data.

2. **Population Sources.** Two sources of population estimates were used to calculate population-based rates in *Massachusetts Deaths 2011*:

   a. State and County Death Rates
   We used the 2011Modified Age, Race/Ethnicity, and Sex (MARS) estimates, from the National Center for Health Statistics (NCHS) and the Census Bureau Population Estimates Program. Postcensal estimates of the resident population of the United States for July 1, 2010-July 1, 2011, by year, county, single-year of age (0, 1, 2, .., 85 years and over), bridged race, Hispanic origin, and sex (Vintage 2011). Prepared under a collaborative arrangement with the U.S. Census Bureau.
   Available from: http://www.cdc.gov/nchs/nvss/bridged_race.htm as of July, 2012, following release by the U.S. Census Bureau of the unbridged Vintage 2011 postcensal estimates by 5-year age group on May 17, 2012.

   b. City and town death rates
   The Massachusetts Department of Public Health Race Allocated Census 2010 Estimates (MRACE 2010), which are population estimates based upon the Census 2010 Summary File 1, was used to calculate city and town rates. In this estimates file, the Census 2010 race categories, “Two or more races” and “Some other race” are redistributed to the MDPH standard race categories: Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Asian and Pacific Islander, and Non-Hispanic American Indian and Alaska Native. All persons in the Census 2010 Hispanic ethnicity category are counted as “Hispanic” race in the MDPH estimates. This kind of file is often referred to as a “bridged” file, that is, one that bridges the new race and ethnicity collections to the conventionally used categories. These population estimates are available from MassCHIP (http://masschip.state.ma.us).

[1] Please note that a revised file from NCHS will be received in early 2014.

Note: Population figures for 2010 are April 1 Census counts. The population figures for years 2001 - 2009, are bridged-race estimates of the July 1 resident population, from the revised intercensal county-level 2000 - 2009 series released by NCHS. The population figures for 2011 are bridged-race estimates of the July 1 resident population, from the revised intercensal county-level 2010-2011 postcensal series released by NCHS. Trends between these years should be interpreted with caution, as differences may be due to changes in the underlying population.

3. **Comparisons with National Death Statistics.** Preliminary statistics for the United States for 2011 are used in this report to give a sense how Massachusetts statistics differ from those of the US.

4. **Resident deaths.** All data in this publication are resident data unless otherwise stated. Resident data include all events that occur to residents of the Commonwealth, wherever they occur.

5. **Race and Ethnicity.** In the text, the race categories, White, Black, American Indian, Asian, and Hispanic are mutually exclusive, for example, when we refer to White residents, this means White non-Hispanic residents.

Suggested Citation

Massachusetts Deaths 2011. Boston, MA: Division of Research and Epidemiology, Bureau of Health Information, Statistics, Research, and Evaluation, Massachusetts Department of Public Health. December 2013.

Highlights

- The age-adjusted death rate for Massachusetts was 674.0 in 2011, which was not statistically different from the death rate of 672.7 in 2010. The death rate has been declining at an average of 1.9% per year since 2000.

- In 2011, there was an increase of 4% in the number of deaths among the oldest old (persons ages 85 years and older) (up 859 deaths). However, because there was an increase in the population of 85 years and older between 2010 and 2011, the overall death rate for this group was stable.

- In 2011, cancer continued to be the leading cause[2] of death in Massachusetts, followed by heart disease. As in previous years, cancer and heart disease combined accounted for almost half of all deaths.

- In 2011, there were three changes in the ranking of the top 10 leading causes of death as compared with 2010. First, stroke had been the third leading cause of death in Massachusetts for several decades, continually trailing cancer and heart disease. In 2011, however, chronic lower respiratory diseases replaced stroke as the third leading cause of death. Stroke is now the fourth leading cause of death. Second, the rankings of Influenza & Pneumonia and Nephritis swapped places on the list. Third, ill-defined conditions, signs, and symptoms replaced septicemia as the 10th leading cause of death in Massachusetts.

- Life expectancy continued at an all time high in Massachusetts, at 80.8 years in 2011. A girl born in Massachusetts could expect to live to be 83, and a boy could expect to live to be 78 years old.

- More than half of the mortality rates for leading causes were lower in Massachusetts than in the US, including heart disease, stroke, unintentional injuries, homicide, suicide, chronic lower respiratory disease, and diabetes. The age-adjusted death rate for nephritis was higher in Massachusetts than the US.

- Poisonings, most of which are drug overdoses continued to be the leading cause of injury deaths (972 in 2011 vs. 839 in 2010). In 2011, poisonings deaths increased by 16% from 2010 and have been increasing at an average of 3.7% per year since 2000. Opioids, including heroin, oxycodone, morphine, codeine, and methadone, continued to be the agent most associated with poisoning deaths (66%).

- The rate of fall-related deaths continued to increase at an average of 8.7% per year since 2000. The majority of fall-related deaths occurred among persons ages 65 and older (87%), and fall death rates were highest among residents ages 85 years and older.

- In 2011, the HIV/AIDS death rate was 22% lower than it was in 2010. This rate approached statistical significance[3]. In 2011, there were 91 Massachusetts residents who died from HIV/AIDS, which remained the lowest annual number of HIV/AIDS deaths in Massachusetts since the peak of the epidemic in 1994 (981 HIV/AIDS

[2] The National Center for Health Statistics (NCHS) publishes a list of 113 selected causes of death from which we select 57 causes and order them by their number of deaths.
[3] The Confidence Interval for the HIV/AIDS rate in 2011 was [1.0-1.5] and for 2010, it was [1.3-1.9].

deaths). In 2011, deaths of persons ages 45 and older accounted for three-fourths of HIV/AIDS deaths, which was its largest proportion ever.

- Disparities by gender, race, ethnicity, education, poverty, and geography persisted:
  - Hispanics, Blacks, and Asians had a higher proportion of deaths occurring at younger ages than Whites had. Thirty-four percent of White deaths occurred at 74 years and younger; whereas, 70% of Hispanic deaths; 57% of Black deaths, and 46% of Asian deaths occurred under 75 years of age.
  - Blacks and Hispanics continued to be disproportionally affected by homicide: the rate for Blacks was more than 11 times higher than that of Whites, and the homicide rate for Hispanics was more than 5 times higher.
  - The death rate for those with a high school education or less was almost 3 times higher than the rate for those with 13 years of education or more.
  - New Bedford, Lowell, Fall River, Springfield, Pittsfield, Brockton, Chicopee, Revere, Taunton, Lynn, Worcester, Haverhill, Somerville, and Boston had the highest premature mortality rates (deaths that occur before the age of 75 years of age per 100,000) among the state's 30 largest communities.
  - The age-adjusted premature mortality rate for those living in areas with the greatest poverty (≥ 20% below poverty) was 878.2 deaths per 100,000–more than 4 times higher than the rate of 196.7 for those living in the most affluent areas (<5% below poverty).

- Premature mortality and mortality amenable to health care are two summary non disease-specific measures that have been developed to enhance the utility of mortality data to identify opportunities for potential system changes[4].

  - In 2011, premature deaths (deaths before age 75) accounted for 36% of all deaths in the state, which does not represent a change from 2010. The overall premature mortality rate, in 2011 (271.6) did not change from 2010 (273.6) althought it has been decreasing by almost 3% a year since 2001.

  - An important difference between amenable mortality and premature mortality is that the causes of amenable mortality do not include injuries[5]. Amenable mortality includes deaths from c*auses amenable to secondary prevention through early detection and treatment:* this includes causes where screening and treatment are effective; for example breast, cervical, and skin cancer. In 2011, 9% of all deaths were amenable mortality (5,040). For persons under 75 years of age, 26% of deaths were amenable mortality. Another way of saying this is that 26% of premature deaths were amenable to health care. Overall, amenable mortality rates have been declining at 4.1% per year since 2000. Rates for all racial and ethnicity groups have been declining since 2000 as well: at 4.5% per year for Hispanics, 4.1% per year for Whites, 4.0% per year for Blacks, and 3.5% per year for Asians.

[4] Caution should be exercised when using mortality indicators such as Years of Potential Life Lost, premature mortality, and amenable mortality in comparative studies. The upper age cutoff for all three indicators, the specific causes of death included in amenable mortality calculations, and the difficulty in assessing the contribution of factors to mortality should be carefully evaluated.

[5] Since injuries are not included in the amenable mortality calculation, a substantial number of premature deaths are not included.

Introduction

This report presents detailed data on the number and characteristics of Massachusetts deaths in 2011. The data presented in this report can be used to monitor and evaluate the status and long-term trends in mortality and health of the population in Massachusetts. Furthermore, this report can be used to identify the groups within the Massachusetts population that 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.

Methods

Data on mortality are based on information retrieved from death certificates filed with the Massachusetts Registry of Vital Records and Statistics. Physicians and medical examiners assign the cause of death through a system that allows for 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 or omitted. Resident data include all deaths that occur to residents of the Commonwealth, regardless of where the deaths occur. In Massachusetts, a resident is a person with a permanent address in one of the 351 cities and towns. Occurrence data include all deaths that occur within the state, whether to residents or nonresidents. All data in this publication are for Massachusetts residents unless otherwise stated. There is an exchange agreement among the 50 states, District of Columbia, Puerto Rico, US Virgin Islands, Guam, and Canadian provinces that provides for the exchange of copies of death records for persons dying in a state other than their state of residence. These records are used for statistical purposes only, and they allow each state or province to track the deaths of its residents.

The data in this publication refer to the underlying cause of death as generated by the Super Mortality Medical Indexing, Classification, and Retrieval system (Super MICAR), unless specifically noted. This is a computer software algorithm developed by the National Center for Health Statistics and used by all US jurisdictions so that the assignment of cause of death codes is consistent.

Throughout this report, both the number of deaths and age-adjusted rates are 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 among groups so that we can better target our programs. All mortality rates were age-adjusted to the 2000 US Standard Population and are reported per 100,000 population.

Data on the cause and intent of injury deaths is generated through information listed in the cause and manner of death fields on official death certificates. Due to Massachusetts General Laws (MGL) reporting requirements, nearly all death certificates for individuals dying from an injury are completed by the Massachusetts Office of the Chief Medical Examiner (OCME). Policy changes affecting the classification of these deaths at the OCME can therefore affect the data reported for injury deaths.

In May 2005, there was a change in OCME policy regarding the classification of fatal poisonings (which includes acute intoxications and overdoses) where there is no evidence of

suicide or homicide. The new policy states that fatal poisonings should be certified as "accidents", that is unintentional events, rather than "undetermined" (old policy) if there is no evidence of suicide or homicide. This new policy brings Massachusetts policy in line with the policies in most other states. Prior to this policy change (affecting poisoning deaths in 2004 and at least 10 years prior); the manner of death in these cases was listed as "undetermined". Because of this new policy, only 4% of all injuries in 2007 (3% in 2006) were classified as injuries of undetermined intent[6], compared with an average of 20% before 2005.

Comparison of rates 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 $P \leq .05$ level.

Results

Number of Deaths and Age-Adjusted Death Rates

In 2011, 53,536 Massachusetts residents died, which was 1,116 more deaths than there were in 2010 (Table 1). This represents a significant 2% increase in the number of deaths from 2010. This increase was driven by a 4% increase in the number of deaths to persons 85 years and older.

The age-adjusted death rate in 2011 was 674.0 deaths per 100,000. Compared with 2010, there were no statistically significant changes in the death rate by gender or race and Hispanic ethnicity from the previous year. Compared with 2001, the overall rate has declined 16%.

Age-adjusted death rates varied somewhat by race and Hispanic ethnicity in Massachusetts in 2011. As in the previous year, the death rate for Blacks (707.6 per 100,000) was not significantly different than that for whites (686.9 per 100,000). The rate for Asians was the lowest for all groups at 375.2 per 100,000 followed by Hispanics (468.9 deaths per 100,000). In 2011, there were no significant changes in death rates by race and Hispanic ethnicity from the previous year. Since 2001, the age-adjusted death rate has decreased 26% for Blacks.

The true death rates for both Asians and Hispanics may be higher than the rates presented in this report for several reasons. There are well-known difficulties in calculating accurate mortality rates for Massachusetts' smaller populations such as Asians, Native Americans and Hispanics[7,8]. Evaluation studies since the early 1990s have demonstrated inaccuracy in mortality statistics for these race and ethnicity groups[9,10]. Race and ethnicity are collected differently for death certificates than in the census. They are self-reported in the decennial Census count, which is the denominator of the mortality rates; whereas, race, and ethnicity on death certificates are collected by the funeral director from an informant or by observation. Use caution when interpreting race and ethnicity in mortality data because the potential

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[6] Injury death of undetermined intent means that the medical examiner lacked sufficient evidence to classify the deaths as homicide, suicide, or accidental.

[7] Rosenberg HM, Maurer JD, Sorlie PD, et al. Quality of death rates by race and Hispanic origin: A summary of current research, 1999. National Center for Health Statistics. Vital Health Stat 2 (128). 1999.

[8] Arias E. Quality of race and Hispanic origin reporting on death certificates in the United States. Presented at the 2004 NCHS Data Users Conference. Washington, DC, July 14, 2004. Available at: http://www.cdc.gov/nchs/ppt/duc2004/arias.pps.

[9] US Centers for Disease Control and Prevention, National Center for Health Statistics. Vital and Health Statistics (Series 2, Number 128), Quality of Death Rates by Race and Hispanic Origin: A Summary of Current Research, 1999. US Department of Health and Human Services.

[10] Sorlie, P. D., Rogot, E., & Johnson, N. J. (1992). Validity of the Death Certificate. Epidemiology, 3(2), 181-184.

undercounts in population data and misclassification on death certificates may result in inaccuracies in mortality statistics.

In 2011, cancer was the leading cause of death[11] in Massachusetts, surpassing heart disease for the sixth year in a row. There were 1,013 more cancer deaths than heart disease deaths. Compared with 2010, there was a significant decline in the numbers of nephritis deaths (1,201 vs. 1,378) and a significant increase in chronic lower respiratory disease deaths (2,666 vs. 2,380).

In 2011, the age-adjusted death rates for the top ten leading causes of death remained stable, except for nephritis, which decreased by 15% (from 17.4 in 2010 to 14.8 2011) and chronic lower respiratory disease which increased by 10% (from 31.0 in 2010 to 34.1 in 2011) (Table 9).

A Comparison of Massachusetts and US Indicators

In 2011, certain Massachusetts mortality indicators were better than those for the US were, and the ranking of the leading causes differed. According to preliminary US death statistics for 2011[12]:

- The 2011 Massachusetts overall age-adjusted death rate was 9% lower than the US rate (674.0 vs. 740.6 deaths per 100,000), and has been consistently lower than that of the US from 1990 to the present.

- In 2011, life expectancy at birth continued to be higher in Massachusetts as compared with the US (80.8 years vs. 78.7 years).

- Nine of the top 10 causes of death in Massachusetts were the same as those of the US, but they were not in the same rank order. Cancer was the leading cause of death in Massachusetts, and heart disease was the second; whereas, heart disease was the leading cause of death in the United States and cancer was the second.

- The next four leading causes of death were the same in Massachusetts and the US: chronic lower respiratory disease, stroke, unintentional injuries, and Alzheimer's disease. However, influenza and pneumonia was the seventh leading cause of death followed by nephritis and diabetes in Massachusetts; whereas, for the US, diabetes, influenza and pneumonia, and nephritis were the seventh, eighth, and ninth leading causes of death, respectively.

- The tenth leading cause of death in Massachusetts was ill-defined conditions, signs and symptoms whereas it was intentional self-harm (suicide) in the US.

- Massachusetts death rates were lower than those of the US for heart disease, stroke, chronic lower respiratory disease, unintentional injuries, Alzheimer's Disease, chronic liver disease, HIV/AIDS, and diabetes. The age-adjusted death rate for cancer and influenza and pneumonia were about the same as that of the US despite Massachusetts' older population.

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[11] The National Center for Health Statistics (NCHS) publishes a list of 113 selected causes of death from which we select 57 causes and order them by their number of deaths.

[12] Hoyert DL and Xu J. Deaths: Preliminary Data for 2011. National Vital Statistics Reports; vol 61, no 6. Hyattsville, MD: National Center for Health Statistics. October 2012.

- The homicide rate in Massachusetts (3.0 deaths per 100,000) was 42% lower than the US homicide rate (5.2 deaths per 100,000). The Massachusetts rate for suicides (8.5) was 29% below the US rate (12.0).

- The rate of all firearm-related deaths in Massachusetts was about one-third the rate of firearm-related deaths in the United States (3.8 deaths per 100,000 compared with 10.1 per 100,000).

- The infant mortality rate (IMR) in Massachusetts was 31% lower than the IMR for the United States (4.2 deaths per 1,000 live births compared with 6.1 per 1,000 live births).

	Massachusetts (2011)	**United States (2011)**	**% Difference: MA-US**
Infant Mortality (per 1000 live births)	**4.2**	**6.1**	**-31.0***
AGE-ADJUSTED DEATH RATE: SELECTED CAUSES OF DEATH* (per 100,000 population)			
All Causes	**674.0**	**740.6**	**-9.0***
Heart Disease	144.4	173.7	-16.8*
Cancer	166.1	168.6	-1.5
Stroke	30.2	37.9	-20.4*
Chronic Lower Resp. Disease	34.1	42.7	-20.1*
All Injuries	43.9	NA	**NA**
Accidents (Unintentional Injuries)	30.0	38.0	-21.0*
Injuries of Undetermined Intent	1.5	1.4	7.1
Suicide	8.5	12.0	-29.2*
Homicide	3.0	5.2	-42.3*
Injury by Cause			
Poisonings	14.3	NA	**NA**
Motor vehicle-related	5.5	10.9	-49.5*
Firearm deaths	3.8	10.1	-62.4*
Falls	7.3	NA	**NA**
Diabetes	14.4	21.5	-33.0*
Influenza and Pneumonia	16.9	15.7	7.7
Alzheimer's Disease	21.1	24.6	-14.2*
Nephritis	14.8	13.4	10.4*
Chronic Liver Disease	7.5	9.7	-22.7*
Septicemia	9.2	10.5	-12.4*
HIV/AIDS	1.3	2.4	-45.8*

Note: * denotes statistical significance.

Life Expectancy

In 2011, the Massachusetts life expectancy at birth remained at a record high of 80.8 years, same as in 2010. Figure 1 shows the trend toward longer life expectancy for Massachusetts residents in the last century. A person born in Massachusetts in 2011 could expect to live, on average, an additional 36 years compared to a person born in 1900 (80.8 years vs. 45.0 years).

In 2011, a woman born in Massachusetts could expect to live, on average, until the age of 83, and a man could expect to live until the age of 78. 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 do. At age 65, men could expect to live an average of 19 more years, while women could expect to live 21 more years (Table 3).

Life expectancy varied by race and ethnicity, and gender (Figure 2 and Table 3). At birth, White women could expect to live 83 years; Black women, 82 years; Hispanic women, 90 years; White men, 78 years; Black men 77 years; and Hispanic men, 84 years. Hispanics showed an exceptionally long life expectancy of 87 years, which was almost 8% higher than that of Whites and 9% higher than that of Blacks. This high life expectancy may be a result of the misclassification of Hispanics as non-Hispanic. An experiment done in 2008 provided evidence that the exceptionally high Hispanic life expectancy may be explained, in part, by the misclassification of Hispanics on death certificates. In 2008, when we used a combination of positive Hispanic ethnicity on the death certificate, Hispanic surname matching[13], and Hispanic countries of birth to ascertain Hispanic deaths, we ascertained 387 additional deaths (1,662 v. 1,275). When we included these additional deaths in the calculation of Hispanic life expectancy, we found that the overall, male, and female life expectancies were reduced by approximately 7 years each. (Male from 85 to 78; female from 91 to 84; and overall from 88 to 81 years).

The age composition of the Massachusetts population is reflected in the changes in life expectancy and historical trends. From 1900 to 2010, the proportion of Massachusetts residents ages 45 and older increased by 100%, from 21% to 42% of the population and the proportion of persons ages 85 and older increased from 0.2% to 2.2% (Figure 3). Although persons ages 85 and over make up only 2% of the Massachusetts population, they continued to have the highest number of deaths in the state in the year 2011 (Table 1).

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 2011, in a reversal of rank order, 24% of the deaths in Massachusetts were due to cancer, 22% to heart disease,6% to intentional and unintentional injuries, and 3% were due to infectious diseases.

Place of Occurrence

Of the 53,536 deaths in 2011, 20,511 (38%) occurred in hospitals – 31% of persons who died were patients in (or admitted to) hospitals, and 7% died in emergency departments; 15,870 (30%) died in nursing homes; 13,986 (26%) died at home; and 525 (1%) were pronounced dead on arrival at emergency departments. The percentages of deaths that occurred at nursing homes and at homes increased by 4% respectively from 2010. The other percentages have been consistent for the last 5 years (Table 4).

Medical Examiner Certified Deaths[14]

There are 19 circumstances in which a death is referred to the Medical Examiner's Office (not all of these deaths occur under suspicious circumstances or because of violence). Please refer to the Appendix for a list of these circumstances. The total number of deaths

[13] DP Smith, BS Bradshaw, Rethinking the Hispanic paradox: death rates and life expectancy for US non-Hispanic White and Hispanic populations. Am J Public Health. 2006 September; 96(9): 1686–1692.
[14] Massachusetts General Laws, Chapter 38, Section 3. http://www.mass.gov/legis/laws/mgl/38-3.htm.

certified by medical examiners was 5,733 in 2011 (10.7%) compared with 5,488 in 2010(10.5%).

Of those deaths certified by medical examiners, 19.2% were reported as a result of natural causes (non-injury related). Almost all homicide and suicide deaths (99.6%) were certified by medical examiners in 2011 compared with only 13% of heart disease deaths and less than 1% of cancer deaths (Figure 5).

Premature Mortality

A good summary measure of the impact of death on different groups in the population is premature mortality[15,16]. The premature mortality rate (PMR) measures the rate of deaths that occur before the age of 75 years of age per 100,000, age-adjusted to the 2000 US Standard Population under 75 years of age. PMR is considered an excellent, single measure of the health status of a population.

The reason PMR is an excellent measure of health status is that the vast majority of deaths to persons ages 75 years and older are due to chronic conditions associated with aging. By examining deaths to persons younger than 75 years, it is possible to identify many issues that are responsive 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, and stress, higher rates of smoking, substance abuse, violence, obesity, and lack of access to care.

In 2011, the age-adjusted premature mortality rate continued to vary by race and Hispanic ethnicity (Figure 6). The overall PMR was 271.6 deaths per 100,000 in 2011, which does not represent a significant change from 2010, however it was 21.8% lower than it was in 2000. Blacks continue to have the highest PMR, experiencing a 25% higher rate of premature deaths as Whites (344.6 vs. 275.5 deaths per 100,000). Asians (123.4) and Hispanics (232.1) had the lowest PMR, but the PMR for Hispanics was significantly higher than that of Asians.

Among the 30 largest cities of the state, New Bedford, Lowell, and Fall River had the highest PMR, while Newton, Brookline, and Cambridge had the lowest PMR (Table 33). For a complete list of PMR for all cities/towns in the state, please see Table 34.

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 510.6 per 100,000 population - almost 3 times higher than the rate of 153.4 for those with 13 years of education or more (Table 5).

Daily Mortality Statistics

On an average day in 2011, 147 Massachusetts residents died (Figure 7). Approximately 35 of these deaths were due to cancer, 32 to heart disease, 15 to respiratory diseases, 9 to injuries, 7 to stroke, 5 to Alzheimer's disease, 4 to infectious disease, 3 to diabetes, and 1 was an infant death. There were, on average, 36 deaths per day due to other causes.

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

[16] 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

Leading Causes of Death

Cause-of-death ranking[17] (leading causes of death) is a useful tool for illustrating the relative burden of cause-specific mortality. The rankings denote the most frequently occurring causes of death among those causes *eligible to be ranked*. NCHS publishes a list of 113 selected causes of death from which we select 57 causes and order them by their number of deaths. The main point to remember about the leading causes of death is that they are causes that are ranked according to their ***number***, and not their mortality ***rate***.

Unlike mortality rates, rankings do not convey cause-specific mortality risk or the absolute burden of causes of death. The rank of a specific cause—its mortality burden relative to other causes—may decline over time even if its mortality rate has not changed, or its rank may remain the same over time even if its mortality rate is rising or declining.

The top 10 leading causes of death in Massachusetts in 2011 were: (1) cancer, (2) heart disease, (3) chronic lower respiratory disease, (4), stroke (5) unintentional injuries, (6) Alzheimer's disease, (7) influenza and pneumonia, (8) nephritis, (9) diabetes, and (10) ill-defined conditions, signs, and symptoms (Table 6). There are three changes in this ranking from 2010. Stroke had been the third leading cause of death in the Massachusetts for several decades, continually trailing cancer and heart disease. In 2011, however, chronic lower respiratory diseases replaced stroke as the third leading cause of death. Stroke is now the fourth leading cause of death. This change in ranking was seen for the United States as a whole in 2008. Compared with 2010, the rankings of Influenza & Pneumonia and Nephritis swapped places on the list. Also in 2011, ill-defined conditions, signs, and symptoms replaced septicemia as the 10th leading cause of death in Massachusetts.

Cancer continued to be the top leading cause of death in Massachusetts, out-ranking heart disease for the sixth year. Four of the top 10 leading causes of death had lower numbers than they did in 2010, but the decline was significant only for Nephritis, which decreased by 15%. Among the other six leading causes, the number of deaths increased, but it was significant only for chronic lower respiratory disease, which increased by 10%. The top ten leading causes of deaths together accounted for 72% of deaths in 2011, and heart disease and cancer accounted for almost half of all deaths (46%).

In Tables 6 and 7, we present the leading causes of death by age groups. Injuries (all intents) were the leading cause of death for persons between the ages of 1 to 44 years and account for 46% of all deaths in this age group. Unintentional injuries, which include motor vehicle-related deaths, poisonings, falls, fires, and drowning, accounted for the highest percentage of injury deaths (64%) in this group. The remainder of injury deaths were intentional: suicide (23%) and homicide (13%). Unintentional injuries accounted for 22% of female deaths and 66% of male deaths in this age group.

For all persons ages 1 to 14 years, cancer and unintentional injuries were the leading causes of death.

Unintentional injuries was the first leading cause of death for individuals 15-24 years old, and it accounted for 39% of deaths (33% for females and 41% for males). Homicide ranked second for males in this age group, while cancer ranked second for females ages 15 to 24.

[17] Heron MP. Deaths: Leading causes for 2004. National vital statistics reports; vol 56 no 5.Hyattsville, MD: National Center for Health Statistics. 2007.

Suicide ranked third for males and females ages 15-24 years, with males experiencing more than three times the number of suicides to females (52 vs. 15).

For person ages 25-44, unintentional injuries was the leading cause of death overall and for males and the second leading cause of death for females in this group. The first leading cause of death for females in this age group was cancer. The third leading cause of death for females in this age group in 2011 was suicide, while it was heart disease for males.

Cancer and heart disease were the leading causes of death for both males and females ages 45 to 64 years.

Among persons ages 65 years and older, heart disease was the leading cause of death overall for females and males and cancer was the second. However, the rate of these diseases were not significantly different. Stroke was the third leading cause of death for females ages 65 and older while chronic lower respiratory disease was the third leading cause of death overall and for males ages 65 and older.

The leading causes of death for persons 65 years and older are shown in Table 8. Among persons ages 65-74 years and 75-84 years, cancer was the leading cause of death, and heart disease was the second leading cause of death of both males and females.

For persons ages 85 years and older, heart disease was the leading cause of death for both males and females and cancer was the second. Overall and for men in this age group, stroke was the third and Alzheimer's was the fourth leading cause of death. For females, Alzheimer's was the third leading cause as stroke was the fourth.

In 2011, the leading cause of death was cancer overall and for all race and Hispanic ethnic groups (Table 9). In addition to cancer and heart disease, stroke, unintentional injuries, chronic lower respiratory disease, and diabetes were in the top 10 leading causes of death for all race and ethnicity groups. However, there were differences among the race and ethnicity groups in the rank of the leading causes of death they have in common. Whites and Asians had nine of the top 10 causes in common, and Blacks and Hispanics shared eight of the 10.

The age-adjusted death rate for all race and Hispanic ethnic groups remained stable, compared with the previous year. For the second year in a row, there was no difference in the rate for Blacks and Whites, who continued to have the higher death rates than Asians and Hispanics. Among 10 leading causes of death, the age-adjusted death rates for Blacks were higher than that of all other racial groups, for nephritis and was higher for Whites than all other racial groups for chronic lower respiratory disease. Also of note, the age-adjusted death rates were higher for Whites than Blacks or Hispanics for Alzheimer's and both Hispanics and Blacks had higher rates of diabetes than Whites or Asians.

In 2011, homicide was a leading cause of death for Blacks and Hispanics only and perinatal conditions were a leading cause of death for Asians and Hispanics only. Septicemia was a leading cause of death for Blacks only and chronic liver disease was a leading cause for Hispanics only.

Cancer

In 2011, cancer continued to rank first in the number of all deaths, in the deaths of all men, and in the number of deaths of all women in Massachusetts. In 2011, there were 12,831 cancer deaths, accounting for 24% of all deaths and almost 3 out of 4 cancer deaths in

Massachusetts occurred to persons ages 65 years and older. The overall age-adjusted cancer mortality rate was 166 deaths per 100,000 compared with 171 in 2010. In 2011, cancer death rates remained stable from 2010 for all racial and ethnic groups. Since 2000, rates have declined for all racial groups and have declined at about 1.8% per year since for the state overall.

The number of cancer deaths increases with age age group up until the high for those aged 75-84 and then declines for those aged 85 of greater. There are more cancer deaths to males aged 45-84 than females, while there are more deaths to females less than 45 or 85 or older than males (Figure 10).

Cancer mortality occurred more frequently among younger persons of minority populations. Forty-eight percent of cancer deaths occurred at ages under 65 years among Hispanics, followed by 43% among Asians, and 39% among Blacks, while this age group accounted only for 26% of all cancer deaths among Whites (Figure 11).

Among all cancer deaths, lung cancer ranked first in number (27% of cancer deaths), colorectal second (8% of cancer deaths), pancreatic third (7% of cancer deaths), female breast cancer fourth (7% of cancer deaths), and prostate fifth (5% of cancer deaths) in the number of cancer deaths (Table 11). By gender, breast cancer was the second cause of cancer deaths for females (851deaths) and prostate cancer was the second leading cause for males (592 deaths).

In 2011, the breast cancer mortality rate for females was half their lung cancer mortality rate (38.8 for lung vs. 19.4 deaths for breast per 100,000). The overall cancer death rate for men was 29% higher than the rate for women (201.2 vs. 142.5 per 100,000) (Table 11). Men also had higher cancer death rates for site-specific cancers including: brain, bladder, colorectal, esophagus, leukemia, lung, non-Hodgkin lymphoma, pancreas, kidney and stomach among others.

Leading types of cancer deaths were different by age. In 2011, the smallest number of cancer deaths was seen among persons under the age of 45 years (348 deaths, Table 12). Leukemia and brain cancer ranked first in the number of cancer deaths for persons ages under 25 years of age. Among cancers affecting both men and women, lung cancer ranked first and colorectal cancer ranked second in the number of cancer deaths for persons ages 25 years and older. Female breast cancer (343 deaths) ranked second in the number of cancer deaths among all persons ages 25 to 64. Lung cancer ranked first, and colorectal cancer ranked second in the number of cancer deaths among persons ages 45 and older. Lung cancer ranked first in the number of cancer deaths and colorectal cancer ranked second for all racial groups (Table 13). Pancreatic cancer ranked third for all except Blacks. Prostate cancer was among the top 5 cancers only for Blacks and Whites.

Heart Disease

Heart disease continues to be the second leading cause of death in Massachusetts, accounting for 22% of all deaths in 2011 (11,818 out of 53,536 total). Heart disease deaths occur predominantly among the older population and in 2011 with 84% occurring among people ages 65 years and older (Figure 8). The proportion of deaths that were from heart disease varied by race and ethnicity in this age group: it was 86% among Whites, 80% among Asians, 66% among Blacks, and 63% among Hispanics (Figure 9).

In 2011, the heart disease death rate remained stable from 2010 (144.4 vs. 149.4 deaths per 100,000), but has been declining by 3.6% per year since 2000. In 2011, heart disease death

rates remained stable from 2010 for all racial and ethnic groups, but rates have declined for all since 2000 (Table 10).

In 2011, there was a continuing gender gap on the burden of heart disease in Massachusetts. In 2011, the overall heart disease death rate for men was 71% higher than the rate for women (190.2 vs. 111.1 per 100,000), and for the 1st time since at least 1989, the number of men who died of heart disease was higher than that of women (5,992 vs. 5,826) (Figure 8). In 2011, heart disease death rates remained stable for males and declined for all females and for white females (down 6%, respectively) from 2010.

In 2011, 17% of heart disease deaths were from acute myocardial infarction (heart attack), 42% from "Other forms of Ischemic Heart Disease", 36% from "Other Heart Disease", and 4% were hypertensive heart disease (data not shown). In 2011, the death rate from Acute MI declined 11% from 2010 (24.9 vs. 27.9 deaths per 100,000), and has been declining by 7.4% per year since 2000.

Stroke

Due in part to a 4% annual decline in the number of stroke deaths since 2001, stroke has moved from the third to the fourth leading cause of death in Massachusetts. This is the first year that deaths to chronic lower respiratory disease exceeded those to stroke. In 2011, there were 2,465 stroke deaths, yielding an age-adjusted rate of 30.2 deaths per 100,000 persons. While this rate is similar to the 2010 rate of 31.2 per 100,000 persons it has declined by an average of 5.4% per year since 2001.

In 2011, there was no statistical difference in the overall stroke death rate between and Whites (30.2 per 100,000) and Blacks (32.0 per 100,000) or Asians (24.2 per 100,000) while the rate for Hispanics (23.1) was lower than that for Whites (Table 15).

Stroke deaths increased with increasing age (Figure 12), and occurred more frequently among younger people of minority groups than in Whites. Forty-two percent of stroke deaths among Hispanics occurred at ages under 65 years, followed by 29% among Blacks, and 19% among Asians and 7% among Whites (Figure 13).

In 2011, 25% of strokes were deaths from hemorrhage (21% from intracerebral hemorrhage and 4% from subarachnoid hemorrhage) (Table 14). Cerebral infarction accounted for 7.5% for all stroke deaths in 2011. For almost 50% of all stroke deaths, the type was not specified.

Diabetes

In order to accurately capture the mortality burden of diabetes in Massachusetts, in this report, diabetes mortality is presented in two ways: 1) the underlying cause of death; and 2) mentioned either as a contributing cause or as the underlying cause of death which will be referred to as "diabetes-related" deaths. In 2011, there were 3,656 diabetes-related deaths, which accounts for 7.0% of all deaths in Massachusetts. In 31% of these deaths, diabetes was recorded as the underlying cause of death (Figure 14).

As an underlying cause of death, diabetes ranked ninth, but when considering all mentioned conditions, diabetes-related deaths ranked third. Blacks and Hispanics died from diabetes-related causes at higher rates than Whites did. In 2011, the diabetes-related age-adjusted death rate for Blacks was 82.2 deaths per 100,000, which is nearly twice the rate for Whites (44.7). The rate for Hispanics was 66.4 deaths per 100,000, which is 33% higher than the White is rate (Table 17).

Diabetes as the underlying cause of death was found in 582 deaths among men and in 542 deaths among females (Table 16). Diabetes-related deaths accounted for 7.4% of all deaths among males and 6.3% of all deaths among females. Hispanics (11.6%) and Blacks (11.1%) had a higher proportion of diabetes-related deaths than that of Whites (6.5%) (Table 17).

Figure 15 illustrates that diabetes-related deaths rise with age. In 2011, 80% of diabetes-related deaths occurred to individuals aged 65 years and older. Figure 16 compares the number of deaths from diabetes as a contributory cause and underlying cause by age group. There were more diabetes-related deaths as a contributing cause among all age groups. In 2011, the diabetes-related death rate has remained stable from 2010, but has declined by 26% since 2001 (Figure 16).

Injuries

In 2011, there were 3,138 injury deaths among Massachusetts residents. By combining injuries of all intents (unintentional, suicide, homicide, injuries of undetermined intent), injuries become the third leading cause of death in 2011 among residents of all ages and the leading cause of death among residents 1-44 years of age. The leading causes of injury deaths in order of percentages were: poisonings[18] (31%), the vast majority of which were drug overdoses, falls (19%), "hanging, strangulation or suffocation" (13%), motor vehicle-related deaths (12%), , and firearm-related deaths (8%) (Table 18). The vast majority (69%) of injury deaths was unintentional or "accidental"; 19% were suicides; 6% were homicides; and 3% were of undetermined intent. The following subsections provide details on the leading causes, intents and selected demographic differences in these events:

Injuries by Age Groups

The causes and intents of injury deaths vary substantially by age group (Table 18, Table 20, and Table 22).

- There were two injury deaths among infants under one year of age. One was a homicide and one was an unintentional injury.
- There were 28 injury deaths among children ages 1-14 years. Suffocation (choking/hanging/strangulation) was the leading cause of injury death in children under the age of 15 (n=7).
- Motor vehicle-related deaths were the leading cause of injury and overall death in persons ages 15-24 years, accounting for 24% (n=92) of all motor vehicle-related deaths and 27% of the injury deaths in this age group. Homicide accounted for 23% (n=79) of the injury deaths in persons 15-24 years.
- Fifty-six percent (56%) of all injury deaths occurred among persons ages 25 to 64 years. The majority (48%) of injury death in this age group was due to poisoning; this age group accounted for 87% of all poisoning deaths in 2011. Twenty-six percent (26%) of all injury deaths in this age group in 2011 were suicides and 51% of all pedestrian deaths were in this age group.
- Persons ages 65 years and older accounted for 33% of all injury deaths; 87% of all fall deaths were in this age group; and, 30% of all pedestrian deaths were in this age group.

Injuries by Sex and Race and Hispanic Ethnicity

[18] 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.

For all types of injuries in Massachusetts, age-specific death rates for males were higher than those of females for all age groups (Table 18 and Table 19):

- Males were 2.4 times more likely to die from an injury than females, and 10 times more likely to die from a firearm injury than females in Massachusetts.
- Black males had the highest death rate from firearms at 5 times the rate for White males: 25.0 deaths per 100,000 compared to 5.0 deaths per 100,000.
- The leading cause of injury deaths varied by race and Hispanic ethnicity. Poisonings was the leading cause of injury deaths for Whites and Hispanics, while firearm-related was the leading cause for Blacks.

Injuries by Intent

Unintentional or "Accidental" Injury

In 2011, there were 2,176 unintentional injury deaths among Massachusetts residents, accounting for 69% of all injury deaths. Unintentional injuries have been increasing at an average rate of 4.4% per year since 2000. In 2011, the leading causes of unintentional injury deaths were poisonings (37%), which includes drug overdoses, falls (27%), and motor vehicle-related deaths (18%) (Table 24).

Men had more than twice the death rate as women for unintentional injuries (42.0 vs. 19.3) (Table 20). The unintentional injury death rates for men were higher than that of women by certain race and ethnicity: 2.2 times higher among Whites, 1.9 times higher among Blacks, and 2.4 times higher among Hispanics (Table 21).

Suicides

In 2011, there were 590 suicides similar with 591 in 2010 (Table 22). The number of suicides declined by 2.4% per year for the period of 1994 to 2003 and has been increasing by 4.8% since 2003. The suicide rate for Massachusetts in 2011 was relatively stable from 2010 (8.5 deaths per 100,000 in 2011, compared with 8.7 in 2010). The trend analysis shows that suicide rates have been increasing by 3.0% per year since 2000.

In 2011, suicides continued to disproportionately affect Whites (90%), persons ages 25-64 years (78%), and males (75%). The suicide rates for all racial and ethnicity groups remained stable from 2010 (Table 23). The leading causes of suicide deaths were "hanging, strangulation, or suffocation" (46%), followed by poisoning (22%), and firearm (20%) (Table 24).

Homicides

In 2011, there were 201 homicides compared with 206 in 2010 (this change was not statistically significant) (Table 22). The homicide rate for Massachusetts in 2011 was relatively stable from 2010 (3.0 deaths per 100,000 in 2011, compared with 3.2 in 2010). Homicide rates have been increasing by 2.8% per year since 2000.

In 2011, homicides continued to disproportionately affect males (80%), youth 15 to 24 years old (39%) and Blacks (38%). Most homicides occurred among Black men (35%), who also had the highest homicide rate (28.2 deaths per 100,000), which was 15 times higher than that of White men (1.9 deaths per 100,000) (Table 23). Homicide has ranked in the top three leading causes of death for those aged 15-24 at least for the past decade along with unintentional injury (mostly motor vehicle accidents) and suicide. The number of homicides declined by 18.0% per year for the period of 1994 to 1997and has been increasing by 2.7% since 1997.

Although not statistically significant, the number of homicides among Hispanic females was 12 in 2011 compared with 2 in 2010. Sixty-four percent of all homicides in 2011 were caused by a firearm, as opposed to stabbing (16%) or other methods (20%) (Table 24). In 2011, homicides were the 6th leading cause of death for Blacks and for Hispanics, and the 29th cause of death for Whites. There were no statistical changes in homicide rates by race and Hispanic ethnicity from the previous year.

Injuries by the Leading Four Causes:

Poisonings

Poisonings, which include drug overdoses, were the leading cause of injury deaths and accounted for 972 (31%) of all injury deaths in 2011 (Table 18). In 2011, poisonings deaths increased by 16% from 2010 and have been increasing at an average of 3.7% per year since 2000. Sixty-six percent of these deaths were associated with an opioid, which includes drugs such as heroin, oxycodone, morphine, codeine and methadone. The number of opioid deaths did not change significantly from 2010, but has been increasing at an average of 3.9% per year since 2000. Most poisoning deaths (82%) were classified as unintentional or of undetermined intent (see method notes on injury intent, pages 10-11) and 13% were suicides (Table 24).

Falls

Fall-related deaths were the second leading cause of all injury and unintentional injury deaths accounting for 19% of all injury deaths in 2011. Fall-related deaths continued their increase at an average of 9.9% per year since 2000. The vast majority (87%) of these deaths occurred among older adults ages 65 years and older (Table 18).

Fall-related death rates continued to increase at an average of 8.7% per year since 2000. Fall death rates were highest among residents ages 85 years and older (185.2 deaths per 100,000) compared with elders in other age subgroups (rates among those ages 65-74 years and ages 75-84 years were 14.2 and 56.0 deaths per 100,000, respectively).

Hanging, Strangulation, or suffocation

Hanging, strangulation, or suffocation deaths were the third leading cause of all injury, accounting for 14% of all injury deaths. In 2011, there were 423 hanging, strangulation, or suffocation deaths compared with 412 deaths in 2010. Hanging, strangulation, or suffocation death rates were highest among residents ages 85+ years (36.6 deaths per 100,000 for ages 85+).

Motor-Vehicle Related

Motor vehicle-related deaths were the fourth leading cause of all injury and third leading cause of all unintentional injury deaths. In 2011, there were 382 motor vehicle-related injury deaths compared with 380 deaths in 2010. Motor vehicle-related death rates have been declining at an average rate of 4.6% since 2000.

Pedestrians accounted for 22%; motorcyclists accounted for 12%; occupants accounted for 12% of all unintentional motor vehicle-related deaths. Other or unspecified persons accounted for 54%, and this category may include a substantial number of occupant deaths (Table 24). Motor vehicle-related death rates were highest among residents ages 75+ years (11.1 deaths per 100,000 for ages 75 to 84, and 14.0 deaths per 100,000 for ages 85+).

HIV/AIDS

In 2011, there were 91 Massachusetts residents who died from HIV/AIDS, which was the lowest annual number of HIV/AIDS deaths in Massachusetts since the peak of the epidemic in 1994 (981 HIV/AIDS deaths) (Table 25). The death rate for HIV/AIDS deaths was 1.3 in 2011, which did not change statistically from the rate of 1.6 in 2010. The rate for HIV/AIDS has been declining by 11.1% per year since 2003.

The proportion of HIV/AIDS deaths for persons ages 45 years and older is 3.8 times what it was at the peak of the epidemic in 1994 (76% vs. 20%) (Table 26). In 2011, close to three out of five HIV/AIDS deaths occurred among persons ages 50 years and older (58%) and 21% were among persons ages 60 years and older.

In 2011, while HIV/AIDS was the 15th leading cause of death for Hispanics and for black non-Hispanics, it was the 34th leading cause of death for white non-Hispanics and 29th leading cause of death overall. HIV disease was the 13th leading cause of death for Massachusetts residents ages 25-44 years; just four years ago, it was the leading cause of death in this age group.

The proportion of HIV/AIDS deaths among women has increased by over 50% since 1994 (30% vs. 19%) (Table 27). Disparities continued in the HIV/AIDS death rate among race and ethnicity groups. In 2011, there were no statistical changes in the HIV/AIDS death rate by race and Hispanic ethnicity from the previous year. Yet, Blacks are dying at a rate more than 11 times that of Whites (6.9 vs. 0.6 deaths per 100,000) (Table 28). For Hispanics, the HIV/AIDS death rate was 7.8 times higher than that of Whites (4.7 vs. 0.6 deaths per 100,000). The rate of decline in HIV/AIDS death rates also vary by race and ethnicity. Since 2000, the rate for HIV/AIDS deaths among Blacks has been declining by 6.4% per year, the rate for Whites has been declining by 12.8% per year, and the rate for Hispanics has been declining by 7.2% per year.

Infant Deaths

In 2011, there were 310 infant deaths (deaths of infants less than one year of age) and 73,289[19] live births among Massachusetts residents, which meant that the infant mortality rate (IMR) was 4.2 deaths per 1,000 live births. The 2011 IMR was similar to the 2010 rate (4.4 deaths per 1,000 live births), and it has decreased by 40% since 1990, from 7.0 deaths per 1,000 live births to 4.2 deaths per 1,000 live births (Table 29).

In 2011, Blacks and Hispanics continued to have the highest IMR among all race and ethnicity groups at 6.7 and 5.8 deaths per 1,000 live births, respectively (Figure 8). The White IMR was 3.4 and the IMR for Asians was 3.6 deaths per 1,00 live births in 2011. There were no statistically significant changes from the previous year.

In 2011, 74% of infant deaths occur in the first month of life. The leading causes of infant death were conditions arising in the perinatal period (57% of all infant deaths) followed by congenital malformations (20% of all infant deaths) (Table 30). 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 (28-364 days).

[19] Preliminary Births 2011 file as of July 24, 2013. In our calculation of IMR by race/ethnicity, we reassigned mothers who selected more than 1 race (multiple races) to the lowest minority racial group (i.e. American Indian and White to American Indian).

The distribution of the leading causes of infant death varied among race and ethnicity groups. Sixty-six percent of all Black infant deaths were due to conditions arising in the perinatal period compared with 63.6% of all Asian infant deaths, 58.7% of all Hispanic infant deaths and 54.1% of White infant deaths (Table 31).

Healthy People 2020

Starting with *Massachusetts Deaths 2010,* 43 Healthy People 2020[20] objectives were used to measure the state's progress toward meeting the targets set for 2020. In 2011, Massachusetts achieved or moved closer to over one-half of the Healthy People 2020 mortality objectives (Table 32).

Massachusetts' 2011 death data indicated that the state has already met over half (27) of the 2020 target goals, including those for lung cancer, female breast cancer, cervical cancer, colorectal cancer, prostate cancer, coronary heart disease, cirrhosis, HIV/AIDS, injury deaths, firearm-related, poisoning rates for ages 35-54, motor vehicle crashes, homicide, suicide, infant mortality, postneonatal deaths, neonatal deaths, SIDS, birth defects deaths, and death rates for children/adults ages 1-24.

For eight objectives, the 2011 Massachusetts indicators were within 25% of the target goals. These objectives included overall cancer mortality, stroke, residential fire deaths, falls for ages 65+, poisonings, drownings, and unintentional and undetermined intent injuries.

However, Massachusetts still needs to improve in the following 8 areas: Oropharyngeal cancer, malignant melanoma, drug-induced deaths, falls, "hanging, strangulation, or suffocation" deaths, "hanging, strangulation, or suffocation" deaths for persons 65 years and over, asthma death for ages 35-64 and ages 65 and over. Although these rates were greater than 25% from the target goals, most were still lower than the rates for the United States overall.

Deaths in the 30 Largest Massachusetts Cities and Towns

The premature mortality rate (PMR) measures the rate of premature death, that is, deaths that occur before the age of 75 years per 100,000, and is age-adjusted to the 2000 US Standard Population under 75 years of age.

Though strictly a mortality measure, the premature mortality rate has been found to be highly correlated with morbidity indicators, which measure the level of "sickness" rather than death for a given population. Therefore, it is expected that populations with high PMRs would also tend to report poorer general health status, a greater number of symptoms, and more illness both at the subjective self-reported level and the objective illness level[21]. PMR analyses make it clear that community health status is related to many factors. Health care is certainly one of these factors, but not the only factor. PMR may be related to socioeconomic status and its correlates, such as higher rates of smoking, substance abuse, violence, obesity, stress, pollution, and lack of access to care. However, there are other possible reasons for high PMRs: specific sub-populations of younger persons at risk for motor vehicle-related deaths in rural areas and heart attack deaths in persons ages 45 to 64 years in suburban areas.

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[20] U.S. Department of Health and Human Services. Healthy People 2020. December 2010. http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=26

[21] Eyles J, Birch S. A population needs-based approach to health care resource allocation and planning in Ontario: A link between policy goals and practice. *Can J Public Health* 1993; 84 (2): 112-117.

Among the 30 largest communities of the state, fourteen had their PMR significantly higher than that at the state level, which was 278.2 premature deaths per 100,000 persons under age 75 years in 2011. In contrast, three communities had PMRs significantly lower than that at the state level in 2011. These communities are Cambridge (202.1), Brookline (160.1), and Newton (152.7) (Table 33). [Please note that Table 34 presents PMR for all cities/towns in the Commonwealth, and Table 44 presents selected causes of death for all cities/towns].

Mortality by Poverty Level

Starting with the 2008 report, we have examined premature mortality rates by census tract poverty[22]. The age-adjusted death rate for those living in the most economically deprived areas (≥20% of its population below poverty) was 878.2 deaths per 100,000 population under 75 years of age–more than 4 times higher than the rate of 196.7 for those living in most affluent areas[23] (<5% below poverty) (Figure 17).

Amenable Mortality

Certain causes[24] of premature deaths (deaths before age 75), are referred to as "amenable", that is, they may not have occurred in the presence of timely and effective health care. This concept was developed in the 1970s in the United States and has been implemented by many countries as a tool to track changes over time and assess the performance of health care systems. Categories that are considered amenable to health care include; bacterial infections, treatable cancers, diabetes, cardiovascular and cerebrovascular disease, Ischemic heart disease and complications of common surgical procedures[25].
An important difference between amenable mortality and premature mortality is that the causes of amenable mortality do not include injuries. Amenable mortality includes deaths from causes amenable to secondary prevention through early detection and treatment: this includes causes where screening and treatment are effective; for example breast, cervical, and skin cancer. In 2011, deaths amenable to health care accounted for 9% of deaths overall. Moreover, they accounted for 26% of all premature deaths (Figure 18). In 2011, the rate for amenable mortality rate was similar to the one in 2010 (70.0 vs. 73.6 deaths per 100,000) but declined by 6% for Whites only.

Figure 19 examines amenable mortality by race and ethnicity for the last decade. Overall, amenable mortality rates have been declining at 4.1% per year since 2000. Rates for all racial and ethnicity groups have been declining since 2000 as well: at 4.5% per year for Hispanics, 4.1% per year for Whites, 4.0% per year for Blacks, and 3.5% per year for Asians.

Additional Topics

Tables 35-46 and Figures 20-23 present additional in-depth information on a variety of topics as well as geographically specific information by community, county, and community health network area (CHNA).

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[22] Geocoded death data were linked to 2000 Census data by census tract of decedent's residence. Population counts by census tract and age were derived from Summary File 1 of the US 2000 Census. Poverty levels for census tracts were derived from Summary Files 3. We used the methodology from the Harvard School of Public Health Geocoding Project methodology web page, especially in choosing the four levels of poverty by census tract. For more information see:
http://www.hsph.harvard.edu/thegeocodingproject/webpage/monograph/methods.htm. Accessed 7/14/2010.
[23] For a discussion of how the Census Bureau determines poverty see the following web page:
http://factfinder.census.gov/servlet/MetadataBrowserServlet?type=subject&id=POVERTYSF3&dsspName=DEC_2000_SF3&back=update&_lang=en. Accessed 7/14/2010.
[24] For a list of causes considered amenable to health care, see Table A13.
[25] Nolte E and McKee CM. Measuring the Health of Nations: Updating An Earlier Analysis. *Health Affairs*; 2008; 27(1): 58-71.

Table 1. Trends in Mortality Characteristics, Massachusetts: 2001-2011

Year		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Resident deaths[1]	Number	56,733	56,881	56,194	54,419	53,776	53,293	52,690	53,341	51,915	52,420	53,536
	Crude rate[2,3,4]	887.1	887.0	875.2	848.1	840.4	827.9	816.9	820.9	787.4	800.6	812.7
	Age-adjusted rate[5]	803.4	793.8	772.6	739.3	720.6	717.6	704.4	703.5	675.1	672.7	674.0
Race/ethnicity of decedent [6,7]												
White non-Hispanic	Number	52,792	52,839	52,050	50,439	49,639	49,132	48,518	49,059	47,520	48,010	48,844
	Percent[8]	93.1	92.9	92.6	92.7	92.3	92.2	92.1	92.0	91.5	91.6	91.2
	Age-adjusted rate	804.4	796.0	775.2	744.7	725.0	723.3	711.1	710.7	682.8	684.4	686.9
Black non-Hispanic	Number	2,226	2,275	2,378	2,225	2,263	2,233	2,211	2,222	2,288	2,278	2,333
	Percent[8]	3.9	4.0	4.2	4.1	4.2	4.2	4.2	4.2	4.4	4.3	4.4
	Age-adjusted rate	951.0	935.6	949.1	866.2	865.8	838.4	820.5	805.8	812.2	702.6	707.6
Asian non-Hispanic	Number	510	531	579	531	570	635	610	692	697	759	806
	Percent[8]	0.9	0.9	1.0	1.0	1.1	1.2	1.2	1.3	1.3	1.4	1.5
	Age-adjusted rate	396.9	397.6	411.9	353.7	345.0	379.0	342.0	372.5	353.1	364.8	375.2
Hispanic	Number	1,059	1,166	1,121	1,115	1,230	1,194	1,264	1,275	1,337	1,308	1,477
	Percent[8]	1.9	2.0	2.0	2.1	2.3	2.2	2.4	2.4	2.6	2.5	2.8
	Age-adjusted rate	556.5	591.0	520.6	482.1	500.4	479.9	477.7	458.2	439.8	443.9	468.9
Gender of decedent[7]												
Female	Number	30,780	30,427	30,053	29,067	28,695	28,508	27,851	28,246	27,356	27,368	27,983
	Age-adjusted rate	689.5	674.4	659.3	632.3	617.8	612.7	596.3	595.9	572.8	567.2	572.8
Male	Number	25,953	26,454	26,141	25,352	25,079	24,785	24,838	25,095	24,557	25,051	25,553
	Age-adjusted rate	957.6	955.1	923.3	878.0	852.5	858.9	853.3	852.2	822.1	811.9	808.5
Age of decedent[7]												
<1 year	Number	407	397	383	376	391	369	380	381	366	319	310
1-14 years	Number	169	167	149	137	113	124	128	119	118	113	114
15-24 years	Number	444	460	490	517	489	471	505	421	440	453	471
25-44 years	Number	2,571	2,490	2,484	2,247	2,173	1,953	2,023	1,906	1,974	1,823	1,870
45-64 years	Number	8,004	8,344	8,476	8,347	8,355	8,660	8,560	8,426	8,688	8,753	8,808
65-74 years	Number	9,323	8,922	8,611	8,126	7,905	7,572	7,494	7,425	7,380	7,423	7,616
75-84 years	Number	17,416	17,262	16,973	16,342	15,632	15,333	14,781	14,970	13,943	13,639	13,598
85+ years	Number	18,395	18,838	18,627	18,327	18,718	18,811	18,816	19,692	19,004	19,888	20,747

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

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. 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 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 2. Five of the Leading Causes of Death[1], Age-Adjusted Rates, Massachusetts and United States: 2000-2011

Year[2]	Age-Adjusted Rates	Heart Disease		Cancer		Stroke	
		MA	US[3]	MA	US[3]	MA	US[3]
2000	Rate	216.7	258.2	206.1	200.9	50.9	60.9
	% of Total	27.1	29.5	24.8	23.0	6.4	6.9
2001	Rate	211.0	247.7	200.0	195.8	46.7	57.9
	% of Total	26.7	28.9	24.2	22.9	6.2	6.8
2002	Rate	201.1	240.4	200.1	194.0	48.1	56.3
	% of Total	26.0	28.4	24.0	22.8	6.0	6.7
2003	Rate	196.6	232.3	193.0	190.1	45.0	53.5
	% of Total	26.0	28.0	24.1	22.7	6.0	6.5
2004	Rate	182.8	217.0	188.4	185.8	42.5	50.0
	% of Total	25.3	27.2	24.5	23.1	6.0	6.3
2005	Rate	172.2	211.0	184.9	183.8	38.1	46.6
	% of Total	24.6	26.6	24.5	22.8	5.5	5.9
2006	Rate	168.8	199.4	186.3	180.8	36.7	43.6
	% of Total	24.2	25.9	25.1	23.1	5.4	5.7
2007	Rate	165.7	190.9	179.2	178.4	35.0	42.2
	% of Total	24.2	25.9	24.6	23.1	5.1	5.7
2008	Rate	165.5	186.5	177.8	175.3	33.7	40.7
	% of Total	24.1	25.4	24.4	23.2	4.9	5.6
2009	Rate	155.2	179.8	174.0	173.6	32.2	38.9
	% of Total	23.6	24.6	25.1	23.3	4.9	5.3
2010	Rate	149.4	178.5	171.0	172.5	31.2	39.0
	% of Total	22.9	24.1	24.7	23.3	4.8	5.2
2011	Rate	144.4	173.7	166.1	168.6	30.2	37.9
	% of Total	22.1	23.7	24.0	22.9	4.6	5.1

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

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. Data coded according to ICD-10. ICD-9 and ICD-10 codes used in this publication are listed in the Appendix. 3 US data for 2011 obtained from NCHS. Deaths: Preliminary Data for 2011. NCHS, October 2012. Volume 61, Number 6.

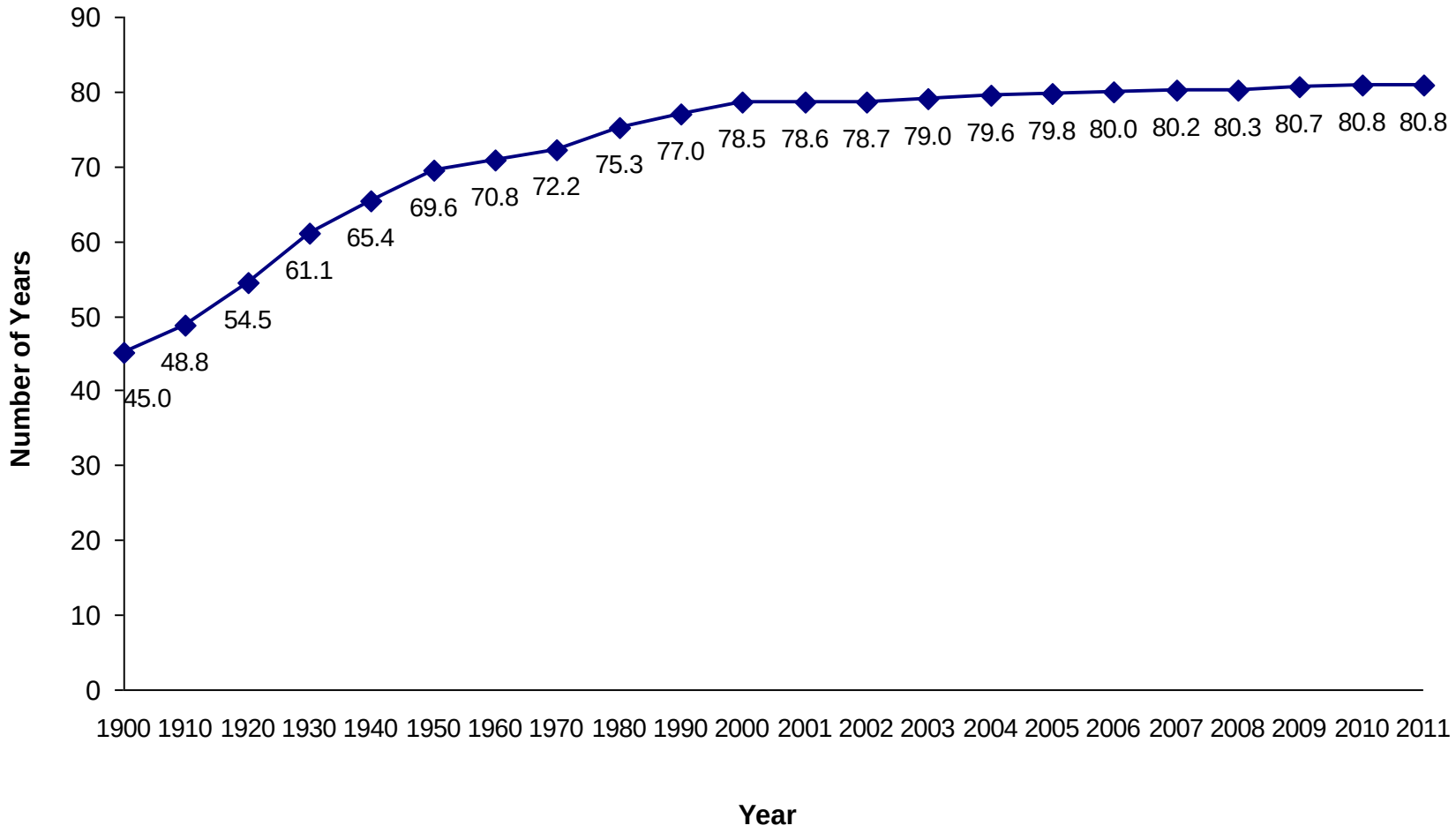
Table 2 (continued). Five of the Leading Causes of Death[1], Age-Adjusted Rates, Massachusetts and United States: 2000-2011

Year[2]	Age-Adjusted Rates	Influenza/Pneumonia		Unintentional Injuries		All Causes	
		MA	US[3]	MA	US[3]	MA	US[3]
2000	Rate	29.1	23.7	20.2	35.6	812.2	872.0
	% of Total	3.7	2.8	2.4	3.9		
2001	Rate	24.0	21.8	21.9	34.3	803.5	855.0
	% of Total	3.1	2.6	2.6	4.0		
2002	Rate	27.3	22.7	20.5	35.3	793.8	846.8
	% of Total	4.0	2.7	2.0	4.2		
2003	Rate	26.0	22.0	20.1	37.3	772.6	832.7
	% of Total	3.6	2.7	2.5	4.3		
2004	Rate	24.9	19.8	19.4	37.7	739.3	800.8
	% of Total	3.6	2.5	2.5	4.7		
2005	Rate	24.2	20.3	27.4	39.1	720.6	798.8
	% of Total	3.6	2.6	3.5	4.8		
2006	Rate	22.0	17.7	31.4	38.5	717.6	776.4
	% of Total	3.3	2.3	4.1	4.8		
2007	Rate	19.4	16.2	30.5	40.0	704.4	760.2
	% of Total	2.9	2.3	4.0	4.9		
2008	Rate	20.0	16.9	28.6	38.8	703.5	758.3
	% of Total	3.0	2.2	3.8	5.1		
2009	Rate	16.8	16.2	28.5	37.0	675.1	741.0
	% of Total	2.6	2.2	3.9	4.8		
2010	Rate	15.9	15.1	28.3	37.1	672.7	746.2
	% of Total	2.5	2.0	3.9	4.8		
2011	Rate	16.9	17.2	30.0	39.4	674.0	740.6
	% of Total	2.6	2.1	4.1	4.9		

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

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. Data coded according to ICD-10. ICD-9 and ICD-10 codes used in this publication are listed in the Appendix. 3. US data for 2011 obtained from NCHS. Deaths: Preliminary Data for 2011. NCHS, October 2012. Volume 61, Number 6.

Figure 1. Life Expectancy at Birth[1], Massachusetts: 1900-2011



Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

[1]Life Expectancy at birth 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).

Figure 2. Expected Years of Life Remaining at Different Ages by Race and Hispanic Ethnicity, Massachusetts: 2011

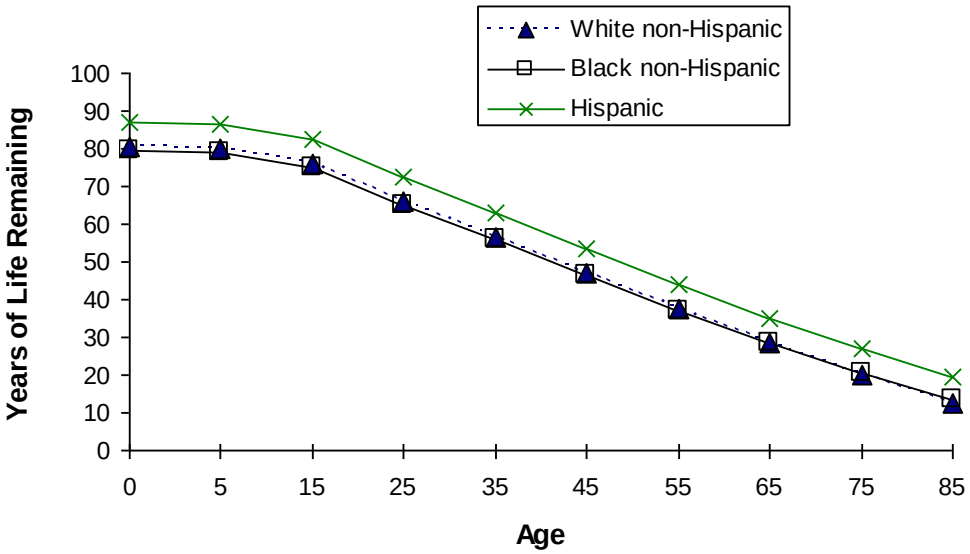
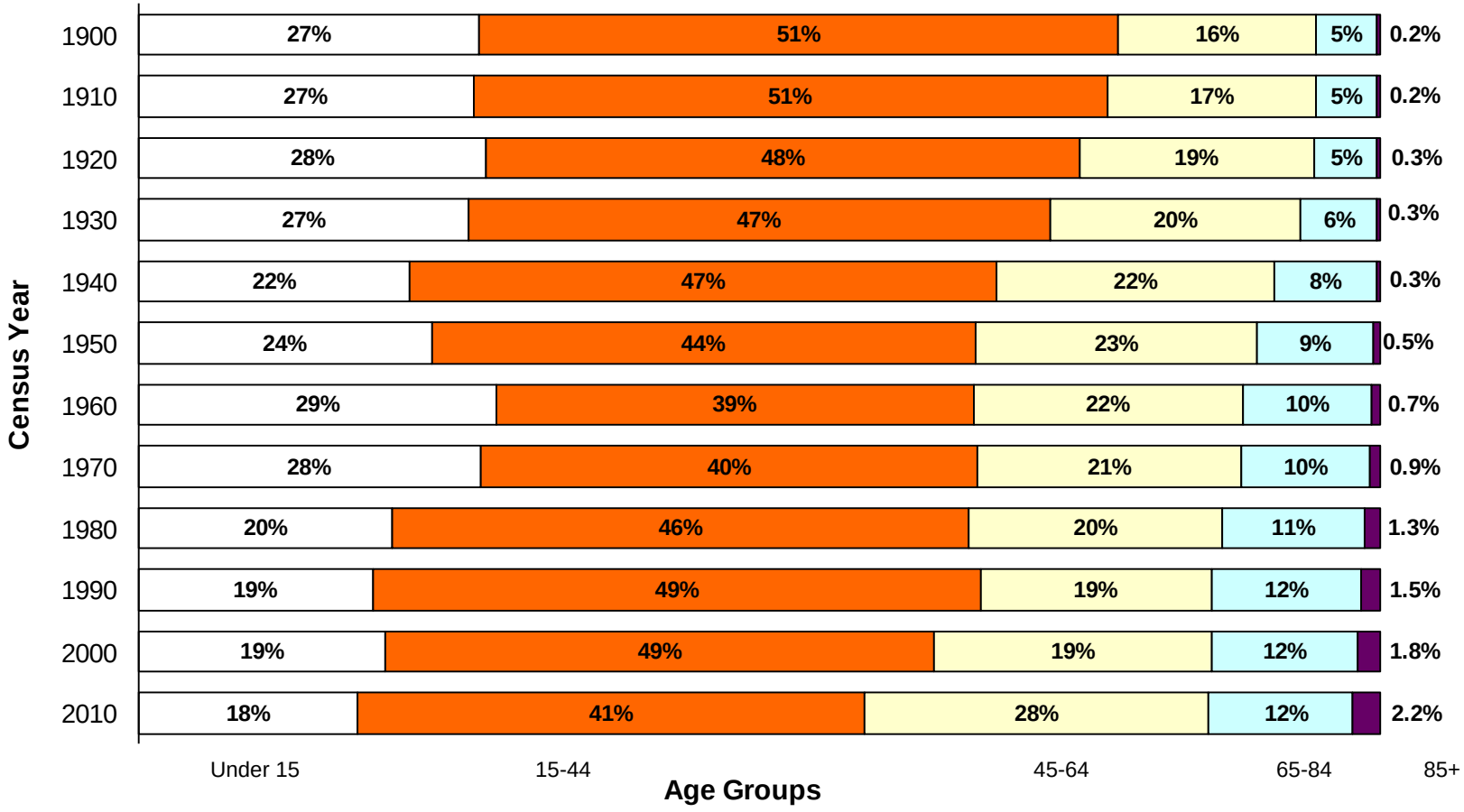


Table 3. Years of Life Remaining[1] by Race and Hispanic Ethnicity and Gender, Massachusetts: 2011

At Age:	All	Females	White non-Hispanic Females	Black non-Hispanic Females	Hispanic Females[2]	Males	White non-Hispanic Males	Black non-Hispanic Males	Hispanic Males[2]
Birth	80.8	83.1	82.9	81.6	89.6	78.4	78.2	76.9	83.9
1 year old	80.2	82.4	82.1	81.2	89.0	77.8	77.5	76.6	83.5
5 years old	76.2	78.4	78.1	77.3	85.1	73.8	73.6	72.7	79.6
15 years old	66.3	68.5	68.3	67.4	75.3	63.9	63.6	62.8	69.7
25 years old	56.6	58.7	58.4	57.7	65.5	54.3	54.0	53.6	60.2
35 years old	47.0	48.9	48.7	47.9	55.7	44.9	44.6	44.4	50.9
45 years old	37.6	39.3	39.1	38.5	46.2	35.6	35.3	35.1	41.6
55 years old	28.6	30.1	29.9	29.6	36.8	26.8	26.6	26.8	32.9
65 years old	20.2	21.4	21.2	21.4	28.0	18.7	18.5	19.1	25.1
75 years old	12.8	13.6	13.5	14.0	20.4	11.6	11.4	12.7	18.6
85 years old	7.2	7.7	7.6	8.1	15.9	6.4	6.2	7.7	15.1

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.
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). 2. Population estimates are from 2011 bridged population file, MARS (Modified Age, Race/Ethnicity, and Sex) file. 3. There are well-known difficulties in calculating accurate mortality rates for Massachusetts smaller populations such as Asians, Native Americans and Hispanics- please use caution.

Figure 3. Changes in Age Composition of the Population, Massachusetts: 1900-2010



Source: US Census Bureau 1900-1999. Resident death data for 2000 are calculated using the Massachusetts (Department of Public Health) Modified Age, Race/Ethnicity, & Sex Estimates 2000 (MMARS00), released October 2006. Population estimates for 2010 are from the NCHS Modified Age, Race/Ethnicity, & Sex Estimates 2009, released July, 2010.

Figure 4. Trends in Percentage of Deaths from Selected Causes, Massachusetts: 1842-2011

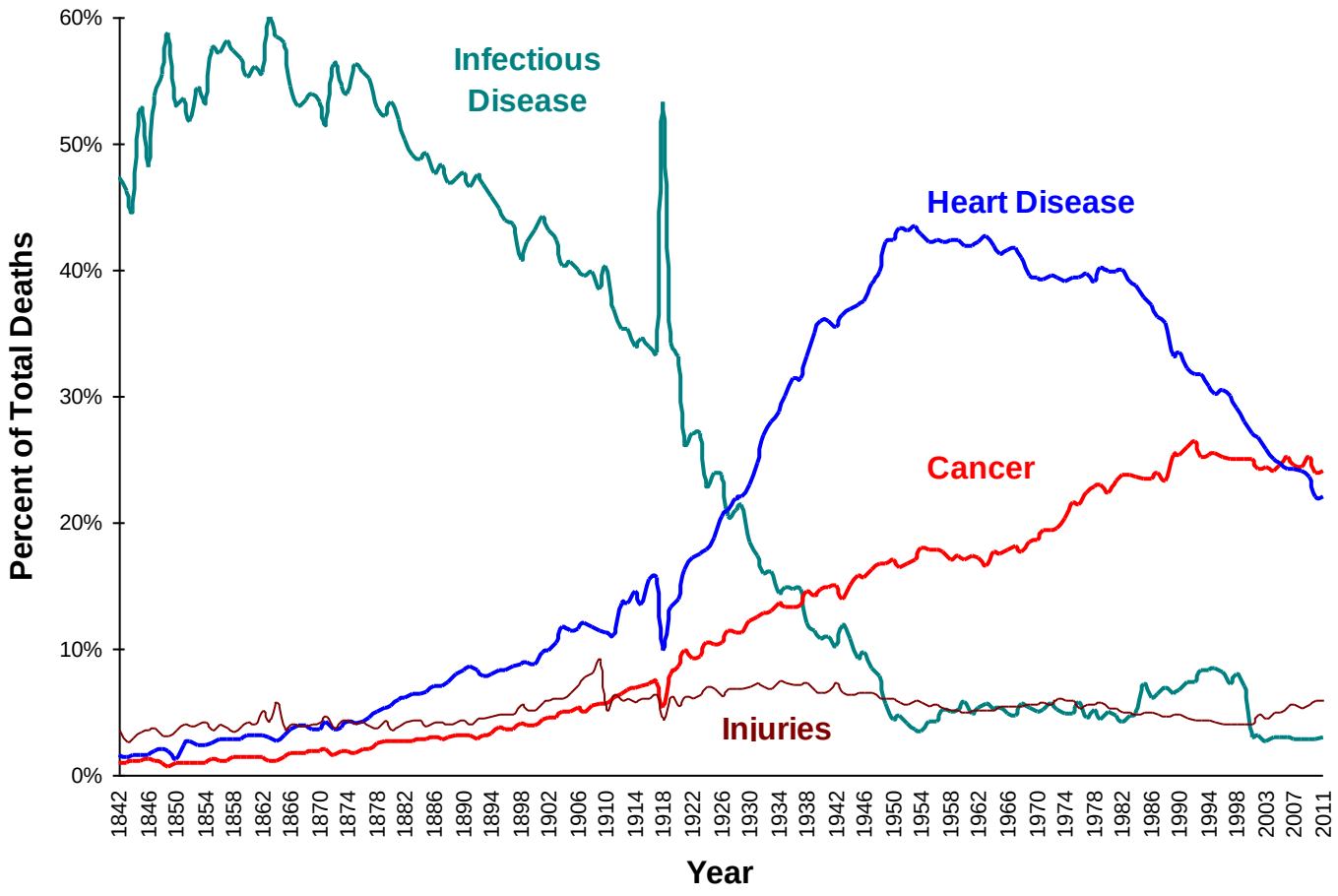
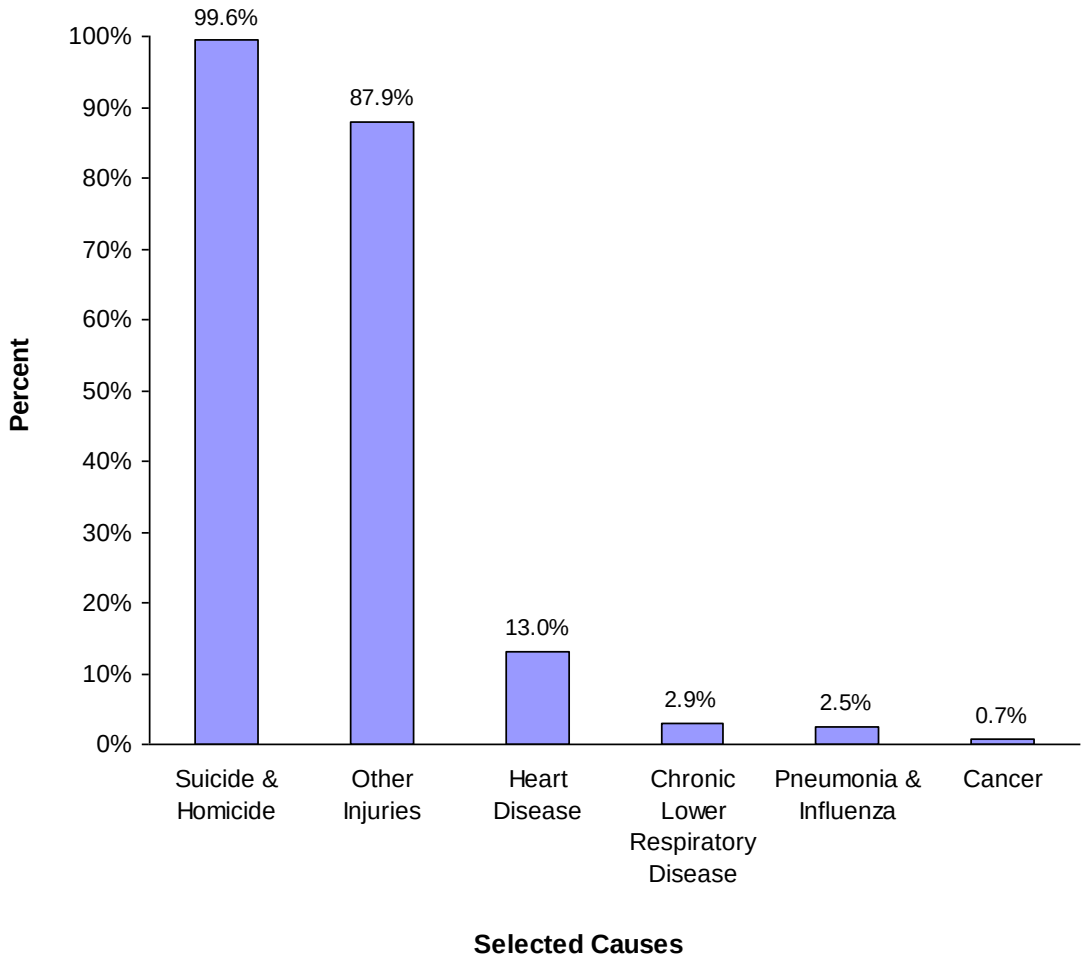


Table 4. Distribution of Deaths by Place of Occurrence, Massachusetts: 2007-2011

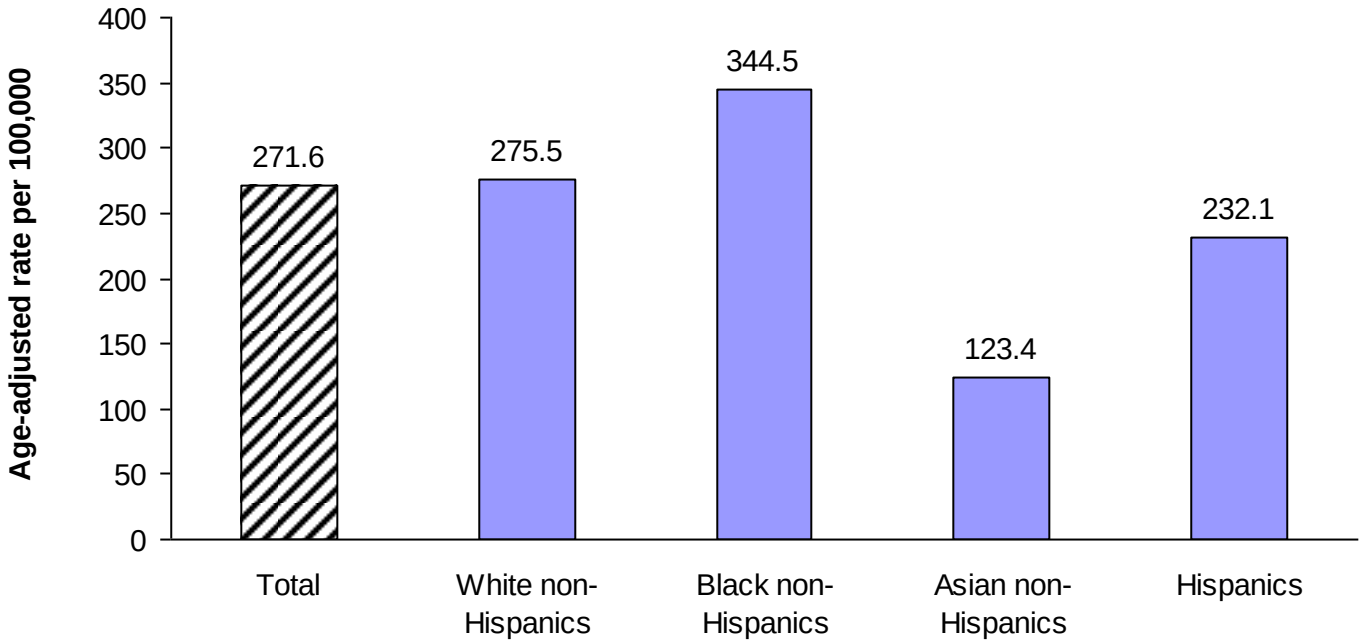
Type of Place where Death Occurred	2007		2008		2009		2010		2011	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Hospital (inpatient/outpatient)	22,097	42%	22,301	42%	21,197	41%	20,668	39%	20,511	38%
Dead on Arrival	613	1%	585	1%	504	1%	454	1%	525	1%
Nursing Home	15,924	30%	16,098	30%	15,185	29%	15,261	29%	15,870	30%
At Home	12,524	24%	12,490	23%	12,940	25%	13,481	26%	13,986	26%
Other	1,498	3%	1,820	3%	2,060	4%	2,545	5%	2,638	5%
Unknown	34	0.1%	47	0.1%	29	0.1%	11	0.02%	6	0.01 %

Figure 5. Proportion of Deaths Certified by Medical Examiner[1] for Selected Causes of Death, Massachusetts: 2011



Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.
1. 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: 2011

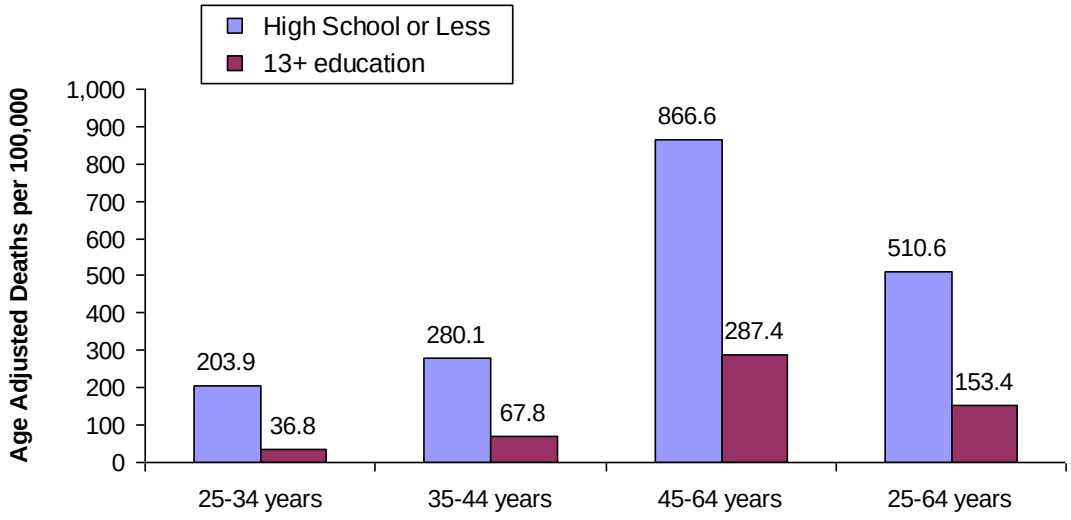


Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

1. Premature Mortality Rate is defined as deaths that occur before the age of 75 years per 100,000, age-adjusted to the 2000 US standard population under 75 years of age.

Table 5. Age-Adjusted Death Rates for Ages 25-64 Years by Educational Attainment, Massachusetts: 2011

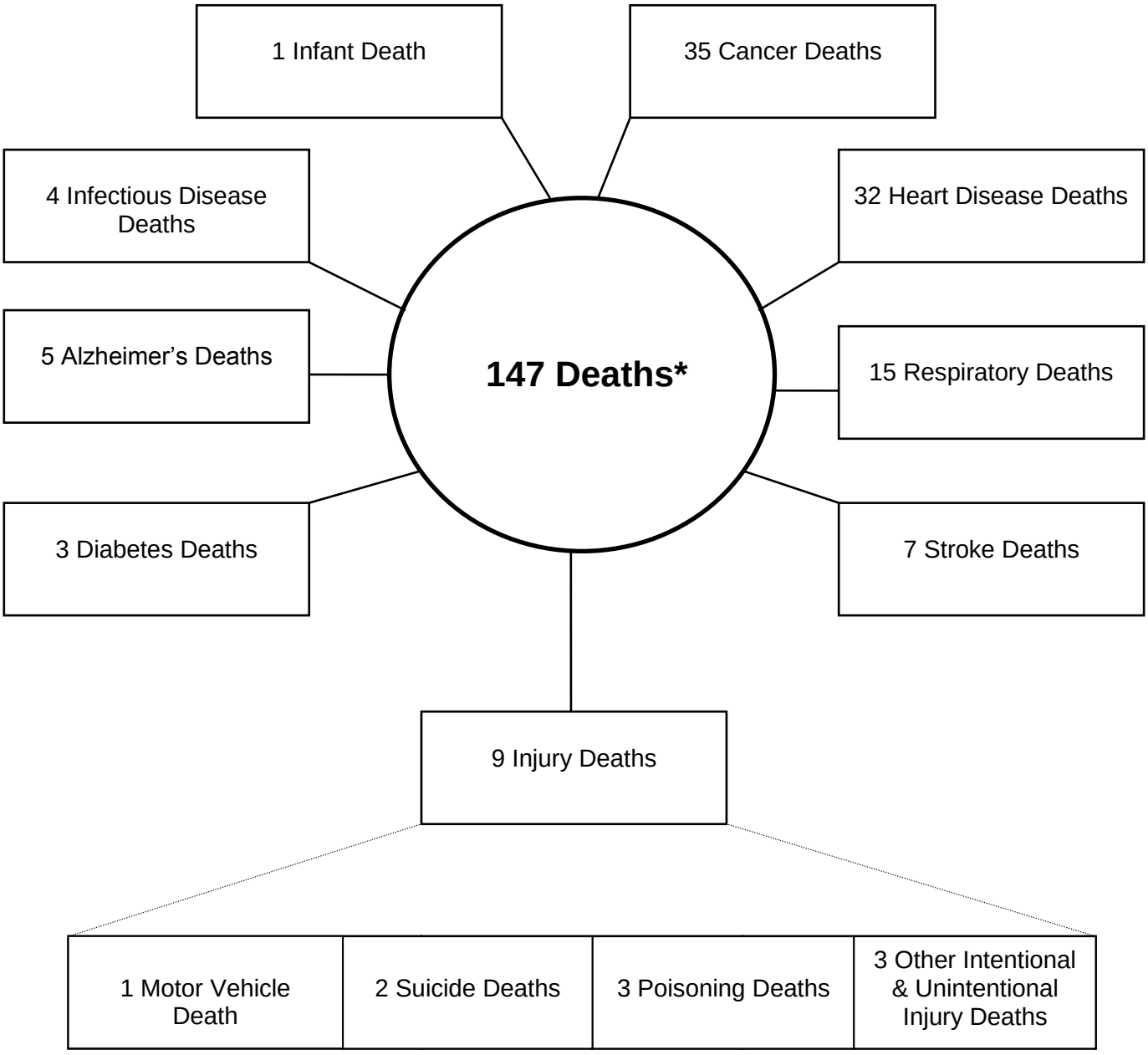
	Age-Specific Rates			Age-Adjusted Rates
	25-34 years	35-44 years	45-64 years	25-64 years
Years of school completed				
High school or less	203.9	280.1	866.6	**510.6**
13+ Education	36.8	67.8	287.4	**153.4**



Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.
Source: C15001: SEX BY AGE BY EDUCATIONAL ATTAINMENT FOR THE POPULATION 18 YEARS AND OVER - Universe: Population 18 Years And Over. 2009-2011 American Community Survey 3-Year Estimates.

Figure 7. Daily Mortality Statistics, Massachusetts: 2011

Every day in 2011, in Massachusetts there were on average:



*includes 36 deaths due to other causes. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 6. Top Ten Leading Underlying Causes of Death by Age, Massachusetts: 2011

	Age Groups (number of deaths)								
Rank[1]	**<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 and LBW (78)	Cancer (25)	Unintentional Injuries (183)	Unintentional Injuries (524)	Cancer (3240)	Cancer (2,948)	Cancer (3,654)	Heart Disease (5,635)	**Cancer (12,831)**
2	Congenital malformations (62)	Unintentional Injuries (16)	Homicide (79)	Cancer (291)	Heart Disease (1,605)	Heart Disease (1,438)	Heart Disease (2,911)	Cancer (2,640)	**Heart Disease (11,818)**
3	SIDS (22)	ill-defined conditions, signs, and symptoms(10)	Suicide (67)	Heart Disease (203)	Unintentional Injuries (551)	Chronic Lower Respiratory Disease (535)	Chronic Lower Respiratory Disease (902)	Stroke (1,283)	**Chronic Lower Respiratory Disease (2,666)**
4	Pregnancy Complications (20)	Congenital malformations (7)	Cancer (32)	Suicide (190)	Chronic Lower Respiratory Disease (306)	Stroke (262)	Stroke (695)	Alzheimer's Disease (1,268)	**Stroke (2,465)**
5	Complications of placenta (11)	Homicide (6)	Heart Disease (18)	Homicide (68)	Chronic liver disease (293)	Diabetes (239)	Alzheimer's Disease (446)	Chronic Lower Respiratory Disease (899)	**Unintentional Injuries (2,176)**
6	Bacterial sepsis of newborn (8)	Heart Disease (5)	ill-defined conditions, signs, and symptoms(15)	ill-defined conditions, signs, and symptoms(63)	Suicide (266)	Unintentional Injuries (171)	Nephritis (345)	Influenza & Pneumonia (831)	**Alzheimer's Disease (1,813)**
7	Neonatal hemorrhage (6)	Suicide (5)	Injuries of Undetermined Intent (7)	Chronic liver disease (48)	Diabetes (225)	Nephritis (160)	Influenza & Pneumonia (318)	Nephritis (578)	**Influenza & Pneumonia (1,416)**
8	Circulatory System (5)	in situ neoplasms (3)	Congenital malformations (6)	Stroke (29)	Stroke (194)	Septicemia (125)	Diabetes (309)	Unintentional Injuries (433)	**Nephritis (1,201)**
9	Respiratory distress (5)	Influenza & Pneumonia (3)	Other infectious diseases (4)	Diabetes (28)	ill-defined conditions, signs, and symptoms(130)	Influenza & Pneumonia (124)	Unintentional Injuries (296)	ill-defined conditions, signs, and symptoms(428)	**Diabetes (1,124)**
10	Labor complications (4)	Perinatal conditions (3)	Influenza & Pneumonia (4)	Injuries of Undetermined Intent (28)	Influenza & Pneumonia (112)	Chronic liver disease (100)	Parkinson's (234)	Diabetes (322)	**ill-defined conditions, signs, and symptoms (879)**
All Causes	**310**	**114**	**471**	**1,870**	**8,808**	**7,616**	**13,598**	**20,747**	**53,536**

1. Ranking based on number of deaths. The number of deaths is shown in parentheses.

Note: Injuries are subdivided into 4 separate categories by intent (unintentional, homicide, suicide) and injuries of undetermined intent (deaths where investigation has not determined whether injuries were accidental or purposely inflicted). **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 7. Leading Underlying Causes of Death, Numbers and Age-Specific Rates by Gender, Massachusetts: 2011

		Total		Female		Male	
Age	**Cause of death[1]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**
1-14 years	**TOTAL**	**114**	**10.6**	**55**	**10.4**	**59**	**13.0**
	Cancer	25	2.3	14	2.7	11	2.3
	Unintentional Injuries	16	1.5	6	1.1	10	1.8
	Ill Defined Conditions	10	0.9	6	1.1	4	--[5]
	Congenital Malformations	7	0.7	6	1.1	1	--[5]
15-24 years	**TOTAL**	**471**	**50.4**	**129**	**27.7**	**342**	**72.0**
	Unintentional Injuries	183	19.6	43	9.2	140	27.6
	Homicide	79	8.4	12	2.6	67	15.5
	Suicide	67	7.2	15	3.2	52	12.3
	Cancer	32	3.4	16	3.4	16	3.2
25-44 years	**TOTAL**	**1,870**	**107.9**	**642**	**72.8**	**1,228**	**143.1**
	Unintentional Injuries	524	30.2	131	14.9	393	41.9
	Cancer	291	16.8	156	17.7	135	15.5
	Heart Disease	203	11.7	51	5.8	152	20.0
	Suicide	190	11.0	52	5.9	138	18.0
45-64 years	**TOTAL**	**8,808**	**476.8**	**3,396**	**356.2**	**5,412**	**615.3**
	Cancer	3,240	175.4	1,517	159.1	1,723	196.6
	Heart Disease	1,605	86.9	415	43.5	1,190	135.3
	Unintentional Injuries	551	29.8	158	16.6	393	46.9
	Chronic Lower Respiratory Disease[3]	306	16.6	167	17.5	139	13.5
65+ years[4]	**TOTAL**	**41,961**	**4,551.6**	**23,631**	**4,417.9**	**18,330**	**4,736.4**
	Heart Disease	9,984	1,083.0	5,346	999.5	4,638	1,198.4
	Cancer	9,242	1,002.5	4,609	861.7	4,633	1,197.2
	Chronic Lower Respiratory Disease[3]	2,336	253.4	1,342	250.9	994	256.8
	Stroke	2,240	243.0	1,441	269.4	799	206.5

1. Cause of Death classified using ICD-10 ranked based on number of deaths for all persons at specific age group. See Appendix for a list of 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 8 for leading causes of death for detailed age groups for persons ages 65+ years. 5. Calculations based on values 1-4 are excluded.

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

Table 8. Leading Underlying Causes of Death, Numbers and Age-Specific Rates (Ages 65 and older) by Gender, Massachusetts: 2011

		Total		Female		Male	
Age	**Cause of death[1]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**
65-74 years	**TOTAL**	**7,616**	**1,608.5**	**3,366**	**1,313.6**	**4,250**	**1,980.7**
	Cancer	2,948	622.6	1,347	525.7	1,601	751.5
	Heart Disease	1,438	303.7	489	190.8	949	436.1
	Chronic Lower Respiratory Disease[3]	535	113.0	286	111.6	249	101.0
	Stroke	262	55.3	136	53.1	126	53.6
75-84 years	**TOTAL**	**13,598**	**4,558.1**	**6,909**	**3,931.4**	**6,689**	**5,569.8**
	Cancer	3,654	1,224.8	1,806	1,027.7	1,848	1,595.3
	Heart Disease	2,911	975.8	1,349	767.6	1,562	1,303.0
	Chronic Lower Respiratory Disease[3]	902	302.4	495	281.7	407	284.9
	Stroke	695	233.0	395	224.8	300	237.6
85+ years	**TOTAL**	**20,747**	**13,824.1**	**13,356**	**12,979.0**	**7,391**	**15,249.3**
	Heart Disease	5,635	3,754.7	3,508	3,409.0	2,127	4,513.0
	Cancer	2,640	1,759.1	1,456	1,414.9	1,184	2,589.7
	Stroke	1,283	854.9	910	884.3	373	817.3
	Alzheimer's Disease	1,268	844.9	988	960.1	280	548.6

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

1. Cause of Death classified according to ICD-10 ranked based on number of deaths for all persons at specific age group. See Appendix for a list of-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 9. Leading Causes of Death[1] and Age-Adjusted Death Rates by Race and Hispanic Ethnicity, Massachusetts: 2011

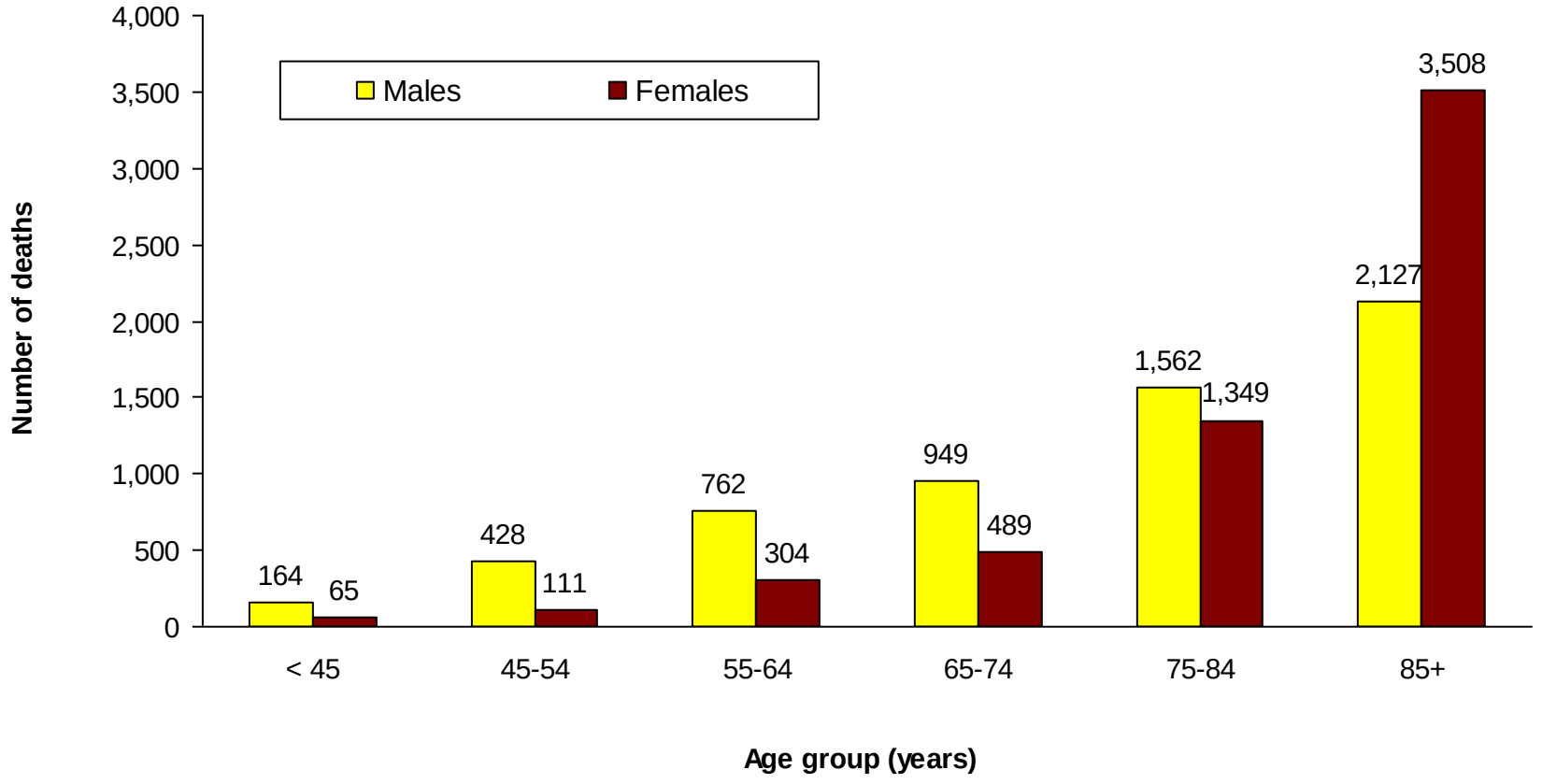
White non-Hispanic[2]			Black non-Hispanic[2]			Asian non-Hispanic[2]			Hispanic		
Cause[3]	**#**	**Rate[4]**	**Cause**	**#**	**Rate**	**Cause**	**#**	**Rate**	**Cause**	**#**	**Rate**
Total	**48,844**	**686.9**	**Total**	**2,333**	**707.6**	**Total**	**806**	**375.2**	**Total**	**1,477**	**468.9**
Cancer	11,658	170.4	Cancer	588	178.0	Cancer	258	107.3	Cancer	310	101.1
Heart Disease	10,978	148.0	Heart Disease	456	143.7	Heart Disease	134	67.5	Heart Disease	233	89.7
Chronic Lower Respiratory Disease[5]	2,547	36.1	Unintentional Injuries	112	27.5	Stroke	46	24.2	Unintentional Injuries	118	23.2
Stroke	2,257	30.2	Stroke	99	32.0	Unintentional Injuries	30	13.3	Stroke	60	23.1
Unintentional Injuries	1,909	32.1	Diabetes	90	29.1	Alzheimer's Disease	26	16.2	Diabetes	58	22.6
Alzheimer's Disease	1,730	21.8	Homicide	76	14.9	Nephritis	24	13.1	Homicide	53	6.7
Influenza & Pneumonia	1,325	17.3	Nephritis	73	24.2	Influenza & Pneumonia	22	11.3	Nephritis	46	17.3
Nephritis	1,056	14.2	Chronic Lower Respiratory Disease[5]	57	18.9	Chronic Lower Respiratory Disease[5]	22	11.3	Perinatal conditions	44	4.8
Diabetes	958	13.7	ill-defined conditions-signs and symptoms	51	14.7	Perinatal conditions	16	4.1	Chronic Lower Respiratory Disease[5]	38	15.9
ill-defined conditions-signs and symptoms	777	11.0	Septicemia	47	14.7	ill-defined conditions-signs and symptoms	16	6.4	Chronic liver disease	38	10.9

Total

Cause	#	Rate
Total	**53,536**	**674.0**
Cancer	12,831	166.1
Heart Disease	11,818	144.4
Chronic Lower Respiratory Disease[5]	2,666	34.1
Stroke	2,465	30.2
Unintentional Injuries	2,176	30.0
Alzheimer's Disease	1,813	21.1
Influenza & Pneumonia	1,416	16.9
Nephritis	1,201	14.8
Diabetes	1,124	14.4
ill-defined conditions-signs and symptoms	879	11.0

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 the Technical Notes in the Appendix for a more detailed explanation. 3. Underlying Cause of Death based on ICD-10 (Please see Appendix for a 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. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

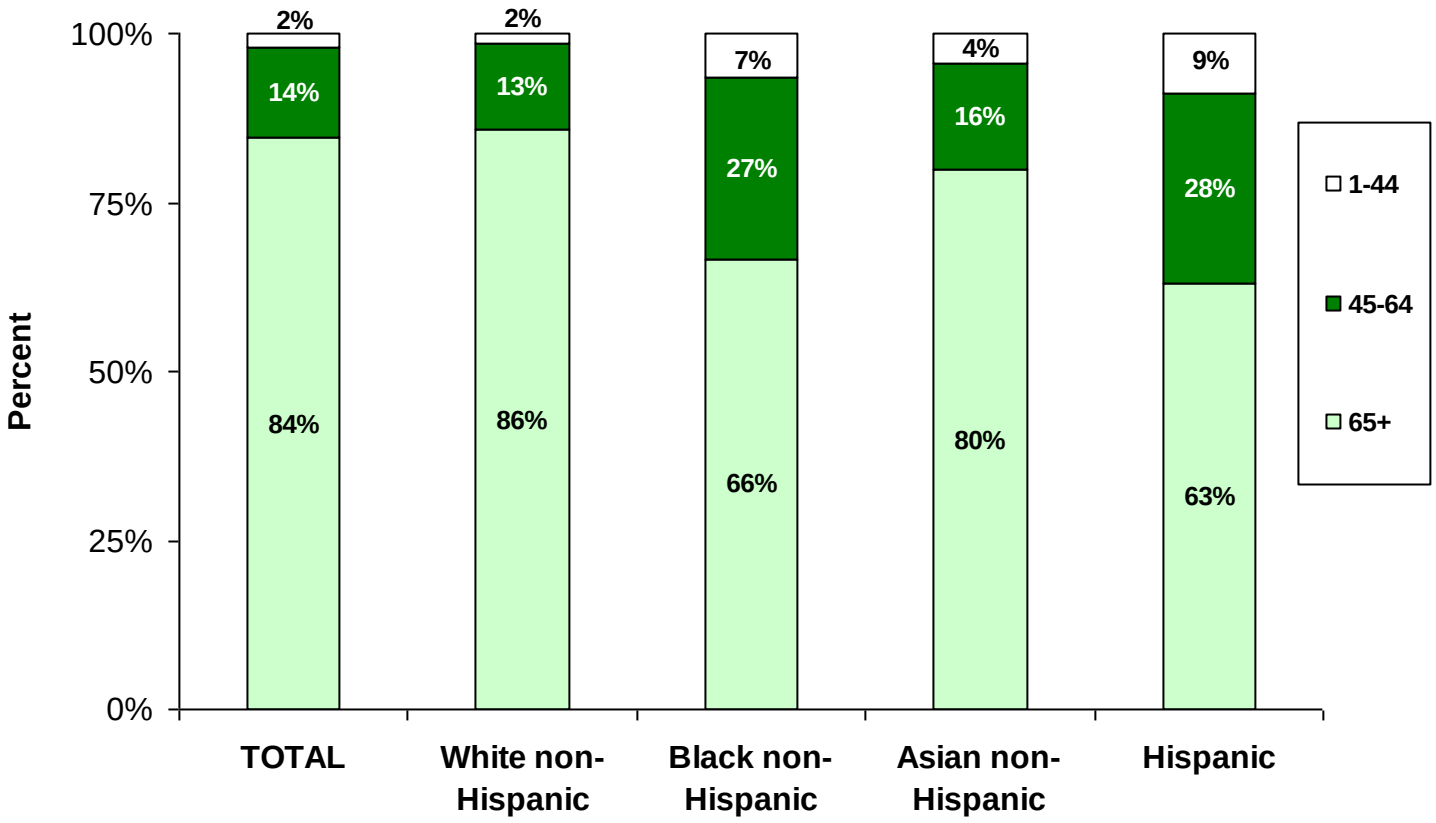
Figure 8. Number of Heart Disease[1] Deaths by Age Group and Gender, Massachusetts: 2011



1. **ICD-10:** I00-I09, I11, I13, I20-I51.

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

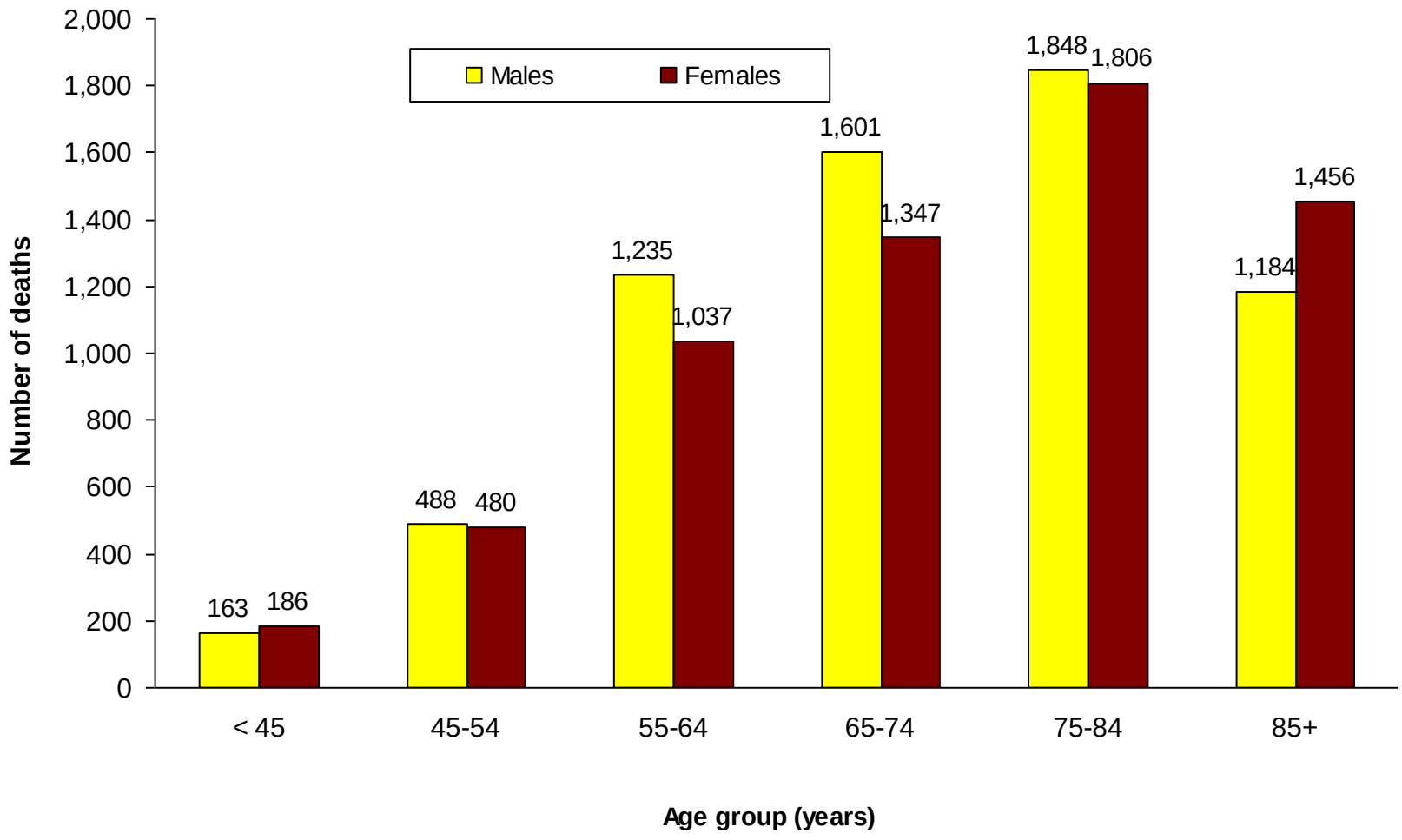
Figure 9. Age Distribution by Race and Ethnicity for Heart Disease[1] Deaths, Massachusetts: 2011



1. **ICD-10:** I00-I09, I11, I13, I20-I51.

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

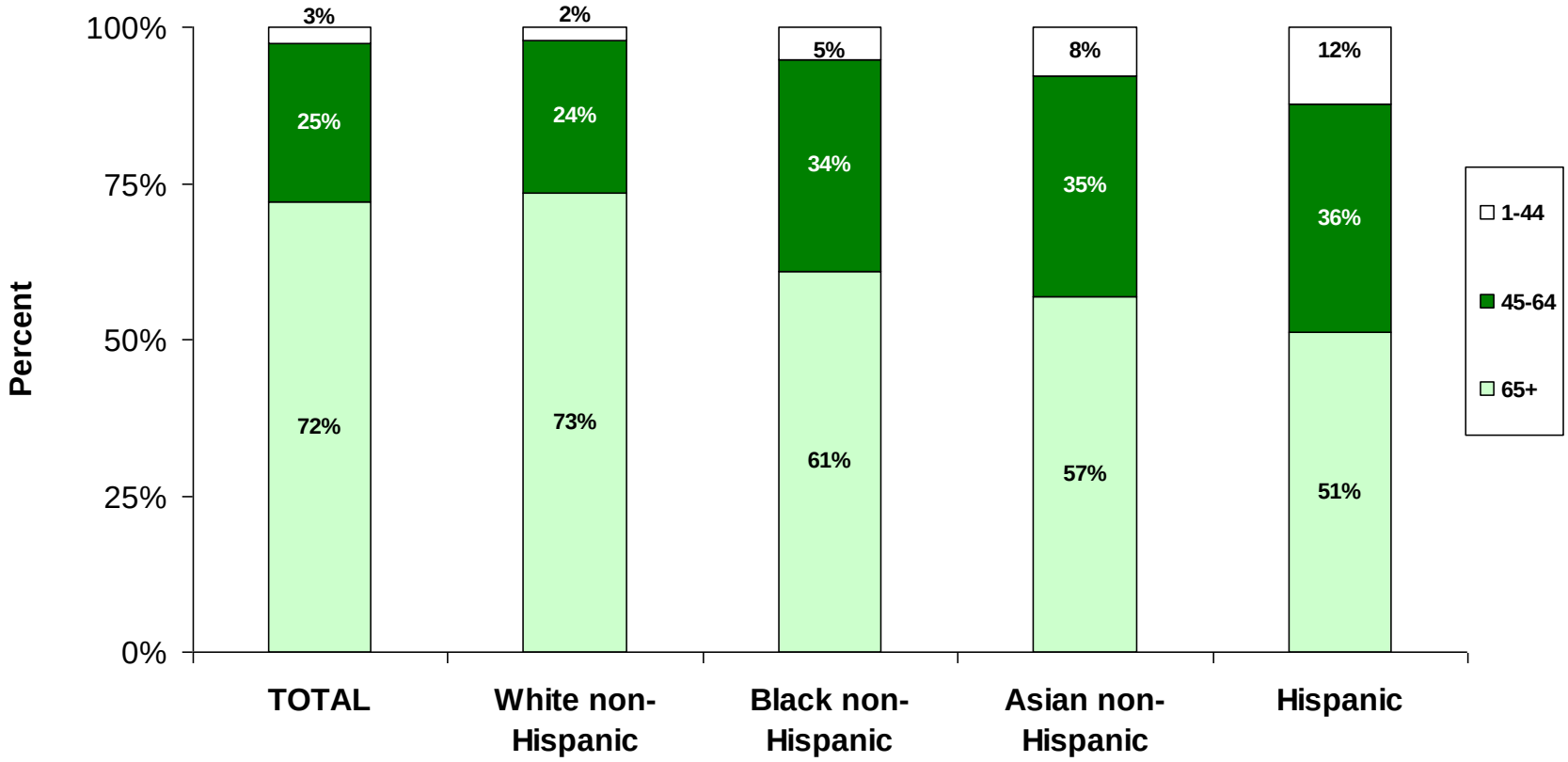
Figure 10. Number of Cancer[1] Deaths by Age Group and Gender, Massachusetts: 2011



1. **ICD-10:** C00-C97.

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

Figure 11. Age Distribution by Race and Ethnicity for Cancer[1] Deaths, Massachusetts: 2011



1. **ICD-10:** C00-C97.

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

Table 10. Heart Disease and Cancer Deaths by Race and Gender, Age-Adjusted Rates, Massachusetts: 2000-2011

Heart Disease[1]

Year	White non-Hispanic[2] Male	White non-Hispanic[2] Female	White non-Hispanic[2] Total	Black non-Hispanic[2] Male	Black non-Hispanic[2] Female	Black non-Hispanic[2] Total
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
2005	220.6	139.1	174.9	233.7	174.5	199.8
2006	216.5	138.8	172.2	222.3	127.6	165.3
2007	216.2	134.2	168.5	233.5	142.7	180.8
2008	217.1	133.1	167.9	226.7	151.7	181.7
2009	211.3	122.6	158.4	217.3	157.3	181.6
2010	197.5	119.6	152.9	222.3	119.4	159.7
2011	196.0	113.0	148.0	185.6	114.1	143.7

Year	Asian non-Hispanic[2] Male	Asian non-Hispanic[2] Female	Asian non-Hispanic[2] Total	Hispanic Male	Hispanic Female	Hispanic Total
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
2005	77.5	48.2	61.3	118.5	83.7	99.2
2006	73.6	70.0	72.8	124.2	84.9	102.3
2007	83.3	52.9	67.4	124.9	61.8	88.3
2008	86.0	51.7	66.3	93.2	66.1	78.3
2009	69.6	51.3	60.1	111.6	62.7	83.8
2010	64.8	50.4	57.1	90.8	66.8	76.9
2011	74.1	61.0	67.5	114.9	72.0	89.7

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 the Technical Notes in the Appendix for a more detailed explanation. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 10 (continued). Heart Disease and Cancer Deaths by Race and Gender, Age-Adjusted Rates, Massachusetts: 2000-2011

Cancer[1]

	White non-Hispanic[2]			Black non-Hispanic[2]		
Year	Male	Female	Total	Male	Female	Total
2000	258.7	179.0	209.0	348.1	167.4	237.8
2001	249.2	175.8	203.5	264.7	176.4	212.1
2002	245.7	175.3	202.2	293.5	179.5	224.3
2003	237.1	169.4	195.7	304.5	199.0	238.7
2004	230.4	168.4	192.5	277.6	155.7	200.1
2005	226.1	163.2	188.1	264.2	168.1	204.1
2006	234.9	161.5	190.0	265.6	180.9	212.4
2007	226.0	156.5	183.2	270.7	159.7	201.7
2008	221.4	154.8	180.6	255.0	163.7	197.9
2009	212.7	157.0	177.7	244.7	164.7	193.1
2010	211.9	150.8	174.9	244.0	131.3	174.3
2011	206.5	145.9	170.4	209.9	162.3	178.0

	Asian non-Hispanic[2]			Hispanic		
Year	Male	Female	Total	Male	Female	Total
2000	104.7	92.1	99.0	151.9	104.5	123.8
2001	98.3	105.6	103.1	142.9	97.4	116.4
2002	145.8	90.0	114.3	144.3	103.3	120.6
2003	134.6	87.4	109.3	110.0	76.6	90.0
2004	109.5	79.7	93.1	125.6	82.5	100.4
2005	138.9	79.5	106.1	118.2	97.3	105.7
2006	126.0	91.7	107.2	119.9	74.3	93.7
2007	124.4	76.4	98.4	125.0	90.0	104.7
2008	132.1	89.3	109.0	141.2	83.1	107.8
2009	123.2	71.0	94.3	129.9	98.2	111.8
2010	128.0	98.1	111.8	129.9	87.2	103.9
2011	127.1	92.6	107.3	125.6	84.0	101.1

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 the Technical Notes in the Appendix for a more detailed explanation. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 11. Number and Age-Adjusted Rates of Cancer Deaths by Selected Causes and Gender, Massachusetts: 2011

Cause of Death[1]	ICD-10 Code	Total		Female		Male	
		#	Rate[2,3]	#	Rate	#	Rate
Total Cancer Deaths	**C00-C97**	**12,831**	**166.1**	**6,312**	**142.5**	**6,519**	**201.2**
Bladder	C67	380	4.8	121	2.5	259	8.3
Brain and nervous system	C70-C72	324	4.3	147	3.6	177	5.1
Cervix	C53	64	1.5	64	1.5	NA	NA
Colorectal	C18-C21	1,037	13.3	510	10.9	527	16.4
Esophagus	C15	387	4.9	69	1.6	318	9.4
Female breast	C50[4]	851	19.4	851	19.4	NA	NA
Hodgkin disease	C81	20	0.3	12	0.3	8	0.3
Kidney and other urinary organs	C64, C65	251	3.3	108	2.4	143	4.4
Leukemia	C91-C95	510	6.7	221	5.0	289	9.3
Lung	C33, C34	3,402	44.7	1,670	38.8	1,732	53.0
Melanoma of the skin	C43	212	2.8	81	1.9	131	4.0
Multiple myeloma	C88, C90	276	3.6	133	2.9	143	4.5
Non-Hodgkin lymphoma	C82-C85	448	5.8	200	4.3	248	7.9
Ovary	C56	366	8.5	366	8.5	NA	NA
Pancreas	C25	894	11.5	466	10.2	428	13.1
Prostate	C61	592	19.4	NA	NA	592	19.4
Stomach	C16	233	3.0	100	2.2	133	4.1
Uterus	C54, C55	215	4.9	215	4.9	NA	NA
All other cancers	Residual	2,369	30.5	978	21.7	1,391	42.0

1. Common terms are used to describe the causes of cancer deaths. For detailed terminology of cancer sites, please see the 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 codes 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. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 12. Selected Causes of Cancer Deaths by Age, Massachusetts: 2011

Age	Cause of death[1]	ICD-10 Code	Number	Age-specific rate[2]
1-14 years	**Total**		**25**	**2.3**
	Brain and nervous system	C70-C72	7	0.7
	Leukemia	C91-C95	6	0.6
	Kidney and other urinary organs	C64, C65	1	--[3]
15-24 years	**Total**		**32**	**3.4**
	Leukemia	C91-C95	5	0.5
	Brain and nervous system	C70-C72	4	--[3]
	Non-Hodgkin's lymphoma	C82-C85	2	--[3]
	Stomach	C16	1	--[3]
25-44 years	**Total**		**291**	**16.8**
	Female breast[4]	C50	45	5.1
	Colorectal	C18-C21	31	1.8
	Brain and nervous system	C70-C72	29	1.7
	Lung	C33, C34	27	1.6
45- 64 years	**Total**		**3,240**	**175.4**
	Lung	C33, C34	885	47.9
	Female breast[4]	C50	298	31.3
	Colorectal	C18-C21	240	13.0
	Pancreas	C25	202	10.9
65+ years	**Total**		**9,242**	**1,002.5**
	Lung	C33, C34	2,490	270.1
	Colorectal	C18-C21	765	83.0
	Pancreas	C25	679	73.7
	Prostate[5]	C61	543	140.3
65-74 years	**Total**		**2,948**	**622.6**
	Lung	C33, C34	914	193.0
	Pancreas	C25	226	47.7
	Colorectal	C18-C21	189	39.9
	Female breast[4]	C50	151	58.9
75-84 years	**Total**		**3,654**	**1,224.8**
	Lung	C33, C34	1,112	372.8
	Colorectal	C18-C21	283	94.9
	Pancreas	C25	251	84.1
	Prostate[5]	C61	195	159.1
85+ years	**Total**		**2,640**	**1,759.1**
	Lung	C33, C34	464	309.2
	Colorectal	C18-C21	293	195.2
	Prostate[5]	C61	244	517.2
	Pancreas	C25	202	134.6

1. Common terms are used to describe causes of cancer death. For detailed terminology, please see 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. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 13. Leading Causes of Cancer Deaths and Age-Adjusted Rates by Race and Hispanic Ethnicity, Massachusetts: 2011

White non-Hispanic[1]			Black non-Hispanic[1]			Asian non-Hispanic[1]			Hispanic		
Cause[2]	**#**	**Rate[3]**	**Cause**	**#**	**Rate[3]**	**Cause**	**#**	**Rate**	**Cause**	**#**	**Rate[3]**
Lung	3,156	46.8	Lung	135	41.7	Lung	58	25.0	Lung	51	17.9
Colorectal	913	13.1	Colorectal	67	19.9	Colorectal	27	11.3	Colorectal	30	10.4
Pancreas	821	11.9	Female Breast[4]	52	25.5	Pancreas	17	8.5	Pancreas	17	4.7
Female Breast[4]	765	20.0	Prostate[5]	40	38.6	Female Breast[4]	16	10.0	Female Breast[4]	16	7.4
Prostate[5]	536	19.3	Pancreas	37	11.7	Stomach	13	5.1	Stomach	15	4.1
Total Cancer	**11,658**	**170.4**	**Total Cancer**	**588**	**178.0**	**Total Cancer**	**258**	**107.3**	**Total Cancer**	**310**	**101.1**

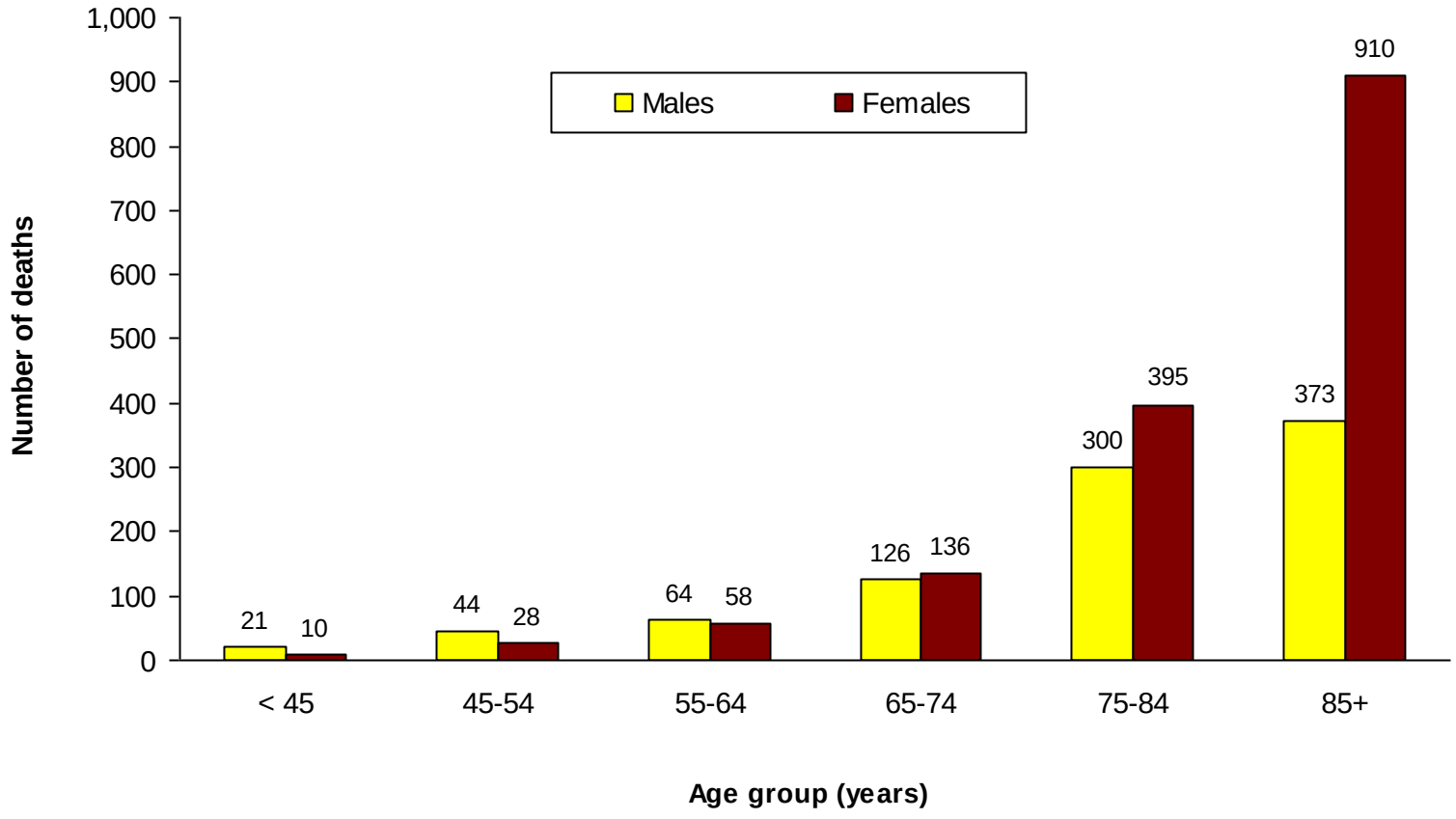
1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the Technical Notes in the Appendix for a more detailed explanation. 2. ICD-10 codes used. Please see the ICD-10 codes listing in the 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. 4. Calculation based on female population. 5. Calculation based on male population. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 14. Number, Percent, and Age-Adjusted Rates of Stroke Deaths by Type and Gender, Massachusetts: 2011

Cause of Death	ICD-10 Code	Total			Female			Male		
		#	%	Rate[1]	#	%	Rate[1]	#	%	Rate[1]
Total Stroke Deaths	**I60-I69**	**2,465**	**100%**	**30.2**	**1,537**	**100%**	**29.5**	**928**	**100%**	**30.4**
Subarachnoid hemorrhage	I60	95	3.9%	1.2	61	4.0%	1.4	34	3.7%	1.0
Intracerebral and other intracranial hemorrhage	I61-I62	511	20.7%	6.6	266	17.3%	5.7	245	26.4%	7.9
Cerebral infarction	I63	185	7.5%	2.3	127	8.3%	2.5	58	6.3%	1.8
Stroke, not specified	I64	1,224	49.7%	14.7	802	52.2%	14.8	422	45.5%	14.0
Other	I67, I69	450	18.3%	5.4	281	18.3%	5.1	169	18.2%	5.7

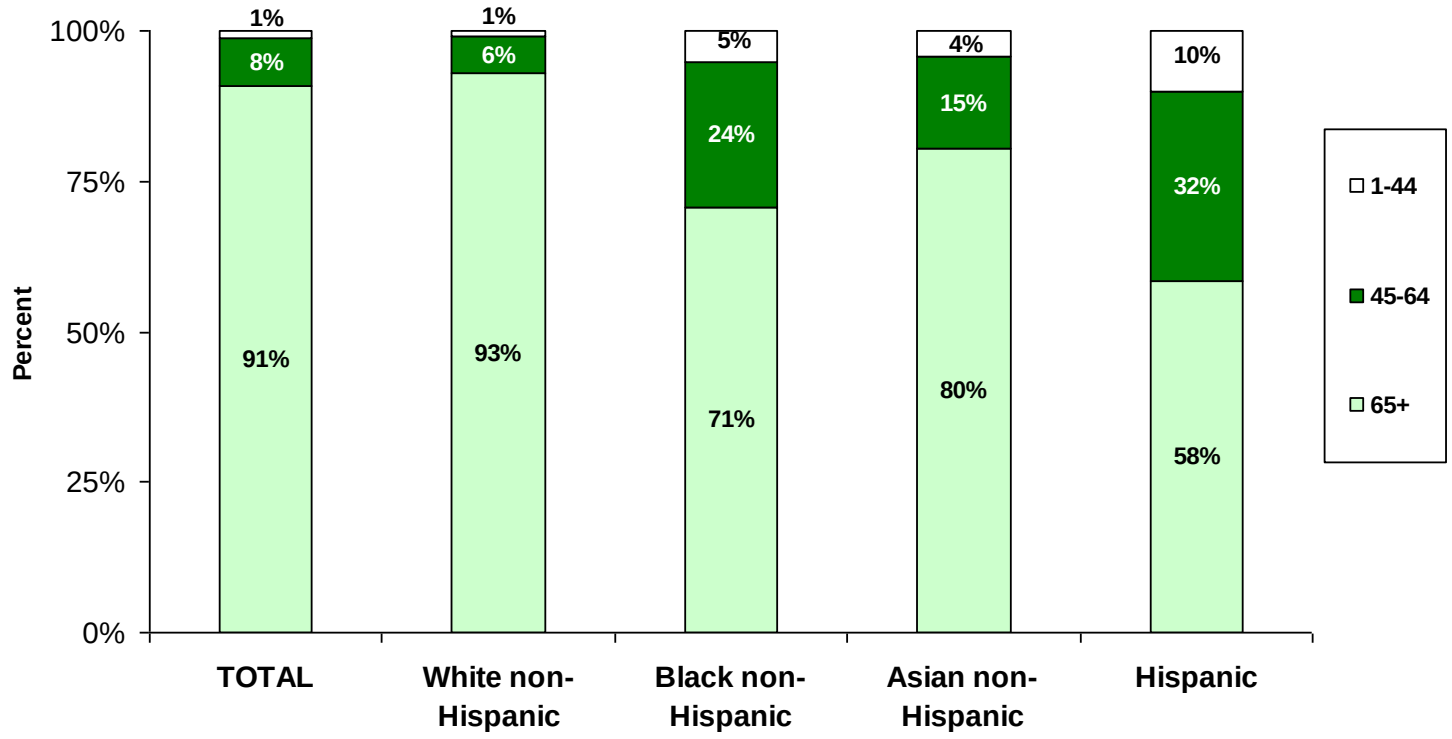
1. All rates are age-adjusted to the 2000 US Standard Population. Rates are per 100,000 population. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Figure 12. Number of Stroke[1] Deaths by Age Group and Gender, Massachusetts: 2011



1. **ICD-10:** I60-I69. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Figure 13. Age Distribution by Race and Ethnicity for Stroke[1] Deaths, Massachusetts: 2011



1. **ICD-10:** I60-I69. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

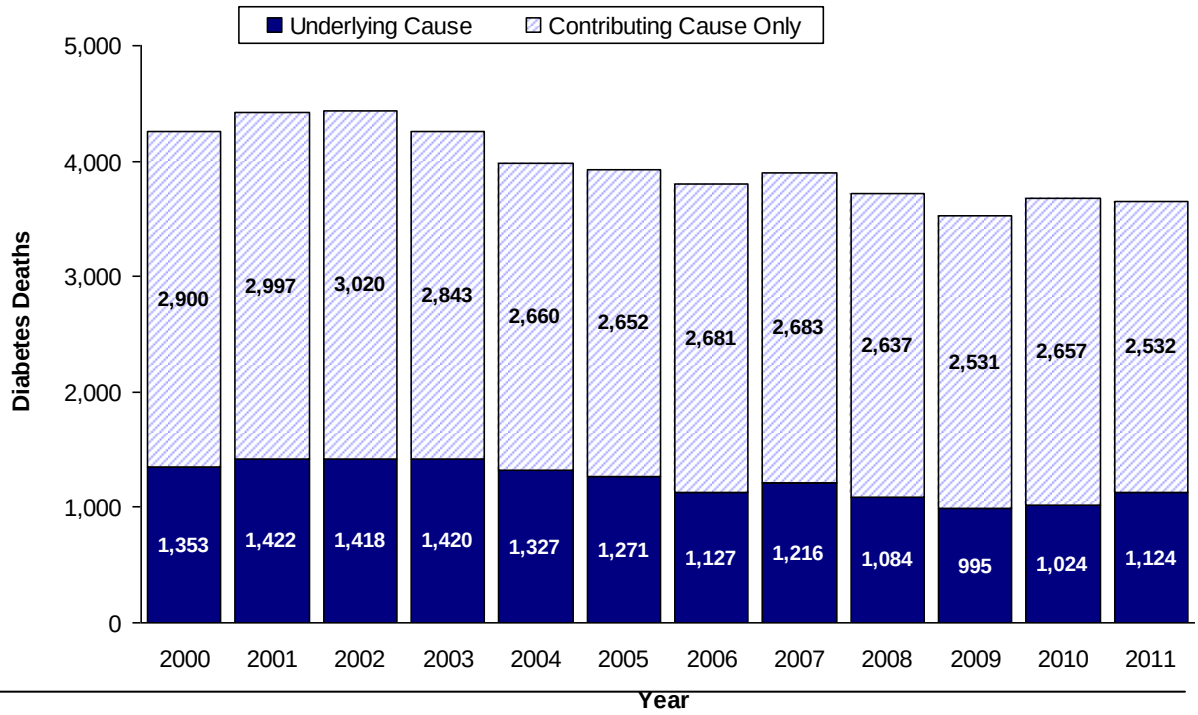
Table 15. Stroke Deaths by Race and Gender, Age-Adjusted Rates[1], Massachusetts: 2000-2011

	White non-Hispanic[2]			Black non-Hispanic[2]		
Year	Male	Female	Total	Male	Female	Total
2000	48.8	50.6	50.5	65.3	56.4	60.8
2001	51.5	46.0	48.5	50.8	61.5	59.3
2002	50.2	45.7	47.9	57.9	60.2	59.5
2003	44.7	43.9	44.7	45.9	54.9	52.7
2004	42.8	40.4	41.9	52.1	58.3	56.2
2005	37.7	37.3	37.9	50.6	44.9	47.5
2006	37.5	35.6	36.7	57.6	51.9	54.5
2007	35.4	34.0	34.8	34.4	36.4	35.6
2008	33.1	33.4	33.6	53.5	40.7	45.5
2009	31.7	31.7	32.0	51.7	36.0	42.7
2010	30.5	30.1	30.5	46.2	39.9	42.9
2011	30.4	29.6	30.2	34.4	29.8	32.0

	Asian non-Hispanic[2]			Hispanic		
Year	Male	Female	Total	Male	Female	Total
2000	50.9	49.4	50.4	40.6	47.1	45.0
2001	23.8	38.0	32.0	39.4	28.5	33.2
2002	21.2	28.7	25.6	49.6	30.2	38.3
2003	39.3	28.7	33.4	44.3	36.0	39.3
2004	35.2	32.7	34.1	39.7	32.6	35.5
2005	28.2	27.5	28.1	33.2	24.5	28.2
2006	34.5	41.9	39.2	26.5	29.6	28.8
2007	26.7	29.5	28.4	32.0	26.7	28.9
2008	23.4	27.1	25.6	23.9	18.4	21.1
2009	38.1	22.0	28.1	23.9	16.7	19.9
2010	35.2	27.0	30.8	31.1	22.1	26.0
2011	21.3	25.5	24.2	22.0	23.3	23.1

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 the Technical Notes in the Appendix for a more detailed explanation. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Figure 14. Diabetes[1] Deaths, Massachusetts: 2000-2011



1. **ICD-10:** E10-E14. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 16. Diabetes[1] Deaths by Gender, Massachusetts: 2011

	Proportion of all deaths (%)			Number		
Cause of death	Males	Females	Total	Males	Females	Total
Underlying	2.3%	1.9%	2.1%	582	542	1,124
Contributing/Associated	5.1%	4.4%	4.7%	1,303	1,229	2,532
Total diabetes-related	7.4%	6.3%	6.8%	1,885	1,771	3,656
Total deaths (all causes)	***100***	***100***	***100***	***25,553***	***27,983***	***53,536***

1. **ICD-10:** E10-E14. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

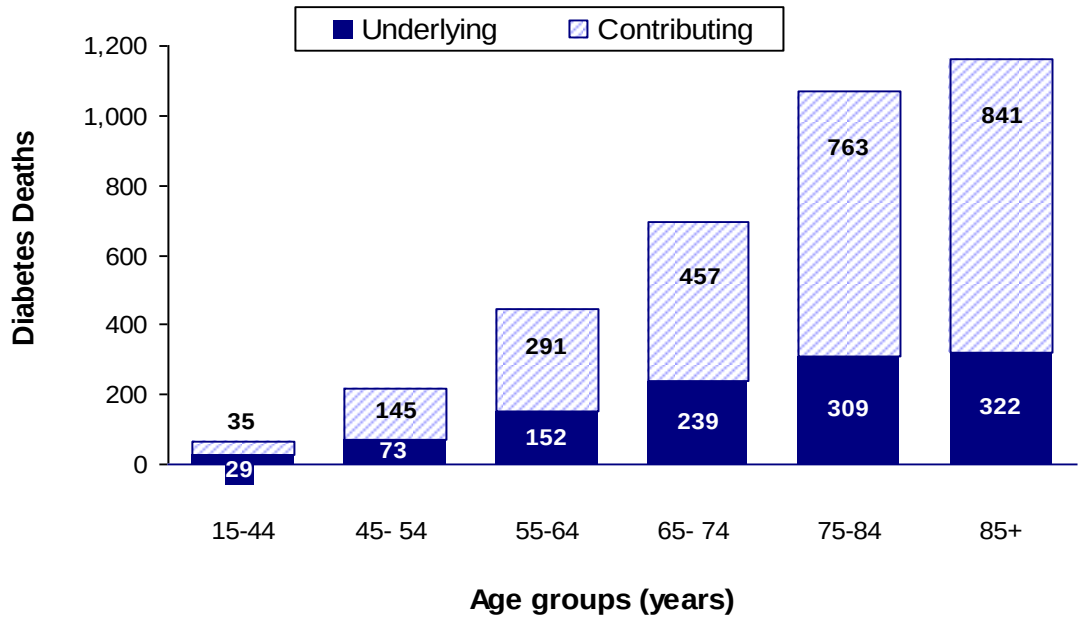
Table 17. Diabetes[1] Deaths by Race and Hispanic Ethnicity, Massachusetts: 2011

Cause of death	Race/Hispanic Ethnicity				
	White non-Hispanic	Black non-Hispanic	Hispanic	Asian non-Hispanic	Total
	Number				
Underlying	958	90	58	15	1,124
Contributing/Associated	2,199	170	113	47	2,532
Total diabetes-related	3,157	260	171	62	3,656
Total deaths (all causes)	***48,844***	***2,333***	***1,477***	***806***	***53,536***
	Proportion of all deaths (%)				
Underlying	2.0	3.9	3.9	1.9	2.1
Contributing/Associated	4.5	7.3	7.7	5.8	4.7
Total diabetes-related	***6.5***	***11.1***	***11.6***	***7.7***	***6.8***
	Death Rates[2]				
Underlying	13.7	29.1	22.6	7.1	*14.4*
Contributing/Associated	31.0	53.1	43.7	23.9	*32.1*
Total diabetes-related	***44.7***	***82.2***	***66.4***	***31***	***46.5***

1. **ICD-10:** E10-E14
2. Rates are per 100,000 age-adjusted to the 2000 U.S. standard population

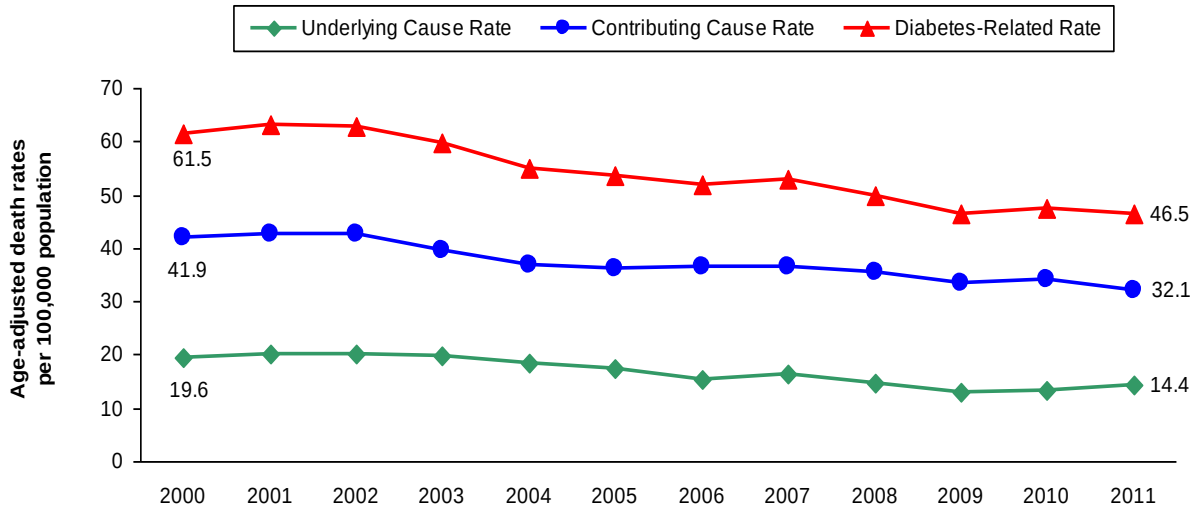
Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

Figure 15. Age Distribution of Diabetes[1] Deaths, Massachusetts: 2011



1. **ICD-10:** E10-E14. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Figure 16. Diabetes[1] Death Rates[2], Massachusetts: 2000-2011



1. **ICD-10:** E10-E14 2. Rates are per 100,000 age-adjusted to the 2000 U.S. standard population. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 18. Injury Deaths by Leading Causes, Gender, Age: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2011

	All Injury Deaths[1]		Poisoning[2]		Falls		Hanging, strangulation, or suffocation		Motor Vehicle-related[3]		Firearm		Other[4]	
	Number	Rate[5]	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
All Persons	**3,138**	**43.9**	**972**	**14.3**	**588**	**7.3**	**423**	**6.0**	**382**	**5.5**	**254**	**3.8**	**519**	**7.0**
<1	2	--[6]	1	--[6]	0	0.0	1	--[6]	0	0.0	0	0.0	0	0.0
1-14	28	2.6	3	--[6]	0	0.0	7	0.7	3	--[6]	1	--[6]	14	1.3
15-24	340	36.4	75	8.0	7	0.7	48	5.1	92	9.8	78	8.3	40	4.3
25-44	817	47.1	431	24.9	10	0.6	112	6.5	98	5.7	80	4.6	86	5.0
45-64	926	50.1	413	22.4	59	3.2	131	7.1	98	5.3	57	3.1	168	9.1
65-74	224	47.3	21	4.4	67	14.2	28	5.9	37	7.8	22	4.6	49	10.3
75-84	342	114.6	16	5.4	167	56.0	41	13.7	33	11.1	12	4.0	73	24.5
85+	458	305.2	11	7.3	278	185.2	55	36.6	21	14.0	4	--[6]	89	59.3
All Females	**1,069**	**26.2**	**308**	**8.8**	**302**	**5.9**	**131**	**3.3**	**113**	**3.0**	**23**	**0.7**	**192**	**4.5**
<1	2	--[6]	1	--[6]	0	0.0	1	--[6]	0	0.0	0	0.0	0	0.0
1-14	9	1.7	0	0.0	0	0.0	2	--[6]	3	--[6]	0	0.0	4	--[6]
15-24	71	15.3	15	3.2	2	--[6]	12	2.6	26	5.6	9	1.9	7	1.5
25-44	206	23.4	125	14.2	3	--[6]	25	2.8	22	2.5	8	0.9	23	2.6
45-64	264	27.7	147	15.4	15	1.6	27	2.8	23	2.4	3	--[6]	49	5.1
65-74	88	34.3	8	3.1	27	10.5	15	5.9	14	5.5	2	--[6]	22	8.6
75-84	156	88.8	6	3.4	80	45.5	21	11.9	15	8.5	0	0.0	34	19.3
85+	273	265.3	6	5.8	175	170.1	28	27.2	10	9.7	1	--[6]	53	51.5
All Males	**2,069**	**63.4**	**664**	**20.1**	**286**	**9.2**	**292**	**9.0**	**269**	**8.1**	**231**	**7.1**	**327**	**9.9**
<1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
1-14	19	3.5	3	--[6]	0	0.0	5	0.9	0	0.0	1	--[6]	10	1.8
15-24	269	57.2	60	12.8	5	1.1	36	7.7	66	14.0	69	14.7	33	7.0
25-44	611	71.8	306	35.9	7	0.8	87	10.2	76	8.9	72	8.5	63	7.4
45-64	662	74.0	266	29.8	44	4.9	104	11.6	75	8.4	54	6.0	119	13.3
65-74	136	62.6	13	6.0	40	18.4	13	6.0	23	10.6	20	9.2	27	12.4
75-84	186	151.7	10	8.2	87	71.0	20	16.3	18	14.7	12	9.8	39	31.8
85+	185	392.2	5	10.6	103	218.3	27	57.2	11	23.3	3	--[6]	36	76.3

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 2. Includes drug overdoses, which account for the largest percentage. 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 values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 19. Injury Deaths by Leading Causes, Gender and Race and Hispanic Ethnicity: Numbers and Age Adjusted Rates, Massachusetts: 2011

	All Injury Deaths[1]		Poisoning[2]		Falls		Hanging, strangulation, or suffocation		Motor Vehicle-related[3]		Firearm		Other[4]	
	Number	Rate[5]	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
White non-Hispanic	**2,646**	**45.5**	**871**	**16.7**	**545**	**7.5**	**354**	**6.3**	**306**	**5.6**	**142**	**2.6**	**428**	**6.9**
Females	940	27.8	285	10.6	281	6.0	104	3.2	96	3.2	11	0.4	163	4.4
Males	1,706	65.1	586	23.2	264	9.5	250	9.7	210	8.1	131	5.0	265	9.7
Black non-Hispanic	**221**	**50.2**	**41**	**8.7**	**13**	**4.4**	**24**	**6.6**	**34**	**7.0**	**65**	**13.0**	**44**	**10.5**
Females	53	24.5	11	4.6	8	4.5	9	4.9	8	2.9	5	1.8	12	5.8
Males	168	78.1	30	13.2	5	3.9	15	7.8	26	12.0	60	25.0	32	16.0
Asian non-Hispanic	**56**	**20.8**	**6**	**1.5**	**12**	**6.5**	**18**	**6.7**	**7**	**2.1**	**2**	**--[6]**	**11**	**3.5**
Females	24	17.3	1	--[6]	6	6.1	8	5.6	2	--[6]	1	--[6]	6	3.7
Males	32	25.4	5	2.7	6	7.2	10	8.4	5	3.1	1	--[6]	5	3.3
Hispanic	**204**	**34.8**	**53**	**8.3**	**17**	**6.8**	**24**	**3.8**	**34**	**5.2**	**45**	**5.6**	**31**	**5.1**
Females	48	18.8	10	3.4	6	4.5	9	3.2	7	1.9	6	1.6	10	4.1
Males	156	52.0	43	13.4	11	10.0	15	4.2	27	9.0	39	9.6	21	5.8

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 2. Includes drug overdoses, which account for the largest percentage. 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 group; rates are age-adjusted to the 2000 US standard population. 6. Calculations based on values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 20. Unintentional Injury Deaths by Gender, Age: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2011

	All Unintentional[1]		Poisonings		Falls		Motor Vehicle-related	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
All Persons	**2,176**	**30.0**	**797**	**11.9**	**579**	**7.2**	**382**	**5.5**
<1	1	--[3]	0	0.0	0	0.0	0	0.0
1-14	16	1.5	1	--[3]	0	0.0	3	--[3]
15-24	183	19.6	70	7.5	5	0.5	92	9.8
25-44	524	30.2	378	21.8	9	0.5	98	5.7
45-64	551	29.8	310	16.8	53	2.9	98	5.3
65-74	171	36.1	16	3.4	67	14.2	37	7.8
75-84	296	99.2	11	3.7	167	56.0	33	11.1
85+	433	288.5	10	6.7	278	185.2	21	14.0
All Females	**820**	**19.3**	**219**	**6.3**	**300**	**5.8**	**113**	**3**
<1	1	--[3]	0	0.0	0	0.0	0	0.0
1-14	6	1.1	0	0.0	0	0.0	3	--[3]
15-24	43	9.2	13	2.8	1	--[3]	26	5.6
25-44	131	14.9	97	11.0	3	--[3]	22	2.5
45-64	158	16.6	95	10.0	14	1.5	23	2.4
65-74	75	29.3	6	2.3	27	10.5	14	5.5
75-84	141	80.2	2	--[3]	80	45.5	15	8.5
85+	265	257.5	6	5.8	175	170.1	10	9.7
All Males	**1,356**	**42.0**	**578**	**17.7**	**279**	**9.1**	**269**	**8.1**
<1	0	0.0	0	0.0	0	0.0	0	0.0
1-14	10	1.8	1	--[3]	0	0.0	0	0.0
15-24	140	29.8	57	12.1	4	--[3]	66	14.0
25-44	393	46.2	281	33.0	6	0.7	76	8.9
45-64	393	44.0	215	24.0	39	4.4	75	8.4
65-74	96	44.2	10	4.6	40	18.4	23	10.6
75-84	155	126.4	9	7.3	87	71.0	18	14.7
85+	168	356.1	4	--[3]	103	218.3	11	23.3

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a 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 values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 21. Unintentional Injury Deaths by Gender and Race and Hispanic Ethnicity: Numbers, and Age-Adjusted Rates, Massachusetts: 2011

	All Unintentional[1]		Poisonings		Falls		Motor Vehicle-related	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
White non-Hispanic	**1,909**	**32.1**	**708**	**13.9**	**536**	**7.3**	**306**	**5.6**
Females	733	20.5	199	7.5	279	5.9	96	3.2
Males	1,176	45.1	509	20.4	257	9.3	210	8.1
Black non-Hispanic	**112**	**27.5**	**37**	**8.0**	**13**	**4.4**	**34**	**7.0**
Females	40	19.1	10	4.3	8	4.5	8	2.9
Males	72	36.6	27	12.0	5	3.9	26	12.0
Asian non-Hispanic	**30**	**13.3**	**3**	**--[3]**	**12**	**6.5**	**7**	**2.1**
Females	11	10.2	0	0.0	6	6.1	2	--[3]
Males	19	17.6	3	--[3]	6	7.2	5	3.1
Hispanic	**118**	**23.2**	**48**	**7.5**	**17**	**6.8**	**34**	**5.2**
Females	32	14.1	9	3.1	6	4.5	7	1.9
Males	86	33.4	39	12.1	11	10.0	27	9.0

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 2. Number of deaths per 100,000 persons in each group; rates are age-adjusted to the 2000 US standard population. 3. Calculations based on values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 22. Intentional Injury Deaths by Gender, Age: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2011

	All Intentional[1]		Suicide		Homicide	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
All Persons	**791**	**11.5**	**590**	**8.5**	**201**	**3.0**
<1	1	--[3]	0	0.0	1	--[3]
1-14	11	1.0	5	0.5	6	0.6
15-24	146	15.6	67	7.2	79	8.4
25-44	258	14.9	190	11.0	68	3.9
45-64	302	16.3	266	14.4	36	1.9
65-74	39	8.2	33	7.0	6	1.3
75-84	22	7.4	20	6.7	2	--[3]
85+	12	8.0	9	6.0	3	--[3]
All Females	**185**	**5.3**	**145**	**4.1**	**40**	**1.2**
<1	1	--[3]	0	0.0	1	--[3]
1-14	3	--[3]	1	--[3]	2	--[3]
15-24	27	5.8	15	3.2	12	2.6
25-44	63	7.1	52	5.9	11	1.2
45-64	79	8.3	71	7.4	8	0.8
65-74	7	2.7	4	--[3]	3	--[3]
75-84	3	--[3]	2	--[3]	1	--[3]
85+	2	--[3]	0	0.0	2	--[3]
All Males	**606**	**18.2**	**445**	**13.3**	**161**	**4.9**
<1	0	0.0	0	0.0	0	0.0
1-14	8	1.5	4	--[3]	4	--[3]
15-24	119	25.3	52	11.1	67	14.2
25-44	195	22.9	138	16.2	57	6.7
45-64	223	24.9	195	21.8	28	3.1
65-74	32	14.7	29	13.3	3	--[3]
75-84	19	15.5	18	14.7	1	--[3]
85+	10	21.2	9	19.1	1	--[3]

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a 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 values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 23. Intentional Injury Deaths by Gender and Race and Hispanic Ethnicity: Numbers and Age-Adjusted Rates, Massachusetts: 2011

	All Intentional[1]		Suicide		Homicide	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
White non-Hispanic	**599**	**11.1**	**531**	**9.8**	**68**	**1.3**
Females	153	5.6	133	4.9	20	0.7
Males	446	17.0	398	15.1	48	1.9
Black non-Hispanic	**95**	**19.1**	**19**	**4.2**	**76**	**14.9**
Females	10	3.7	4	--[3]	6	2.2
Males	85	35.7	15	7.5	70	28.2
Asian non-Hispanic	**20**	**5.5**	**16**	**4.5**	**4**	**--[3]**
Females	9	4.4	7	3.5	2	--[3]
Males	11	6.7	9	5.7	2	--[3]
Hispanic	**75**	**9.9**	**22**	**3.2**	**53**	**6.7**
Females	13	3.5	1	--[3]	12	3.2
Males	62	16.5	21	6.4	41	10.1

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 2. Number of deaths per 100,000 persons in each group; rates are age-adjusted to the 2000 US standard population. 3. Calculations based on values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 24. Injury Deaths by Intent, Method and Gender: Number and Age-Adjusted Rates, Massachusetts: 2011

Type of Injury[1]	All Injury Deaths		Female		Male	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
Unintentional Injuries (Accidents)	**2,176**	**30.0**	**820**	**19.3**	**1,356**	**42.0**
Motor Vehicle-related	382	5.5	113	3.0	269	8.1
Injury to pedestrian	83	1.2	30	0.8	53	1.6
Injury to pedal cyclist	5	0.1	0	0	5	0.1
Injury to motorcyclist	45	0.7	1	--[3]	44	1.3
Injury to occupant	44	0.6	15	0.4	29	0.9
Other and unspecified	205	2.9	67	1.8	138	4.2
Poisoning	797	11.9	219	6.3	578	17.7
Falls	579	7.2	300	5.8	279	9.1
Hanging, strangulation or suffocation	136	1.7	70	1.5	66	2.1
Drowning and submersion	40	0.6	10	0.3	30	0.9
Smoke, fire and flames	26	0.4	15	0.4	11	0.4
Other and unspecified	200	2.6	90	1.8	110	3.4
Suicide	**590**	**8.5**	**145**	**4.1**	**445**	**13.3**
Poisoning	129	1.8	64	1.8	65	1.9
Hanging, strangulation or suffocation	274	4.1	56	1.6	218	6.7
Firearm	116	1.6	3	--[3]	113	3.4
Other and unspecified	71	1.0	22	0.6	49	1.4
Homicide	**201**	**3.0**	**40**	**1.2**	**161**	**4.9**
Firearm	128	2	19	0.6	109	3.4
Cut or pierce	33	0.5	4	--[3]	29	0.9
Other and unspecified	40	0.6	17	0.5	23	0.6
Injury Deaths of Undetermined Intent	**107**	**1.5**	**40**	**1.1**	**67**	**2.0**
Poisoning	44	0.6	24	0.6	20	0.6
Other and unspecified	63	0.9	16	0.4	47	1.4
Legal Intervention	**7**	**0.1**	**0**	**0.0**	**7**	**0.2**
Firearm	7	0.1	0	0.0	7	0.2
Other and unspecified	0	0.0	0	0.0	0	0.0
Adverse Effects	**57**	**0.8**	**24**	**0.6**	**33**	**1.0**
Medical Care	48	0.6	20	0.5	28	0.9
Drugs	9	0.1	4	--[3]	5	0.1
ALL INJURIES	**3,138**	**43.9**	**1,069**	**26.2**	**2,069**	**63.4**

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a 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 values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 25. HIV/AIDS[1] Deaths by Place of Occurrence, Massachusetts: 2000-2011

Year		Total	Place of Occurrence			
			At Home	Hospital	Out of State	Hospice/Nursing Home/Other
2000	#	226	48	145	0	33
	%	100.0	21.2	64.2	0.0	14.6
2001	#	249	47	164	4	34
	%	100.0	18.9	65.9	--[2]	13.7
2002	#	229	33	156	4	36
	%	100.0	14.4	68.1	--[2]	15.7
2003	#	226	55	134	5	32
	%	100.0	24.3	59.3	2.2	14.2
2004	#	211	45	134	1	31
	%	100.0	21.3	63.5	--[2]	14.7
2005	#	180	28	122	1	30
	%	100.0	15.6	67.8	--[2]	16.7
2006	#	179	22	122	2	33
	%	100.0	12.3	68.2	--[2]	18.4
2007	#	143	15	98	2	28
	%	100.0	10.5	68.5	--[2]	19.6
2008	#	143	27	92	1	23
	%	100.0	18.9	64.3	--[2]	16.1
2009	#	124	25	76	1	22
	%	100.0	20.2	61.3	--[2]	17.7
2010	#	119	22	68	1	28
	%	100.0	18.5	57.1	--[2]	23.5
2011	#	91	14	58	0	19
	%	100.0	15.4	63.7	0.0	20.9

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 were coded according to the ICD-10 (codes B20-B24). 2. Calculations based on values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 26. HIV/AIDS[1] Deaths by Age, Massachusetts: 2000-2011

Year		Age (in years)				
		<15	15-24	25-34	35-44	45+
2000	#	4	0	26	104	92
	%	--[2]	0.0	11.5	46.0	40.7
2001	#	1	2	25	111	110
	%	--[2]	--[2]	10.0	44.6	44.2
2002	#	1	1	10	91	126
	%	--[2]	--[2]	4.4	39.7	55.0
2003	#	1	3	14	94	114
	%	--[2]	--[2]	6.2	41.6	50.4
2004	#	0	2	9	79	121
	%	0.0	--[2]	4.3	37.4	57.4
2005	#	0	1	6	64	109
	%	0.0	--[2]	3.3	35.6	60.6
2006	#	0	1	6	71	101
	%	0.0	--[2]	3.4	39.7	56.4
2007	#	0	0	5	34	104
	%	0.0	0.0	3.5	32.7	72.7
2008	#	0	1	6	32	104
	%	0.0	--[2]	4.2	22.4	72.7
2009	#	0	0	6	25	93
	%	0.0	0.0	4.8	20.2	75.0
2010	#	0	1	4	24	90
	%	0.0	--[2]	-5	20.2	75.6
2011	#	0	2	1	19	69
	%	0.0	--[2]	-[2]	20.9	75.8

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 were coded according to the ICD-10 (codes B20-B24). 2. Calculations based on values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 27. HIV/AIDS[1] Deaths by Gender, Race and Hispanic Ethnicity, Massachusetts: 2000-2011

Year		Gender		Race and Ethnicity			
		Male	Female	White non-Hispanic[2]	Black non-Hispanic[2]	Other[3]	Hispanic[2]
2000	#	161	65	104	61	2	59
	%	71.2	28.8	46.0	27.0	-[4]	26.1
2001	#	182	67	125	73	0	51
	%	73.1	26.9	50.2	29.3	0.0	20.5
2002	#	163	66	108	68	1	52
	%	71.2	28.8	47.1	29.7	-[4]	22.7
2003	#	150	76	113	58	2	53
	%	66.4	33.6	50.0	25.7	-[4]	23.5
2004	#	151	60	97[6]	55	4	55
	%	71.6	28.4	46.0	26.1	-[4]	26.1
2005	#	122	58	75	56	4	45
	%	67.8	32.2	41.7	31.1	-[4]	25.0
2006	#	122	57	91	49	2	37
	%	68.2	31.8	50.8	27.4	-[4]	20.7
2007	#	96	47	58	48	0	37
	%	67.4	32.9	40.6	33.6	0.0	25.9
2008	#	101	42	69	37	5	31
	%	70.6	29.4	48.6	26.1	3.5	21.8
2009	#	89	35	48	37	6	33
	%	71.8	28.2	38.7	29.8	4.8	26.6
2010	#	80	39	58	34	1	26
	%	67.2	32.8	48.7	28.6	-[4]	21.8
2011	#	64	27	36	30	1	24
	%	70.3	29.7	39.6	33.0	-[4]	26.4

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 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 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. Calculations based on values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 28. HIV/AIDS[1] Deaths by Gender, Race and Hispanic Ethnicity: Numbers, Percent and Age-adjusted Rates, Massachusetts: 2000-2011

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
2005	75	42%	1.3	56	31%	16.0	45	25%	11.5
2006	91	51%	1.6	49	27%	13.7	37	21%	8.4
2007	58	41%	1.0	48	34%	13.0	37	26%	8.9
2008	69	50%	1.2	37	27%	10.6	31	23%	8.3
2009	48	41%	0.5	37	31%	15.2	33	28%	11.6
2010	58	49%	0.5	34	29%	15.2	26	22%	11.6
2011	36	40%	0.6	30	33%	6.9	24	27%	4.7
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
2005	52	43%	1.9	34	28%	20.9	33	27%	18.4
2006	67	55%	2.4	33	27%	20.0	21	17%	9.8
2007	48	50%	1.7	23	24%	13.4	25	26%	13.3
2008	55	56%	1.9	25	26%	16.0	18	18%	11.0
2009	32	38%	1.1	29	34%	15.6	24	28%	12.4
2010	40	51%	1.1	20	25%	15.6	19	24%	12.4
2011	30	48%	1.1	14	22%	6.6	19	30%	8.2
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
2005	23	40%	0.8	22	38%	11.8	12	21%	5.4
2006	24	42%	0.9	16	28%	8.3	16	28%	7.1
2007	10	21%	0.3	25	53%	12.8	12	26%	5.2
2008	14	36%	0.5	12	31%	6.4	13	33%	6.4
2009	16	48%	0.5	8	24%	3.8	9	27%	3.8
2010	18	46%	0.5	14	36%	3.8	7	18%	3.8
2011	6	22%	0.2	16	59%	7.1	5	19%	1.6

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 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 US standard population. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 29. Trends in Infant, Neonatal, and Post Neonatal Mortality, by Race and Hispanic Ethnicity, Massachusetts: 2000-2011

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]
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
2005	391	5.1	230	4.3	57	9.4	77	7.7	18	3.4	8	4.3
2006	369	4.8	220	4.1	72	11.1	63	5.9	10	1.8	3	--[4]
2007	380	4.9	206	3.9	66	10.2	81	7.4	18	3.1	4	--[4]
2008	381	5.0	192	3.7	79	11.9	86	7.9	16	2.7	8	5.1
2009	366	4.9	205	4.1	54	7.8	78	7.1	20	3.4	9	7.8
2010	319	4.4	163	3.4	56	8.2	65	6.1	25	4.3	7	4.4
2011	310	4.2	158	3.4	47	6.7	75	5.8	22	3.6	6	4.2

NEONATAL MORTALITY (birth to 27 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]
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]
2005	282	3.7	168	3.1	40	6.6	57	5.8	11	2.1	5	2.7
2006	279	3.6	173	3.3	53	8.2	42	3.9	7	1.3	3	--[4]
2007	263	3.4	141	2.7	48	7.4	53	4.9	15	2.6	4	--[4]
2008	290	3.8	152	2.9	57	8.6	65	6.0	10	1.7	6	3.8
2009	276	3.7	162	3.2	36	5.2	54	4.9	17	2.9	7	6.0
2010	238	3.3	121	2.5	43	6.3	47	4.4	20	3.4	5	4.6
2011	230	3.1	111	2.4	33	4.7	60	4.7	19	3.1	3	--[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]
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]
2005	109	1.4	62	1.2	17	2.8	20	2.0	7	1.3	3	--[4]
2006	90	1.2	47	0.9	19	2.9	21	2.0	3	--[4]	0	0.0
2007	117	1.5	65	1.2	18	2.8	28	2.6	3	--[4]	0	0.0
2008	91	1.2	40	0.8	22	3.3	21	1.9	6	1.0	2	--[4]
2009	90	1.2	43	0.9	18	2.6	24	2.2	3	--[4]	2	--[4]
2010	81	1.1	42	0.9	13	1.9	18	1.7	5	0.9	2	--[4]
2011	80	1.1	47	1.0	14	2.0	15	1.2	3	--[4]	3	--[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 values 1-4 are excluded.

Table 30. Infant, Neonatal, and Post Neonatal Deaths by Cause, Massachusetts: 2011

		Infant (<1 year)		Neonatal (<28 days)		Post Neonatal (28-365 days)	
Cause of Death[1]	**ICD-10 Code**	**#**	**%[2]**	**#**	**%[2]**	**#**	**%[2]**
TOTAL		**310**	**100.0**	**230**	**100.0**	**80**	**100.0**
Infectious and parasitic diseases	**A00-B99**	**8**	**2.6**	**1**	**--[2]**	**7**	**8.8**
Cancer	**C00-C97**	**1**	**--[2]**	**0**	**0.0**	**1**	**--[2]**
Diseases of the blood and blood forming organs (anemia)	**D50-D89**	**1**	**--[2]**	**1**	**--[2]**	**0**	**0.0**
Diseases of nervous system and ear	**G00-G98, H60-H93**	**5**	**1.6**	**3**	**--[2]**	**2**	**--[2]**
Diseases of the respiratory system	**J00-J98**	**5**	**1.6**	**0**	**0.0**	**5**	**6.3**
Diseases of digestive system	**K00-K92**	**2**	**--[2]**	**1**	**--[2]**	**1**	**--[2]**
Congenital malformations	**Q00-Q99**	**62**	**20.0**	**44**	**19.1**	**18**	**22.5**
Congenital malformations of nervous system	Q00-Q07	10	3.2	7	3.0	3	--[2]
Anencephalus and similar malformations	Q00	5	1.6	5	2.2	0	0.0
Congenital malformations of heart	Q20-Q24	11	3.5	7	3.0	4	--[2]
Congenital malformations of respiratory system	Q30-Q34	10	3.2	9	3.9	1	--[2]
Congenital malformations of genitourinary system	Q50-Q64	6	1.9	6	2.6	0	0.0
Congenital malformations of musculoskeletal system	Q65-Q85	3	--[2]	0	0.0	3	--[2]
Chromosomal abnormalities	Q90-Q99	13	4.2	8	3.5	5	6.3
Certain conditions originating in the perinatal period	**P00-P96**	**178**	**57.4**	**170**	**73.9**	**8**	**10.0**
Newborn affected by maternal conditions which may be unrelated to present pregnancy	P00	2	--[2]	2	--[2]	0	0.0
Newborn affected by maternal complications of pregnancy	P01	20	6.5	20	8.7	0	0.0
Newborn affected by complications of placenta, cord and membrane	P02	11	3.5	11	4.8	0	0.0
Newborn affected by other complications of labor and delivery	P03	4	--[2]	4	--[2]	0	0.0
Disorders relating to short gestation and low birthweight	P07	78	25.2	77	33.5	1	--[2]
Intrauterine hypoxia and birth asphyxia	P20-P21	2	--[2]	2	--[2]	0	0.0
Respiratory distress of newborn	P22	5	1.6	5	2.2	0	0.0
Other respiratory conditions of newborn	P23-P28	9	2.9	7	3.0	2	--[2]
Infections specific to the perinatal period	P35-P39	10	3.2	8	3.5	2	--[2]
Neonatal hemorrhage	P50-P52, P54	6	1.9	6	2.6	0	0.0
Other and ill-defined conditions originating in the perinatal period	P90-P96	7	2.3	5	2.2	2	--[2]
Symptoms, signs, and ill-defined conditions	**R00-R99**	**34**	**11.0**	**7**	**3.0**	**27**	**33.8**
Sudden Infant Death Syndrome (SIDS)	R95	22	7.1	3	--[2]	19	23.8
Unintentional Injuries	**V01-X59**	**1**	**--[2]**	**0**	**0.0**	**1**	**--[2]**
Homicide	**X85-Y09**	**1**	**--[2]**	**0**	**0.0**	**1**	**--[2]**
All other causes	**Residual**	**12**	**3.9**	**3**	**--[2]**	**9**	**11.3**

1. Please see the Technical Notes in the Appendix for an explanation of ICD-10 codes. 2. Calculations based on values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 31. Infant Deaths by Major Causes, Race and Hispanic Ethnicity, Massachusetts: 2011

Cause of Death[2]	ICD-10 Code	White non-Hispanic[1]		Black non-Hispanic[1]		Asian non-Hispanic[1]		Hispanic	
		#	%	#	%	#	%	#	%
TOTAL		**159**	**100.0%**	**47**	**100.0%**	**22**	**100.0%**	**75**	**100.0%**
Certain conditions originating in the perinatal period	P00- P96	86	54.1%	31	66.0%	14	63.6%	44	58.7%
Congenital malformations	Q00-Q99	30	18.9%	6	12.8%	4	--[3]	20	26.7%
Symptoms, signs, and ill-defined conditions	R00-R99	21	13.2%	7	14.9%	0	0.0%	6	8.0%
SIDS	R95	14	8.8%	4	--[3]	0	0.0%	4	--[3]
Unintentional Injuries	V01-X59	1	--[3]	0	0.0%	0	0.0%	0	0.0%
Homicide	X85-Y09	1	--[3]	0	0.0%	0	0.0%	0	0.0%
All other causes	Residual	20	12.6%	3	--[3]	4	--[3]	5	6.7%

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 the Technical Notes in the Appendix for a more detailed explanation. 2. Deaths are coded according to ICD-10. Please see Appendix for comparability ratios. 3. Calculations based on values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 32. Target Status for Selected Healthy People 2020 Mortality Objectives (underlying cause of death only)

HEALTHY PEOPLE 2020 OBJECTIVE	TARGET 2020[1]	MA 2010	MA 2011	TARGET STATUS
Overall Cancer death rate	160.6	171.0	166.1	O
Lung Cancer	45.5	47.3	44.7	✓
Female Breast Cancer (per 100,000 females)	20.6	19.1	19.4	✓
Uterine Cervix (per 100,000 females)	2.2	1.3	1.5	✓
Colorectal Cancer	14.5	14.9	13.3	✓
Oropharyngeal Cancer	2.3	3.0	3.8	●
Prostate Cancer (per 100,000 males)	21.2	21.2	19.4	✓
Malignant Melanoma	2.4	3.1	3.6	●
COPD, ages 45+	98.5	84.4	92.3	✓
Coronary Heart Disease	100.8	96.5	92.3	✓
Stroke	33.8	31.2	34.1	O
Cirrhosis	8.2	5.4	6.0	✓
Drug-induced deaths	11.3	12.5	32.8	●
HIV/AIDS	3.3	1.6	1.3	✓
Injury Deaths	53.3	43.3	43.9	✓
Residential fire deaths	0.9	0.2	1.1	O
Falls	7.0	6.9	14.3	●
Falls, ages 65+	45.3	48.1	55.5	O
Firearm- related	9.2	4.0	4.8	✓
Poisonings	13.1	12.2	14.9	O
Poisonings, ages 35-54	25.5	22.8	22.1	✓
Unintentional or Undetermined Intent injuries	11.1	10.9	12.5	O
Unintentional or Undetermined Intent injuries, ages 35-54	21.6	20.0	22.1	O
Unintentional Injuries	36.0	28.3	30.0	✓
Motor vehicle crashes	12.4	5.4	6.0	✓
Drowning	1.1	1.2	1.3	O
Hanging, strangulation or suffocation	1.7	5.8	5.8	●
Suffocation, persons 65+	7.2	12.3	13.5	●
Homicide	5.5	3.2	3.0	✓
Suicide	10.2	8.7	8.5	✓
Infant and Child Health				
Infant deaths (per 1,000 live births)	6.0	4.4	4.2	✓
Neonatal deaths (per 1,000 live births)	4.1	3.3	3.1	✓
Postneonatal deaths (per 1,000 live births)	2.0	1.1	1.1	✓
Birth defects (per 1,000 live births)	1.3	0.7	0.8	✓
Congenital heart defects (per 1,000 live births)	0.34	0.14	0.15	✓
Sudden infant death syndrome (SIDS) (per 1,000 live births)	0.50	0.5	0.3	✓
Child/Adolescent/Young Adults Death Rates				
1-4 years old	25.7	13.6	13.7	✓
5-9 years old	12.3	7.3	10.5	✓
10-14 years old	15.2	8.6	8.5	✓
15-19 years old	55.7	30.9	30.2	✓
20-24 years old	88.5	65.2	69.8	✓
Asthma deaths (per million)				
Ages 35-64 years	6.0	6.3	11.1	●
Ages 65+ years	22.9	29.9	33.6	●

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

Note: Death rates are per 100,000 and age adjusted to the 2010 US Population except when noted. 1. Data 2020 the Healthy People 2020 Database. CDC Wonder website. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 33. Rank of Premature Mortality Rates for the Largest 30 Communities[1], Massachusetts: 2011 (Sorted by PMR)

City/Town	Number of Premature Deaths	PMR[2] (per 100,000)
New Bedford	419	437.6*
Lowell	384	413.9*
Fall River	370	404.5*
Springfield	542	393.6*
Pittsfield	202	393.0*
Brockton	356	387.3*
Chicopee	230	384.4*
Revere	184	345.8*
Taunton	200	344.0*
Lynn	297	342.5*
Worcester	551	340.2*
Haverhill	205	334.2*
Attleboro	149	332.1
Somerville	191	330.6*
Peabody	191	327.0
Weymouth	195	317.1
Malden	184	316.9
Lawrence	198	310.8
Boston	1,605	307.2*
Quincy	300	301.0
Methuen	143	294.5
Medford	167	292.9
Plymouth	188	286.7
Waltham	164	286.7
Barnstable	161	267.0
Framingham	175	259.2
Arlington	111	233.8
Cambridge	170	201.2*
Brookline	92	160.1*
Newton	139	152.7*
State Total	**19,189**	**278.2**

1. These communities had the largest populations in Massachusetts, based on 2010 Census. Rates for cities and towns were calculated using MDPH population estimates for 2010, which are the most up-to-date information available on the number of persons by age, race, and sex at the sub-state level. 2. Rates are age-adjusted to the 2000 US Standard Population for person ages 0-74 years.

* significantly differently from State PMR.

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

Table 34. Premature Mortality Rates by Community, Massachusetts: 2011

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
STATE	**19,189**	**278.2**
Abington	49	277.3
Acton	37	177.2
Acushnet	26	208.1
Adams	26	284.9
Agawam	97	307.0
Alford	1	--[2]
Amesbury	50	300.7
Amherst	45	228.2
Andover	62	181.5
Aquinnah	111	233.8
Arlington	14	189.4
Ashburnham	11	362.4
Ashby	2	--[2]
Ashfield	36	201.6
Ashland	45	362.9
Athol	149	332.1
Attleboro	52	269.5
Auburn	22	449.8
Avon	25	330.2
Ayer	161	267.0
Barnstable	11	182.2
Barre	5	162.7
Becket	30	186.8
Bedford	38	235.4
Belchertown	51	295.9
Bellingham	57	199.2
Belmont	15	238.2
Berkley	7	206.7
Berlin	8	286.7
Bernardston	110	255.7
Beverly	122	275.2
Billerica	29	317.5
Blackstone	3	--[2]
Blandford	12	244.7
Bolton	1,605	307.2
Boston	74	284.0
Bourne	8	114.8
Boxborough	11	108.1
Boxford	9	205.1
Boylston	116	294.8
Braintree	32	256.2
Brewster	72	280.6
Bridgewater	12	254.4
Brimfield	356	387.3
Brockton	10	230.6
Brookfield	92	160.1
Brookline	49	277.3

Table 34. Premature Mortality Rates by Community, Massachusetts: 2011

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Buckland	9	306.0
Burlington	54	186.5
Cambridge	170	201.2
Canton	61	241.5
Carlisle	5	72.9
Carver	40	289.0
Charlemont	2	--[2]
Charlton	35	287.6
Chatham	27	274.9
Chelmsford	93	224.5
Chelsea	116	430.2
Cheshire	6	158.4
Chester	5	294.0
Chesterfield	0	0.0
Chicopee	230	384.4
Chilmark	1	--[2]
Clarksburg	4	--[2]
Clinton	37	263.2
Cohasset	10	116.2
Colrain	2	--[2]
Concord	28	115.8
Conway	5	203.9
Cummington	0	0.0
Dalton	27	330.5
Danvers	66	213.3
Dartmouth	86	233.6
Dedham	82	288.7
Deerfield	19	281.6
Dennis	68	314.2
Dighton	13	155.6
Douglas	27	344.6
Dover	9	141.7
Dracut	91	288.7
Dudley	45	401.4
Dunstable	3	--[2]
Duxbury	33	177.3
East Bridgewater	62	391.2
East Brookfield	4	--[2]
East Longmeadow	44	242.2
Eastham	14	133.2
Easthampton	49	278.9
Easton	64	254.4
Edgartown	13	262.1
Egremont	2	--[2]
Erving	4	--[2]
Essex	9	226.1
Everett	111	284.9
Fairhaven	78	402.5
Fall River	370	404.5
Falmouth	92	211.9

Table 34. Premature Mortality Rates by Community, Massachusetts: 2011

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Fitchburg	157	408.8
Florida	3	--[2]
Foxborough	37	201.8
Framingham	175	259.2
Franklin	73	260.8
Freetown	31	313.8
Gardner	81	387.6
Georgetown	1	--[2]
Gill	22	237.5
Gloucester	7	364.8
Goshen	119	315.7
Gosnold	2	--[2]
Grafton	0	0.0
Granby	51	284.9
Granville	16	222.1
Great Barrington	2	--[2]
Greenfield	19	222.5
Groton	68	343.9
Groveland	21	222.1
Hadley	29	434.9
Halifax	5	81.8
Hamilton	25	317.6
Hampden	14	152.1
Hancock	18	289.7
Hanover	2	--[2]
Hanson	29	196.5
Hardwick	27	222.1
Harvard	12	359.8
Harwich	26	360.4
Hatfield	63	299.5
Haverhill	19	411.0
Hawley	205	334.2
Heath	0	0.0
Hingham	0	0.0
Hinsdale	57	224.3
Holbrook	6	239.0
Holden	40	339.7
Holland	45	229.1
Holliston	4	--[2]
Holyoke	31	182.0
Hopedale	138	359.8
Hopkinton	15	282.2
Hubbardston	23	162.3
Hudson	15	369.2
Hull	56	265.4
Huntington	26	188.1
Ipswich	9	310.9
Kingston	40	237.8
Lakeville	33	249.4
Lancaster	26	214.6

Table 34. Premature Mortality Rates by Community, Massachusetts: 2011

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Lanesborough	7	157.9
Lawrence	198	310.8
Lee	25	354.5
Leicester	30	252.2
Lenox	15	263.0
Leominster	146	346.1
Leverett	1	--[2]
Lexington	41	114.0
Leyden	4	--[2]
Lincoln	9	107.4
Littleton	12	114.2
Longmeadow	29	160.1
Lowell	384	413.9
Ludlow	58	240.5
Lunenburg	11	97.0
Lynn	297	342.5
Lynnfield	22	163.8
Malden	184	316.9
Manchester	17	275.8
Mansfield	62	309.9
Marblehead	36	136.1
Marion	14	209.1
Marlborough	102	266.1
Marshfield	85	281.1
Mashpee	53	286.1
Mattapoisett	17	204.4
Maynard	29	256.7
Medfield	19	144.3
Medford	167	292.9
Medway	29	258.3
Melrose	76	251.3
Mendon	9	114.1
Merrimac	20	279.3
Methuen	143	294.5
Middleborough	96	360.8
Middlefield	1	--[2]
Middleton	26	251.3
Milford	75	264.7
Millbury	51	344.5
Millis	32	351.6
Millville	5	182.6
Milton	53	194.7
Monroe	0	0.0
Monson	36	328.7
Montague	39	384.4
Monterey	1	--[2]
Montgomery	1	--[2]
Mount Washington	2	--[2]
Nahant	7	176.3
Nantucket	21	196.1

Table 34. Premature Mortality Rates by Community, Massachusetts: 2011

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Natick	74	203.3
Needham	57	183.4
New Ashford	0	0.0
New Bedford	419	437.6
New Braintree	4	--[2]
New Marlborough	6	249.3
New Salem	4	--[2]
Newbury	21	305.6
Newburyport	46	214.2
Newton	139	152.7
Norfolk	18	156.9
North Adams	57	409.6
North Andover	41	146.1
North Attleboro	81	278.1
North Brookfield	18	361.1
North Reading	35	219.5
Northampton	85	258.7
Northborough	36	247.9
Northbridge	44	285.4
Northfield	7	207.0
Norton	45	240.2
Norwell	17	134.1
Norwood	84	280.1
Oak Bluffs	13	207.5
Oakham	5	205.4
Orange	24	265.9
Orleans	25	228.8
Otis	9	418.2
Oxford	71	468.7
Palmer	51	357.9
Paxton	8	144.0
Peabody	191	327.0
Pelham	1	--[2]
Pembroke	50	254.1
Pepperell	29	247.6
Peru	0	0.0
Petersham	2	--[2]
Phillipston	7	394.9
Pittsfield	202	393.0
Plainfield	2	--[2]
Plainville	23	255.8
Plymouth	188	286.7
Plympton	4	--[2]
Princeton	9	185.9
Provincetown	16	451.4
Quincy	300	301.0
Randolph	99	289.1
Raynham	36	232.8
Reading	74	279.6
Rehoboth	25	180.0

Table 34. Premature Mortality Rates by Community, Massachusetts: 2011

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Revere	184	345.8
Richmond	3	--[2]
Rochester	14	255.6
Rockland	64	363.9
Rockport	14	114.3
Rowe	0	0.0
Rowley	14	253.7
Royalston	3	--[2]
Russell	13	763.2
Rutland	10	132.0
Salem	122	294.0
Salisbury	44	443.0
Sandisfield	5	273.6
Sandwich	55	218.7
Saugus	106	344.6
Savoy	1	--[2]
Scituate	72	377.5
Seekonk	33	200.9
Sharon	30	150.1
Sheffield	8	216.0
Shelburne	9	321.7
Sherborn	6	199.0
Shirley	28	373.0
Shrewsbury	62	173.6
Shutesbury	3	--[2]
Somerset	61	296.1
Somerville	191	330.6
South Hadley	47	251.9
Southampton	13	197.4
Southborough	14	125.0
Southbridge	68	393.4
Southwick	36	343.1
Spencer	35	289.3
Springfield	542	393.6
Sterling	16	156.2
Stockbridge	7	183.5
Stoneham	60	243.0
Stoughton	104	325.8
Stow	10	128.6
Sturbridge	28	281.8
Sudbury	31	185.9
Sunderland	6	227.1
Sutton	23	210.0
Swampscott	22	128.6
Swansea	47	253.6
Taunton	200	344.0
Templeton	32	348.3
Tewksbury	94	274.7
Tisbury	11	201.6
Tolland	0	0.0

Table 34. Premature Mortality Rates by Community, Massachusetts: 2011

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Topsfield	6	72.3
Townsend	25	247.7
Truro	9	300.4
Tyngsborough	27	242.2
Tyringham	0	--[2]
Upton	23	303.4
Uxbridge	32	207.4
Wakefield	83	298.1
Wales	8	399.6
Walpole	41	160.5
Waltham	164	286.7
Ware	41	390.1
Wareham	119	437.6
Warren	20	366.9
Warwick	1	--[2]
Washington	2	--[2]
Watertown	68	207.3
Wayland	16	106.5
Webster	53	280.8
Wellesley	36	129.8
Wellfleet	12	214.9
Wendell	1	--[2]
Wenham	4	--[2]
West Boylston	20	279.4
West Bridgewater	15	193.7
West Brookfield	11	230.4
West Newbury	11	266.7
West Springfield	96	314.7
West Stockbridge	4	--[2]
West Tisbury	5	157.4
Westborough	31	177.5
Westfield	147	342.4
Westford	38	172.4
Westhampton	4	--[2]
Westminster	20	240.2
Weston	19	148.7
Westport	56	252.0
Westwood	22	126.2
Weymouth	195	317.1
Whately	5	231.4
Whitman	58	402.3
Wilbraham	50	281.6
Williamsburg	11	318.7
Williamstown	12	135.9
Wilmington	76	329.8
Winchendon	43	428.7
Winchester	26	116.3
Windsor	0	0.0
Winthrop	79	362.5
Woburn	130	319.4

Table 34. Premature Mortality Rates by Community, Massachusetts: 2011

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Worcester	551	340.2
Worthington	6	369.7
Wrentham	40	340.4
Yarmouth	130	404.2

1. PMR are age-adjusted to the 2000 US Standard Population for persons ages 0-74 years. 2. Age-adjusted rates based on values 1-4 are excluded.

Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

Figure 17. Premature Mortality Rates adjusted by poverty level, Massachusetts: 2011

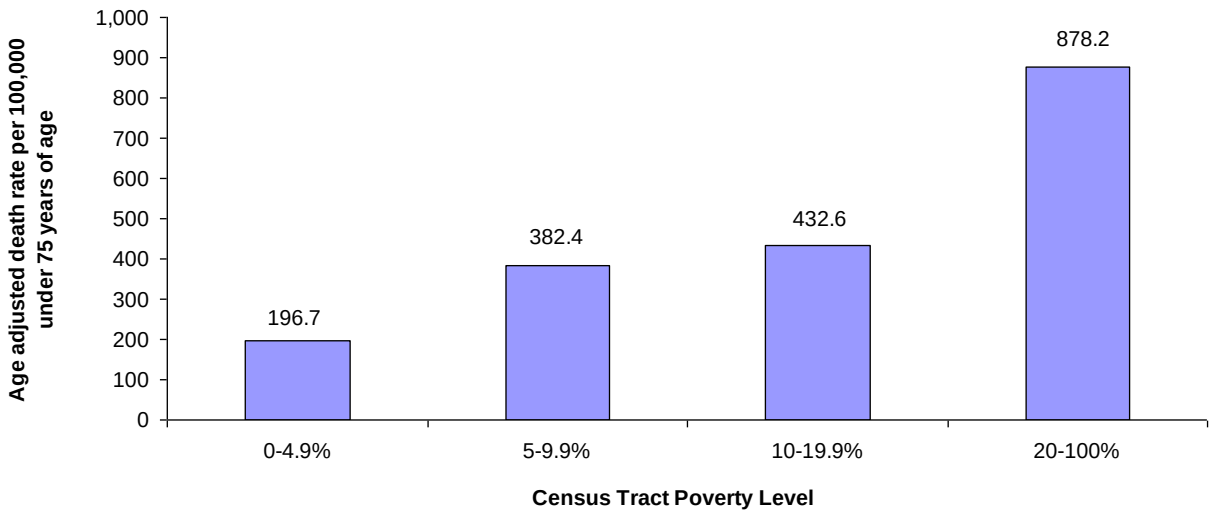


Figure 18. Percent of Deaths Amenable to Health Care, Massachusetts: 2011

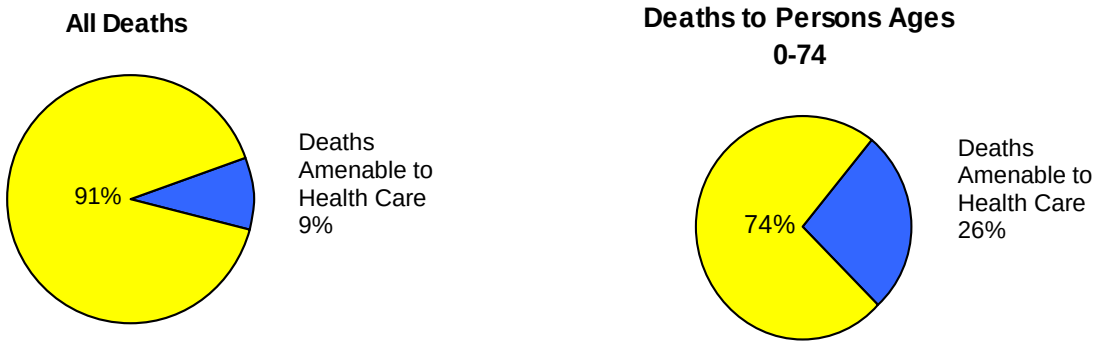


Figure 19. Amenable Mortality by race and Hispanic ethnicity, Massachusetts: 2002- 2011

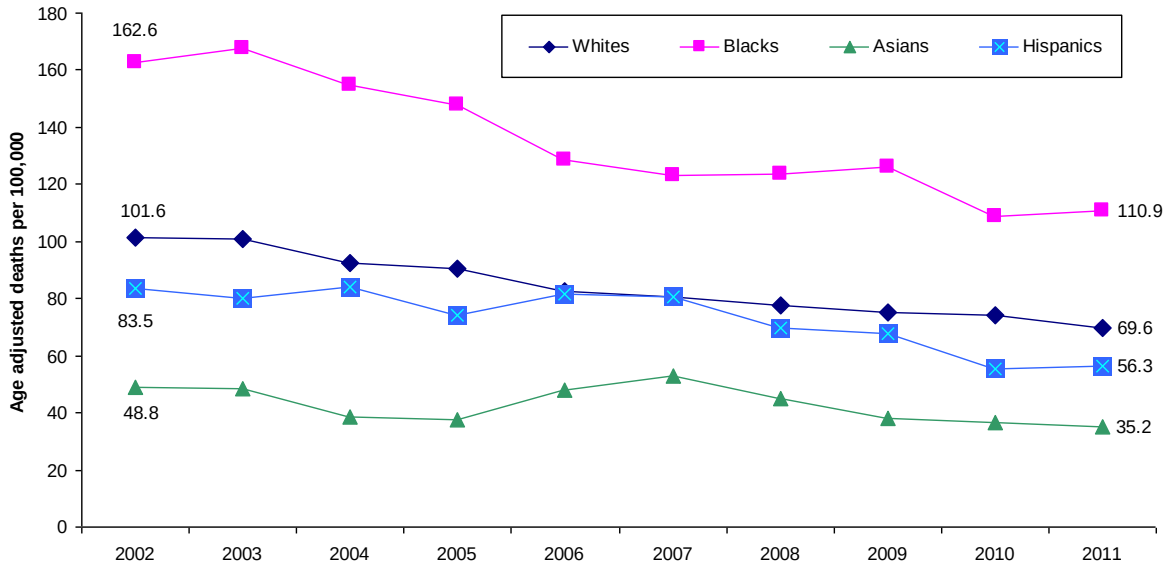
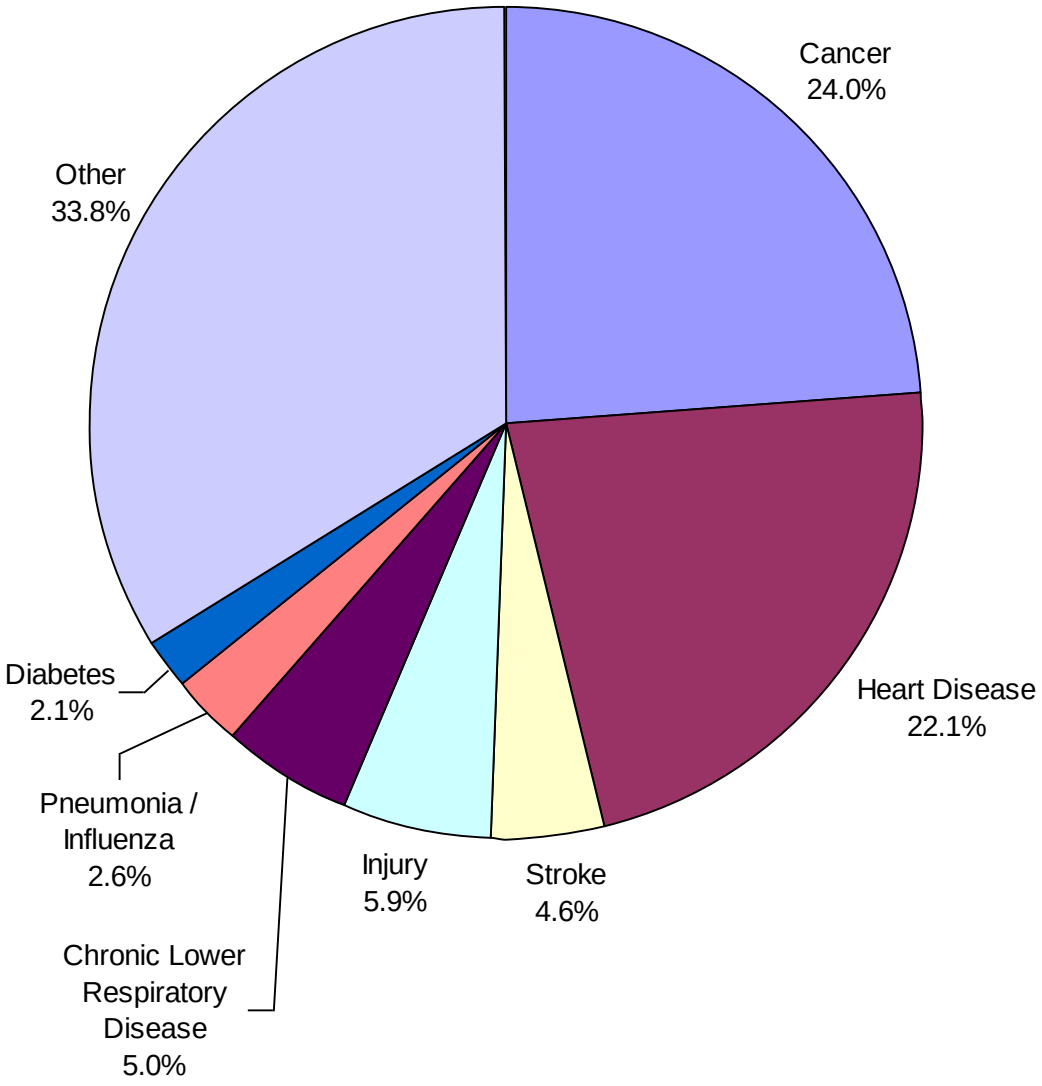


Table 35. Rank by Potential Years of Life Lost (PYLL), Massachusetts: 2011

Cause	Total PYLL	Rank on PYLL	Average PYLL	# of Deaths before 75 years	Rank on Number of Deaths
All Causes	*340,630*		*17.8*	*19,189*	
Cancer	90,696	1	13.9	6,537	1
Heart Disease	47,370	2	14.5	3,272	2
Unintentional injuries	45,461	3	31.4	1,446	5
Suicide	16,608	4	30.5	545	12
Perinatal Conditions	13,520	5	74.3	182	23
Homicide	8,515	6	43.4	196	22
Diabetes	6,662	7	13.5	493	9
Stroke	6,407	8	13.2	487	4
HIV/AIDS	2,150	9	24.2	89	29
Alzheimer's Disease	755	10	7.6	99	6
Unintentional and Undetermined	48,280		31.3	1,544	5

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). **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Figure 20. Percent Distribution of Leading Underlying Causes of Death[1, 2], Massachusetts: 2011



1. Total Number of Deaths = 53,536.
2. Causes of Death are classified according to ICD-10

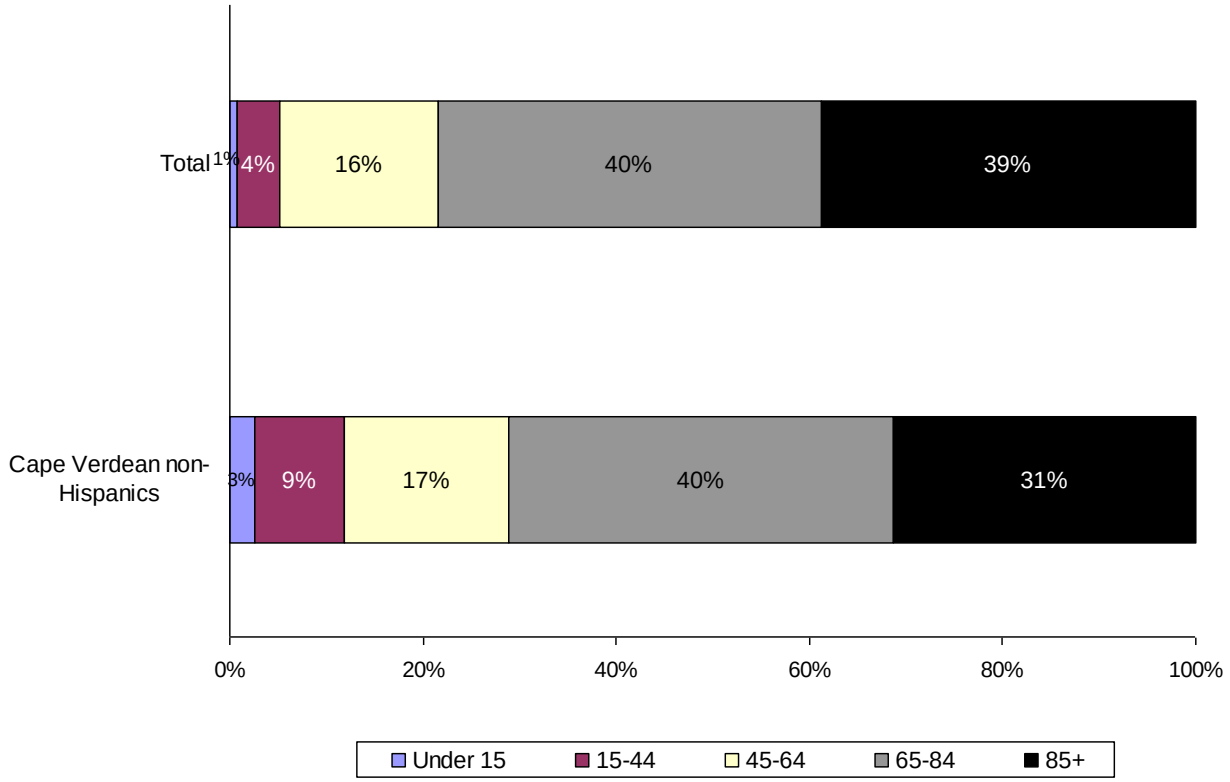
Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

Table 36. Leading Causes of Death[1] for Cape Verdean non-Hispanics[2], Massachusetts: 2011

	Number	Percent
Cancer	59	25.0
Heart Disease	46	19.5
Unintentional Injuries	14	5.9
Homicide	12	5.1
Stroke	12	5.1
Nephritis	8	3.4
Influenza And Pneumonia	7	3.0
Alzheimer's	6	2.5
Diabetes	6	2.5
All other deaths	66	28.0
All Deaths	**236**	**100.0%**

1. Deaths are coded according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table.
2. 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; Black; Asian; and Hispanic. Here, we separate Cape Verdeans from the Black non-Hispanic group. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Figure 21. Age Distribution of Deaths for Cape Verdean non-Hispanics[1] and State Total, Massachusetts: 2011



1. 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; Black; Asian; and Hispanic. Here, we separate Cape Verdeans from the Black non-Hispanic group. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 37. Number and Age-Specific Rates for Selected Causes of Death by Race and Hispanic Ethnicity, Massachusetts: 2011

Selected Causes[2]	Total #	Total Rate[3]	White non-Hispanic[1] #	White non-Hispanic[1] Rate	Black non-Hispanic[1] #	Black non-Hispanic[1] Rate	Asian non-Hispanic[1] #	Asian non-Hispanic[1] Rate	Hispanic #	Hispanic Rate
Age: 1-14, TOTAL	**114**	**10.6**	**63**	**8.5**	**14**	**14.9**	**6**	**8.5**	**31**	**18.7**
Cancer	25	2.3	17	2.3	2	--[6]	1	--[6]	5	3.0
Unintentional Injuries[4]	16	1.5	8	1.1	3	--[6]	0	0.0	5	3.0
Ill defined conditions	10	0.9	7	0.9	1	--[6]	1	--[6]	1	--[6]
Congenital malformations	7	0.7	4	--[6]	1	--[6]	0	0.0	2	--[6]
Age: 15-24, TOTAL	**471**	**50.4**	**305**	**46.0**	**73**	**90.1**	**13**	**21.0**	**79**	**62.6**
Unintentional Injuries[4]	183	19.6	147	22.2	13	16.0	4	--[6]	19	15.0
Homicide	79	8.4	11	1.7	37	45.6	1	--[6]	30	23.8
Suicide	67	7.2	53	8.0	6	7.4	2	--[6]	5	4.0
Cancer	32	3.4	24	3.6	2	--[6]	2	--[6]	4	--[6]
Age: 25-44, TOTAL	**1,870**	**107.9**	**1,443**	**114.8**	**174**	**135.1**	**46**	**32.9**	**200**	**98.0**
Unintentional Injuries[4]	524	30.2	441	35.1	26	20.2	3	--[6]	52	25.5
Cancer	291	16.8	218	17.3	26	20.2	17	12.2	29	14.2
Heart Disease	203	11.7	156	12.4	28	21.7	5	3.6	13	6.4
Suicide	190	11.0	171	13.6	5	3.9	4	--[6]	10	4.9
Age: 45-64, TOTAL	**8,808**	**476.8**	**7,593**	**490.0**	**627**	**603.2**	**165**	**210.6**	**403**	**361.5**
Cancer	3,240	175.4	2,830	182.6	200	192.4	91	116.2	113	101.4
Heart Disease	1,605	86.9	1,394	90.0	123	118.3	21	26.8	65	58.3
Unintentional Injuries[4]	551	29.8	480	31.0	38	36.6	3	--[6]	26	23.3
Chronic lower respiratory disease[5]	306	16.6	291	18.8	6	5.8	3	--[6]	6	5.4
Age: 65+, TOTAL	**41,961**	**4,551.6**	**39,281**	**4,750.6**	**1,391**	**3,785.8**	**554**	**2,046.9**	**689**	**2,314.6**
Heart Disease	9,984	1,083.0	9,413	1,138.4	303	824.6	107	395.3	147	493.8
Cancer	9,242	1,002.5	8,568	1,036.2	358	974.3	147	543.1	159	534.1
Chronic lower respiratory disease[5]	2,336	253.4	2,243	271.3	46	125.2	17	62.8	28	94.1
Stroke	2,240	243.0	2,096	253.5	70	190.5	37	136.7	35	117.6

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 see 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. 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. Calculations based on values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 37 (continued). Number and Age-Specific Rates for Selected Causes of Death by Race and Hispanic Ethnicity, Massachusetts: 2011

	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	**7,616**	**1,608.5**	**6,835**	**1,643.7**	**400**	**1,867.7**	**121**	**735.3**	**243**	**1,282.7**
Cancer	2,948	622.6	2,679	644.3	138	644.3	49	297.8	79	417.0
Heart Disease	1,438	303.7	1,280	307.8	87	406.2	23	139.8	44	232.3
Chronic Lower Respiratory Disease[5]	535	113.0	508	122.2	18	84.0	1	--[6]	8	42.2
Stroke	262	55.3	237	57.0	16	74.7	2	--[6]	6	31.7
Age: 75-84, TOTAL	**13,598**	**4,558.1**	**12,647**	**4,678.1**	**473**	**4,225.5**	**187**	**2,287.5**	**276**	**3,378.6**
Cancer	3,654	1,224.8	3,406	1,259.9	127	1,134.5	58	709.5	60	734.5
Heart Disease	2,911	975.8	2,714	1,003.9	107	955.9	29	354.7	57	697.8
Chronic Lower Respiratory Disease[5]	902	302.4	860	318.1	20	178.7	6	73.4	15	183.6
Stroke	695	233.0	637	235.6	21	187.6	16	195.7	20	244.8
Age: 85+, TOTAL	**20,747**	**13,824.1**	**19,799**	**14,072.9**	**518**	**12,536.3**	**246**	**10,102.7**	**170**	**6,405.4**
Heart Disease	5,635	3,754.7	5,419	3,851.8	109	2,637.9	55	2,258.7	46	1,733.2
Cancer	2,640	1,759.1	2,483	1,764.9	93	2,250.7	40	1,642.7	20	753.6
Stroke	1,283	854.9	1,222	868.6	33	798.6	19	780.3	9	339.1
Alzheimer's	1,268	844.9	1,212	861.5	27	653.4	22	903.5	7	263.8

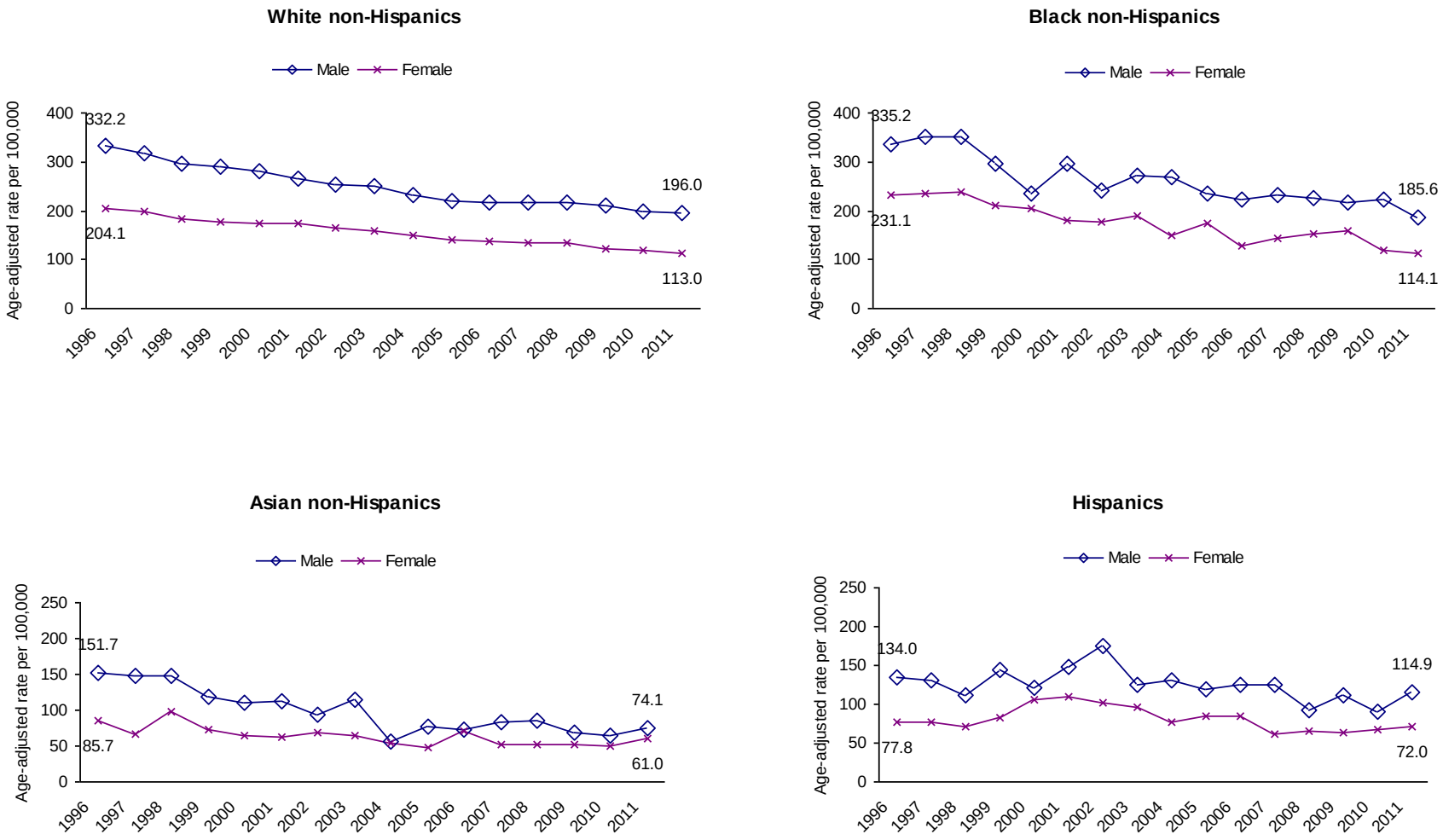
1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Table A1 in the Appendix for death data by race according to Federal definitions, which include persons of Hispanic ethnicity in a race category. Please see 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. 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. Calculations based on values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 38. Number of Deaths for Leading Causes of Death[1] by Hispanic Ethnicity, Massachusetts: 2011

Ethnicity	Cancer	Heart Disease	Unintentional Injuries	Stroke	Homicide	Diabetes	Nephritis	Perinatal	Chronic lower respiratory disease	HIV/AIDS	**ALL DEATHS**
Puerto Rican	185	148	69	32	44	30	28	25	29	17	**931**
Dominican	48	37	19	16	7	14	11	8	1	3	**234**
Central American	36	14	11	2	3	5	2	7	1	4	**124**
South American	27	12	11	5	2	2	1	2	1	2	**91**
Cuban	10	17	2	3	2	0	2	0	5	1	**55**
Mexican	2	3	4	1	0	0	2	0	1	1	**27**
Other/Unknown	2	2	2	1	0	2	0	2	0	1	**15**
All Hispanics	**310**	**233**	**118**	**60**	**58**	**53**	**46**	**44**	**38**	**29**	**1,477**

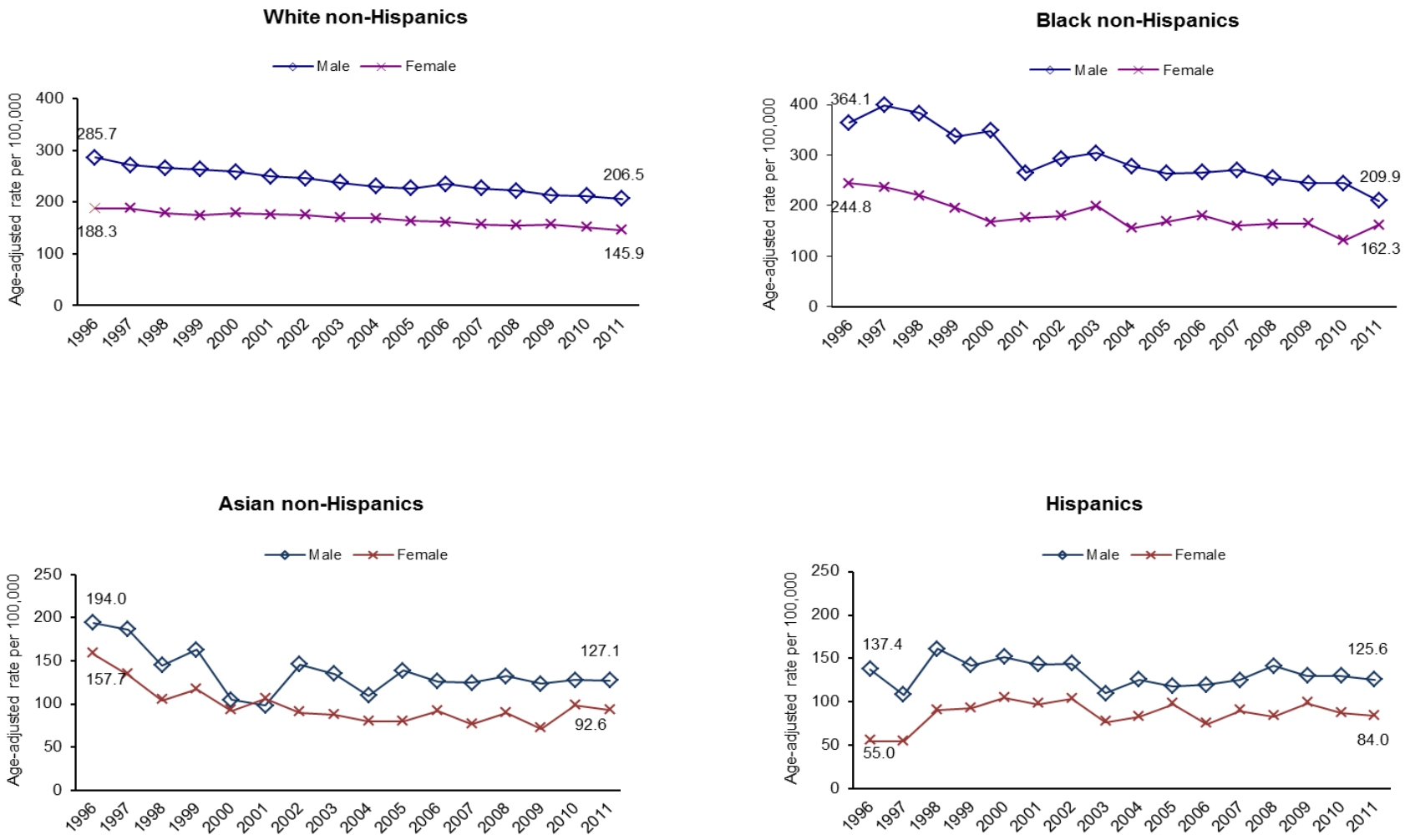
1. Ranking based on number of deaths. Underlying Cause of Death based on ICD-10 (Please see Appendix for a list of ICD-10 codes used). **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Figure 22. Heart Disease Death Rates[1] by Race/Ethnicity and Gender, Massachusetts: 1996-2011[2]



1. Rates are per 100,000 population, age-adjusted to the 2010 U.S. Standard Population. 2. For 1996-1998 the comparability modified rates were used). **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Figure 23. Cancer Death Rates[1] by Race/Ethnicity and Gender, Massachusetts: 1996-2011[2]



1. Rates are per 100,000 population, age-adjusted to the 2010 U.S. Standard Population. 2. For 1996-1998 the comparability modified rates were used) **. Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 39. Underlying Cause of Death where Diabetes[1] is a Contributing Cause, Massachusetts: 2011

Underlying Cause of Death	Number	Proportion (%)
Cardiovascular Diseases	1,113	44.0
Heart Disease	920	36.3
Stroke	136	5.4
Cancer	425	16.8
Diseases of the respiratory system	271	10.7
Chronic lower respiratory disease[2]	33	1.3
Influenza and pneumonia	1	--[3]
Diseases of the digestive system	92	3.6
Diseases of the genito-urinary system	37	1.5
Nephritis	16	0.6
Diseases of the nervous system and sense organs	123	4.9
Alzheimer's Disease	58	2.3
Parkinson's Disease	20	0.8
Infectious and parasitic diseases	75	3.0
HIV/AIDS	3	--[3]
Injury and poisoning	97	3.8
Endocrine, nutritional and metabolic diseases and immunity disorders	39	1.5
Diseases of the musculoskeletal systems and connective tissue	16	0.6
Other	244	9.6
Total deaths where diabetes is ONLY a contributing cause	**2,532**	**100%**

1. ICD-10: E10-E14. 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). 3. Calculations based on values . 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 40. Associated Causes of Death where Diabetes[1] is the Underlying Cause of Death, Massachusetts: 2011

Associated Causes of Death	Number	Proportion (%)
Cardiovascular Disease alone	545	48.5%
Cardiovascular Disease and Diseases of the Genitourinary System	193	17.2%
No Associated Causes	103	9.2%
Cardiovascular Disease and Diseases of the Respiratory System	74	6.6%
Other Associated Cause Combinations less than 10	69	6.1%
Diseases of the Genitourinary System alone	49	4.4%
Cardiovascular Disease and Diseases of the Nervous System	28	2.5%
Cardiovascular Disease, Diseases of the Respiratory System and Diseases of the Genitourinary System	25	2.2%
Diseases of the Respiratory System alone	19	1.7%
Cancer & Cardiovascular Disease	19	1.7%
Total deaths where diabetes is the underlying cause of death	**1,124**	**100.0%**

1. **ICD-10:** E10-E14. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 41. HIV/AIDS[1] Deaths by Race, Hispanic Ethnicity, and Gender of Persons Ages 25-44, Massachusetts: 2000-2011

TOTAL	White non-Hispanic[2]		Black non-Hispanic[2]		Hispanic	
Year	#	Rate[3]	#	Rate[3]	#	Rate[3]
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
2005	29	2.0	22	18.2	19	10.7
2006	35	2.5	17	14.2	23	12.9
2007	16	1.2	11	9.1	12	6.6
2008	19	1.4	9	7.4	8	4.3
2009	11	0.8	7	5.7	12	6.3
2010	9	0.7	6	4.7	12	6.1
2011	6	0.5	7	5.4	7	3.4
MALE						
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
2005	21	2.9	12	20.4	11	12.3
2006	22	3.2	12	20.5	12	13.3
2007	16	2.4	5	8.5	9	9.7
2008	13	2.0	3	--[4]	6	6.2
2009	8	1.2	4	--[4]	5	5.5
2010	3	--[4]	3	--[4]	3	--[4]
2011	4	--[4]	4	--[4]	3	--[4]
FEMALE						
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
2005	8	1.1	10	16.0	8	9.0
2006	13	1.8	5	8.2	11	12.5
2007	0	0.0	6	9.8	3	--[4]
2008	6	0.9	6	9.8	2	--[4]
2009	3	--[4]	3	--[4]	7	7.0
2010	6	0.9	3	--[4]	9	9.3
2011	2	--[4]	3	--[4]	4	--[4]

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 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. Calculations based on values 1-4 are excluded. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 42. Premature Mortality Rates by Community Health Network Area (CHNA), Massachusetts: 2011

CHNA (Name and Number)	Number of Deaths	PMR[1] (per 100,000 population)
Massachusetts	**19,189**	**278.2**
Community Health Network of Berkshire (1)	467	295.6
Upper Valley Health Web (Franklin County) (2)	287	274.5
Partnership for Health in Hampshire County (Northampton) (3)	385	244.7
The Community Health Connection (Springfield) (4)	1,018	338.5
Community Health Network of Southern Worcester County (5)	422	325.0
Community Partners for Health (Milford) (6)	435	261.2
Community Health Network of Greater Metro West (Framingham) (7)	880	214.4
Common Pathways (Worcester) (8)	879	291.9
Community Health Network of North Central Massachusetts (9)	830	301.1
Greater Lowell Community Health Network (10)	852	302.4
Greater Lawrence Community Health Network (11)	470	253.5
Greater Haverhill Community Health Network (12)	473	291.1
Community Health Network North (Beverly/Gloucester) (13)	333	236.5
North Shore Community Health Network (14)	869	283.9
Northwest Suburban Health Alliance (15)	456	187.2
North Suburban Health Alliance (Medford/Malden/Melrose) (16)	790	281.0
Greater Cambridge/Somerville Community Health Network (17)	597	236.0
West Suburban Health Network (Newton/Waltham) (18)	528	189.9
Alliance for Community Health (Boston/Chelsea/Revere/Winthrop) (19)	2,076	305.0
Blue Hills Community Health Alliance (Greater Quincy) (20)	1,120	267.2
Community Health Network of Chicopee, Holyoke, Ludlow, Westfield (21)	587	345.9
Greater Brockton Community Health Network (22)	842	341.4
South Shore Community Health Network (23)	578	266.5
Greater Attleboro-Taunton Health & Education Response (24)	781	288.8
Partners for Healthier Communities (Fall River) (25)	534	349.0
Greater New Bedford Community Health Network (26)	804	360.4
Cape Cod and Islands Health Network (27)	895	263.9

1. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population for persons ages 0-74 years. **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 43. Premature Mortality Rates by County, Massachusetts: 2011

County	Number of Deaths	PMR[1] (per 100,000 population)
Massachusetts	**19,189**	**278.2**
Barnstable	831	267.5
Berkshire	467	293.1
Bristol	1,897	316.2
Dukes	44	191.8
Essex	2,145	262.9
Franklin	230	254.3
Hampden	1,620	334.2
Hampshire	394	242.8
Middlesex	3,745	235.3
Nantucket	21	193.9
Norfolk	1,775	239.9
Plymouth	1,648	291.6
Suffolk	1,984	309.3
Worcester	2,388	285.2

1. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population for persons ages 0-74 years.
Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.

Table 44. Selected Causes of Death by Community, Massachusetts: 2011

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Massachusetts	**53,534**	**674.0**	**11,818**	**12,831**	**3,402**	**851**	**2,465**	**2,666**	**1,124**	**1,416**	**382**	**201**	**590**	**516**
Abington	125	793.1	24	30	8	2	6	11	4	2	0	0	0	1
Acton	116	599.8	23	36	4	6	7	5	4	1	1	0	1	0
Acushnet	73	552.4	14	18	8	0	3	3	2	4	0	0	1	0
Adams	89	666.0	22	16	7	1	7	7	0	3	0	0	1	1
Agawam	324	711.0	73	74	23	4	9	19	8	11	1	0	2	5
Alford	6	525.6	2	3	0	0	0	0	0	0	0	0	0	0
Amesbury	143	801.3	40	30	8	0	7	8	2	2	1	0	1	1
Amherst	152	609.5	43	32	6	2	10	6	2	0	1	0	2	0
Andover	234	603.0	38	53	13	5	14	14	4	3	0	2	1	1
Aquinnah	1	--[4]	0	0	0	0	1	0	0	0	0	0	0	0
Arlington	359	590.1	76	92	20	3	11	16	5	9	1	1	5	4
Ashburnham	36	722.1	8	12	3	1	0	1	0	3	1	0	1	0
Ashby	21	823.1	4	7	1	0	1	0	1	0	0	0	1	1
Ashfield	15	786.5	3	3	0	0	0	1	0	0	0	0	0	0
Ashland	96	642.5	25	24	7	0	3	6	0	2	0	0	1	1
Athol	134	862.9	32	24	6	2	9	10	1	5	0	0	0	3
Attleboro	362	734.6	72	82	34	2	11	21	9	16	1	1	8	7
Auburn	193	739.6	43	44	12	2	10	12	2	4	0	0	2	3
Avon	58	991.2	13	17	4	0	4	1	3	0	2	1	3	1
Ayer	68	924.7	18	18	5	2	2	1	0	1	1	0	0	0
Barnstable	491	652.1	112	124	36	9	29	29	12	10	3	1	8	4
Barre	40	647.9	15	5	2	0	0	6	1	0	1	0	1	0
Becket	12	608.8	2	3	1	0	1	1	0	0	0	0	0	0
Bedford	128	558.5	25	29	8	1	10	10	2	5	2	0	2	0
Belchertown	86	649.9	18	27	5	0	4	5	3	0	0	0	2	1
Bellingham	102	661.5	25	28	7	1	2	7	1	0	1	0	1	0
Belmont	210	604.6	36	56	10	5	12	7	2	6	0	0	1	0
Berkley	34	809.4	12	8	4	0	0	0	2	0	0	0	1	0
Berlin	21	591.2	6	5	3	0	0	0	0	0	0	0	0	0
Bernardston	15	491.5	1	6	1	1	2	1	0	0	0	0	0	2
Beverly	353	676.4	92	64	17	11	30	27	6	10	1	1	5	2
Billerica	273	746.3	65	62	19	6	15	17	5	4	3	0	4	2
Blackstone	68	732.0	14	19	6	1	0	2	1	2	2	0	1	0
Blandford	8	568.0	2	1	1	0	1	1	0	0	1	0	0	0
Bolton	23	637.5	4	9	2	0	1	0	1	2	0	0	0	1

Table 44. Selected Causes of Death by Community, Massachusetts: 2011

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Boston	3,595	671.1	706	904	215	53	140	149	98	82	25	56	50	47
Bourne	232	756.0	46	67	17	7	17	13	11	5	2	1	3	0
Boxborough	18	473.3	3	4	0	0	2	0	0	0	0	0	2	0
Boxford	35	436.9	13	5	0	0	1	1	0	0	0	0	0	0
Boylston	30	645.9	4	5	1	1	3	2	0	0	2	0	0	0
Braintree	371	723.4	94	84	22	8	17	23	11	8	1	0	1	3
Brewster	159	653.8	41	28	5	5	8	7	2	2	1	0	2	0
Bridgewater	166	716.9	39	39	8	4	7	10	2	6	4	0	5	4
Brimfield	21	497.8	6	6	3	0	0	4	0	0	0	0	0	1
Brockton	748	791.7	183	160	56	9	25	42	19	25	6	11	9	10
Brookfield	28	764.7	9	8	3	0	0	0	0	1	0	0	0	0
Brookline	312	469.0	51	88	10	13	17	11	7	7	1	0	5	2
Buckland	17	633.2	5	8	2	0	0	1	0	0	1	0	0	0
Burlington	196	621.7	53	49	12	4	6	9	3	5	3	0	3	1
Cambridge	488	584.0	82	129	29	9	27	16	10	11	2	4	10	2
Canton	223	651.2	59	50	15	4	11	10	4	2	0	1	2	2
Carlisle	9	185.1	4	3	1	0	0	0	0	0	0	0	0	0
Carver	89	639.4	25	24	8	0	2	6	2	3	0	0	4	3
Charlemont	4	--[4]	1	2	0	0	0	0	0	1	0	0	0	0
Charlton	108	753.3	31	28	12	1	4	6	7	1	0	0	1	2
Chatham	108	614.1	26	29	4	1	6	8	3	4	0	0	0	0
Chelmsford	293	644.4	61	73	17	9	8	14	7	9	1	0	6	2
Chelsea	280	975.4	49	59	18	4	12	13	8	7	4	1	1	5
Cheshire	20	513.6	7	4	0	0	0	1	1	0	0	0	0	0
Chester	12	807.0	3	3	1	0	1	1	0	0	0	0	1	0
Chesterfield	5	472.4	1	2	0	0	0	0	0	0	0	0	0	0
Chicopee	595	799.7	138	151	44	6	29	31	6	21	0	3	6	6
Chilmark	8	399.6	1	2	1	0	1	0	0	1	0	0	0	0
Clarksburg	14	661.6	4	3	1	0	0	0	0	0	0	0	0	0
Clinton	114	747.9	23	24	10	1	6	7	1	10	1	0	0	0
Cohasset	50	452.2	15	7	2	1	3	1	0	1	0	0	0	0
Colrain	13	684.6	2	3	1	0	0	0	0	1	1	0	0	0
Concord	164	480.9	29	37	8	1	10	6	3	4	0	0	0	1
Conway	9	510.0	3	1	0	0	1	0	0	0	0	0	0	0
Cummington	4	--[4]	1	1	1	0	0	1	0	0	0	0	0	0
Dalton	82	753.4	18	17	5	0	7	7	1	3	0	0	1	1

Table 44. Selected Causes of Death by Community, Massachusetts: 2011

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Danvers	307	705.6	63	56	14	4	21	17	11	8	1	1	1	0
Dartmouth	275	586.0	63	55	10	4	15	14	1	10	6	0	0	3
Dedham	330	757.7	74	69	22	3	15	10	2	9	0	0	2	1
Deerfield	43	660.5	12	8	0	1	4	1	3	1	0	0	1	0
Dennis	219	675.2	51	71	16	5	3	15	3	4	1	0	2	0
Dighton	46	592.0	10	13	2	2	2	2	1	1	0	0	0	0
Douglas	46	746.7	7	16	8	1	1	1	2	1	0	0	0	1
Dover	21	419.4	3	10	2	0	1	0	1	1	0	0	1	0
Dracut	255	830.1	54	58	15	3	11	17	5	9	0	0	6	2
Dudley	93	796.1	25	24	6	0	2	7	3	2	1	0	1	0
Dunstable	10	492.0	3	3	0	1	0	0	0	0	0	0	0	0
Duxbury	125	593.6	24	33	6	1	6	4	3	2	0	0	2	0
East Bridgewater	122	841.0	47	30	9	4	3	6	1	3	1	0	1	1
East Brookfield	13	501.8	4	2	2	0	1	1	1	1	0	0	1	0
East Longmeadow	191	618.0	40	43	14	0	7	7	4	6	1	0	0	1
Eastham	71	547.4	10	17	5	1	3	1	1	2	1	0	1	0
Easthampton	138	642.3	36	34	10	3	6	7	2	4	4	0	2	0
Easton	161	720.8	41	53	10	4	6	2	0	4	3	1	3	0
Edgartown	30	659.1	8	7	2	1	2	1	0	2	0	1	1	0
Egremont	9	406.5	2	5	2	0	0	1	0	0	0	0	0	0
Erving	15	649.9	5	2	0	1	2	1	0	0	0	0	0	0
Essex	28	680.0	6	11	5	0	1	0	0	0	0	0	0	0
Everett	313	747.2	57	75	23	6	6	18	6	6	1	0	1	4
Fairhaven	259	914.5	50	45	17	5	10	14	2	11	2	0	1	1
Fall River	938	809.2	201	214	64	10	33	59	21	29	11	2	10	22
Falmouth	388	611.2	86	94	26	5	26	21	10	9	4	0	3	1
Fitchburg	389	871.3	80	72	23	4	34	23	13	12	3	0	4	6
Florida	8	918.6	1	1	1	0	0	0	0	0	1	0	0	0
Foxborough	102	580.4	23	25	7	0	7	5	4	2	0	0	1	2
Framingham	553	640.1	134	119	34	9	13	26	10	10	5	3	7	2
Franklin	165	625.6	40	38	12	4	6	7	2	5	0	0	0	2
Freetown	72	917.9	17	29	7	3	3	1	0	5	2	0	1	1
Gardner	216	806.0	45	53	16	4	10	14	6	8	1	0	2	2
Georgetown	46	632.5	12	15	5	0	0	3	1	0	0	0	2	0
Gill	12	658.7	0	6	2	0	1	0	0	0	0	0	0	0
Gloucester	324	765.9	65	82	18	8	12	16	9	5	2	0	6	5

Table 44. Selected Causes of Death by Community, Massachusetts: 2011

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Goshen	4	--[4]	2	2	0	0	0	0	0	0	0	0	0	0
Gosnold	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0
Grafton	114	663.7	24	36	11	3	3	7	0	2	0	0	2	1
Granby	41	627.9	16	10	2	1	3	0	0	2	0	0	1	0
Granville	8	485.3	2	0	0	0	1	0	0	0	0	0	0	0
Great Barrington	80	649.7	21	11	3	1	11	7	2	2	0	0	0	1
Greenfield	238	865.6	38	34	6	3	20	15	4	11	1	0	0	2
Groton	58	625.2	11	10	3	2	4	3	0	1	0	0	3	0
Groveland	68	916.3	18	22	8	1	3	1	0	0	0	0	0	2
Hadley	47	401.4	17	3	1	0	2	2	0	2	0	0	0	0
Halifax	58	719.6	19	14	0	1	1	2	0	2	2	0	1	1
Hamilton	55	689.1	16	13	4	0	2	2	1	2	0	0	1	0
Hampden	55	761.8	15	9	3	0	3	3	0	0	0	0	0	2
Hancock	6	673.0	3	1	0	0	0	1	0	1	0	0	0	0
Hanover	87	631.3	22	13	6	1	6	7	1	6	0	0	2	1
Hanson	70	809.8	18	23	6	0	3	1	0	2	1	0	0	0
Hardwick	26	788.0	7	7	4	0	0	1	0	0	0	1	1	0
Harvard	38	643.6	8	3	1	0	2	1	1	3	0	0	2	0
Harwich	208	711.2	55	46	14	2	17	8	5	8	0	0	2	1
Hatfield	42	863.5	10	7	0	1	3	2	2	0	1	0	0	0
Haverhill	531	779.8	149	128	40	10	23	22	7	12	6	1	5	0
Hawley	1	--[4]	0	0	0	0	0	0	0	0	0	0	0	0
Heath	1	--[4]	0	0	0	0	0	0	0	0	0	0	0	0
Hingham	248	624.6	54	61	10	4	17	8	0	11	1	0	1	0
Hinsdale	11	437.8	1	4	2	0	0	0	0	1	1	0	1	0
Holbrook	97	752.6	20	29	12	1	5	4	6	2	0	0	2	1
Holden	149	695.5	35	31	8	1	12	3	2	5	2	0	3	1
Holland	6	270.3	2	0	0	0	0	1	0	2	0	0	0	0
Holliston	83	629.8	15	28	6	1	1	5	1	3	0	0	1	1
Holyoke	431	828.7	95	74	21	4	22	22	10	22	3	2	6	3
Hopedale	51	655.0	10	18	6	1	1	1	1	1	1	0	0	0
Hopkinton	63	634.1	9	15	2	0	3	4	2	2	0	0	2	0
Hubbardston	27	810.5	6	6	0	1	4	2	1	0	0	0	1	0
Hudson	142	684.2	35	40	10	2	4	7	1	2	4	0	1	3
Hull	65	558.5	9	12	1	0	1	3	1	3	1	0	2	2
Huntington	17	731.8	3	7	1	1	1	0	0	0	0	0	0	0

Table 44. Selected Causes of Death by Community, Massachusetts: 2011

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Ipswich	117	595.8	26	36	7	4	4	5	4	1	1	0	2	1
Kingston	114	645.5	27	28	6	1	5	4	2	2	1	0	0	2
Lakeville	64	581.9	15	18	5	1	4	2	2	3	0	0	0	0
Lancaster	59	749.0	13	12	4	0	8	1	2	0	0	0	1	0
Lanesborough	15	359.2	3	2	0	0	0	1	0	1	1	0	0	0
Lawrence	448	746.5	101	94	23	10	17	20	15	14	4	9	2	5
Lee	89	951.7	21	18	4	1	6	3	3	3	0	0	0	0
Leicester	77	651.6	17	25	8	0	4	6	0	3	1	0	0	1
Lenox	110	757.9	22	20	8	0	7	7	4	3	0	0	1	1
Leominster	368	733.6	81	91	24	2	38	25	8	6	3	2	6	4
Leverett	5	283.8	2	1	1	0	1	0	0	0	0	0	0	0
Lexington	230	418.3	45	51	12	7	12	10	3	5	0	2	0	1
Leyden	12	2,611.8	3	4	0	1	2	1	0	0	0	0	0	0
Lincoln	33	376.6	5	11	0	1	1	5	1	0	1	0	0	0
Littleton	39	369.2	8	6	0	0	2	5	1	2	1	0	0	0
Longmeadow	147	511.0	33	29	6	1	7	9	3	2	3	0	2	0
Lowell	819	865.3	179	169	43	13	27	41	19	21	4	5	7	19
Ludlow	183	620.4	37	40	9	1	14	14	6	7	3	0	1	1
Lunenburg	36	346.7	7	5	1	1	5	2	1	0	1	0	1	0
Lynn	658	727.3	150	177	42	10	23	32	17	11	4	2	8	12
Lynnfield	109	620.4	32	26	3	2	4	4	1	3	1	0	0	0
Malden	423	702.8	97	122	36	8	22	15	8	11	1	2	2	5
Manchester	52	735.7	12	14	1	0	5	0	1	0	0	0	0	0
Mansfield	140	778.7	26	54	13	4	5	6	1	1	1	0	1	0
Marblehead	141	512.3	36	38	6	2	6	6	2	3	0	0	0	0
Marion	67	705.8	18	12	3	1	4	4	2	2	0	0	0	1
Marlborough	320	740.3	79	73	13	4	10	18	2	12	1	1	3	5
Marshfield	202	817.2	43	60	14	5	4	9	3	8	2	3	1	1
Mashpee	146	631.8	25	42	11	2	9	10	0	3	2	1	0	2
Mattapoisett	43	480.0	13	10	3	1	2	4	0	0	1	0	2	0
Maynard	77	718.1	21	23	8	4	2	5	2	1	0	0	2	0
Medfield	63	540.8	20	15	3	1	4	1	0	0	0	0	0	0
Medford	532	699.7	140	119	32	7	27	29	7	16	1	3	7	6
Medway	87	743.2	17	24	5	1	4	2	2	0	0	0	1	1
Melrose	231	613.4	46	54	17	4	15	10	3	7	0	0	4	6
Mendon	23	483.1	6	3	0	0	2	1	0	0	1	0	1	0

Table 44. Selected Causes of Death by Community, Massachusetts: 2011

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Merrimac	41	623.0	8	11	2	3	3	4	1	3	1	0	0	0
Methuen	399	687.9	110	90	25	6	13	12	6	13	2	0	6	2
Middleborough	236	889.4	45	56	21	1	5	18	5	8	0	1	3	4
Middlefield	5	751.2	0	3	2	0	0	0	0	0	0	0	0	0
Middleton	52	530.7	5	15	3	1	1	4	1	0	0	0	2	0
Milford	215	674.6	71	42	12	3	2	12	7	5	3	0	2	1
Millbury	133	805.8	24	32	12	1	5	5	5	5	3	0	2	1
Millis	58	754.1	11	20	6	0	2	1	0	0	2	0	2	0
Millville	12	522.8	4	2	0	1	0	1	0	0	1	0	0	0
Milton	220	571.6	49	55	8	2	11	11	4	11	1	0	1	1
Monroe	1	--[4]	0	0	0	0	0	1	0	0	0	0	0	0
Monson	73	752.4	14	19	6	1	3	6	2	3	0	0	0	0
Montague	81	703.8	19	17	2	0	5	6	1	1	0	0	1	0
Monterey	4	--[4]	1	1	0	0	0	1	0	0	1	0	0	0
Montgomery	3	--[4]	1	1	0	0	0	0	0	0	0	0	0	0
Mount Washington	4	--[4]	0	1	0	1	0	0	1	0	0	0	0	0
Nahant	33	532.8	4	4	0	2	2	2	0	0	0	0	0	0
Nantucket	69	695.2	14	18	6	1	6	1	1	3	0	1	1	0
Natick	255	635.2	66	66	17	6	15	16	3	8	1	0	3	2
Needham	256	533.9	58	51	7	4	14	10	1	8	1	0	1	0
New Ashford	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0
New Bedford	1,023	845.4	215	231	56	7	37	42	18	37	11	7	10	18
New Braintree	7	488.7	1	2	0	0	0	0	0	0	0	0	1	1
New Marlborough	11	487.4	3	6	2	1	0	0	1	0	0	0	0	0
New Salem	6	568.9	1	1	0	1	0	1	0	0	0	0	1	0
Newbury	43	649.2	9	13	5	1	1	4	0	1	1	0	1	0
Newburyport	168	670.2	36	39	9	5	7	8	4	6	2	0	1	1
Newton	577	472.5	133	152	37	10	26	15	6	17	0	0	5	2
Norfolk	38	534.1	3	11	5	0	2	1	1	3	0	1	2	0
North Adams	160	854.2	26	42	15	1	6	7	4	6	1	1	2	0
North Andover	226	591.5	45	50	13	5	4	12	4	7	1	0	2	1
North Attleboro	202	752.7	49	50	11	5	10	10	2	5	1	0	5	3
North Brookfield	42	779.9	10	11	4	0	1	3	1	3	0	0	1	0
North Reading	103	696.7	20	34	7	2	4	6	3	2	1	0	1	0
Northampton	259	703.8	48	57	14	4	19	14	7	11	0	0	1	4
Northborough	114	726.6	25	20	5	3	8	2	2	3	1	0	1	1

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CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Northbridge	150	741.8	40	31	6	2	4	4	0	8	0	0	3	3
Northfield	25	664.7	8	8	2	1	0	1	1	1	0	0	0	1
Norton	131	772.3	21	33	9	2	10	9	3	2	1	0	1	2
Norwell	96	649.8	26	15	2	0	4	3	4	2	1	0	0	0
Norwood	298	691.9	57	75	17	6	15	11	12	10	3	0	2	2
Oak Bluffs	53	733.7	5	14	5	1	3	5	2	3	0	0	1	0
Oakham	9	498.5	1	2	1	0	0	0	2	0	0	0	0	0
Orange	62	671.5	16	15	4	0	4	4	0	3	0	0	0	1
Orleans	99	546.7	29	17	5	1	8	9	0	1	0	0	1	0
Otis	18	899.8	3	5	1	0	2	0	0	0	1	0	1	0
Oxford	138	1,013.7	25	43	19	1	5	4	4	4	2	0	2	4
Palmer	129	802.0	32	27	5	3	5	7	3	4	2	0	0	1
Paxton	26	479.6	4	11	0	0	0	3	1	0	0	0	1	0
Peabody	656	711.0	158	163	45	10	42	34	16	21	5	4	2	1
Pelham	6	348.3	1	0	0	0	1	1	0	0	0	0	0	0
Pembroke	109	726.2	24	38	6	1	2	7	4	3	2	0	1	1
Pepperell	61	639.3	12	21	4	1	4	4	1	0	1	0	0	3
Peru	1	--[4]	0	0	0	0	0	0	0	0	0	0	0	0
Petersham	8	594.8	0	1	1	0	0	0	0	0	0	0	0	0
Phillipston	11	770.7	1	5	1	1	2	0	0	0	0	0	0	0
Pittsfield	501	751.3	106	119	32	6	24	28	11	14	4	4	8	1
Plainfield	3	--[4]	0	2	1	0	1	0	0	0	0	0	0	0
Plainville	55	657.4	9	14	3	1	1	2	2	3	0	0	1	0
Plymouth	486	730.7	114	111	27	11	16	33	13	8	4	3	4	5
Plympton	14	618.1	4	1	0	0	2	0	0	0	0	0	1	0
Princeton	17	502.8	2	7	1	1	0	1	1	0	0	0	2	0
Provincetown	49	1,065.2	8	17	2	0	3	2	1	0	2	0	1	0
Quincy	860	703.2	180	214	74	13	39	34	22	29	1	2	9	20
Randolph	256	689.0	75	60	15	4	14	15	5	7	4	4	0	3
Raynham	94	597.0	25	27	10	3	7	5	3	0	0	0	0	0
Reading	196	630.0	39	60	19	7	7	12	5	4	1	2	2	0
Rehoboth	63	589.5	19	13	4	0	2	2	1	1	1	0	0	0
Revere	451	698.5	102	119	37	9	15	18	12	11	1	1	3	7
Richmond	9	408.3	3	4	1	0	0	0	0	0	0	0	0	0
Rochester	26	547.9	6	8	3	0	0	2	0	0	0	0	1	0

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CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Rockland	158	800.1	28	49	14	3	5	7	5	2	0	1	2	3
Rockport	59	422.7	10	15	2	2	2	7	1	1	0	0	1	0
Rowe	1	--[4]	0	0	0	0	0	0	0	0	0	0	0	0
Rowley	37	639.0	7	9	0	2	5	5	1	1	0	0	1	0
Royalston	11	1,100.9	3	2	1	0	0	0	0	0	0	0	0	0
Russell	19	1,178.6	4	2	1	0	1	2	0	1	1	0	1	1
Rutland	19	309.4	3	7	2	0	0	1	1	0	0	0	1	0
Salem	318	688.4	79	81	24	8	18	13	6	8	4	0	4	3
Salisbury	75	807.9	15	18	6	1	2	4	1	1	2	0	2	2
Sandisfield	13	975.4	1	1	0	0	2	1	0	0	2	0	1	0
Sandwich	148	577.0	31	43	8	7	11	8	2	0	1	0	3	1
Saugus	255	703.1	50	72	23	3	13	11	2	5	3	0	3	2
Savoy	2	--[4]	0	0	0	0	0	0	0	0	0	0	0	0
Scituate	199	847.9	33	55	17	3	11	13	4	6	0	0	5	3
Seekonk	106	656.4	33	26	5	3	6	4	5	2	0	0	0	1
Sharon	90	480.0	22	24	6	1	1	5	7	0	1	0	1	1
Sheffield	23	508.8	6	6	1	0	2	2	0	0	1	0	0	1
Shelburne	26	747.3	9	4	0	0	0	2	1	0	0	0	0	0
Sherborn	17	457.9	1	10	4	0	0	0	0	0	0	0	0	0
Shirley	54	835.2	9	20	6	4	3	3	0	1	1	0	1	1
Shrewsbury	241	557.4	64	45	12	2	12	13	5	10	2	0	5	3
Shutesbury	5	341.0	1	1	1	0	0	1	0	0	0	0	0	0
Somerset	253	753.2	74	51	15	0	8	9	3	9	1	0	1	1
Somerville	444	734.1	84	113	20	10	19	24	11	19	3	1	10	5
South Hadley	186	696.8	37	46	14	4	10	14	4	7	1	0	1	0
Southampton	32	583.0	6	10	3	3	2	2	1	0	0	0	2	0
Southborough	51	634.4	6	13	5	1	1	2	0	0	0	0	0	1
Southbridge	167	784.2	32	40	19	2	9	9	5	4	0	0	1	1
Southwick	82	694.0	20	19	4	0	4	5	0	1	0	0	0	1
Spencer	88	683.7	18	25	6	4	3	7	1	3	0	0	1	3
Springfield	1,154	788.2	246	236	58	18	66	55	32	27	17	16	12	16
Sterling	65	675.5	11	12	4	1	4	2	2	1	0	0	1	0
Stockbridge	23	563.3	4	4	1	0	2	3	1	0	0	0	1	1
Stoneham	200	580.8	54	45	11	6	9	8	2	4	0	0	1	3
Stoughton	251	700.8	53	55	10	4	12	13	8	6	0	1	3	3
Stow	26	399.4	3	11	3	0	2	1	1	0	0	0	0	0

Table 44. Selected Causes of Death by Community, Massachusetts: 2011

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
Sturbridge	62	599.8	8	16	7	0	5	6	3	2	0	0	2	1
Sudbury	103	598.9	30	22	7	1	2	6	1	3	1	0	3	0
Sunderland	26	759.5	6	7	1	0	2	2	0	1	0	0	0	0
Sutton	53	721.4	10	17	9	2	0	4	2	2	0	0	0	2
Swampscott	132	496.4	25	30	10	4	3	2	1	3	0	0	1	0
Swansea	156	686.4	36	30	7	2	4	12	4	5	4	0	1	0
Taunton	499	765.6	131	107	35	6	25	18	13	16	7	1	4	1
Templeton	81	902.9	15	25	8	1	4	5	5	1	0	0	0	0
Tewksbury	281	830.7	48	77	20	4	7	12	5	11	3	0	3	1
Tisbury	36	608.5	13	10	1	0	6	1	0	0	0	0	0	0
Tolland	4	--[4]	2	1	0	0	0	0	0	0	0	0	0	0
Topsfield	62	593.2	14	12	4	0	4	0	1	1	0	0	0	0
Townsend	50	691.3	12	15	5	0	2	1	4	1	2	0	1	0
Truro	26	832.0	5	8	0	1	2	1	0	0	1	0	0	1
Tyngsborough	64	781.8	9	20	11	2	1	3	0	0	2	0	1	0
Tyringham	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0
Upton	39	577.2	9	12	0	1	2	1	1	0	1	0	1	0
Uxbridge	99	710.1	22	25	5	3	4	5	0	2	0	0	3	0
Wakefield	224	702.8	46	61	16	3	10	8	4	3	1	1	2	1
Wales	13	793.6	2	5	3	0	0	0	0	1	0	0	0	0
Walpole	191	584.7	46	46	13	2	9	7	4	2	0	0	1	2
Waltham	445	682.9	92	104	27	5	26	21	14	6	2	3	3	5
Ware	98	805.0	27	24	4	1	1	12	0	2	2	0	0	1
Wareham	263	909.7	77	80	29	7	3	12	2	3	4	2	0	5
Warren	49	944.6	9	12	2	1	2	3	0	0	1	0	0	1
Warwick	4	--[4]	1	1	0	0	1	0	0	0	0	0	0	0
Washington	3	--[4]	2	0	0	0	0	0	0	0	0	0	0	0
Watertown	226	551.3	42	62	21	8	11	14	4	7	2	0	0	0
Wayland	109	566.4	25	28	6	2	4	5	3	1	0	1	1	0
Webster	187	735.1	38	32	6	3	11	21	2	5	0	1	1	4
Wellesley	162	480.6	38	37	5	5	9	5	3	2	2	0	2	0
Wellfleet	33	589.6	4	11	2	1	3	2	0	0	0	0	0	0
Wendell	2	--[4]	0	1	1	0	0	0	0	0	0	0	0	0
Wenham	23	386.0	6	5	2	0	1	0	1	2	0	0	0	0
West Boylston	92	742.8	21	19	5	0	2	4	3	3	1	0	1	0
West Bridgewater	70	622.1	22	9	4	0	4	5	4	1	0	1	3	1

Table 44. Selected Causes of Death by Community, Massachusetts: 2011

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[5]
West Brookfield	41	623.3	12	11	5	1	3	2	0	0	0	0	0	0
West Newbury	24	643.1	6	4	1	0	0	0	0	0	0	0	1	0
West Springfield	254	695.7	69	54	13	6	10	9	3	6	2	0	3	3
West Stockbridge	18	846.1	2	7	1	0	1	1	0	1	0	0	0	0
West Tisbury	8	274.8	1	3	1	0	0	0	0	1	0	0	1	0
Westborough	160	687.9	28	30	2	2	5	9	7	9	1	0	2	0
Westfield	356	731.5	66	89	26	5	19	19	5	9	4	2	5	2
Westford	124	827.0	26	31	6	0	5	5	0	7	3	0	1	0
Westhampton	13	808.7	1	6	3	0	2	1	0	0	0	0	0	0
Westminster	50	680.1	15	9	2	3	3	2	0	0	1	0	1	0
Weston	116	612.7	29	22	6	0	5	3	4	3	0	0	0	0
Westport	160	716.7	33	41	12	3	7	8	2	4	1	0	1	0
Westwood	133	487.6	28	28	8	0	5	8	0	2	0	0	2	0
Weymouth	542	790.1	133	117	37	4	23	29	21	12	4	3	8	6
Whately	15	718.3	3	3	1	0	0	1	0	2	0	0	0	0
Whitman	107	835.1	22	29	9	0	2	9	2	4	1	0	1	1
Wilbraham	159	653.6	45	37	5	4	6	3	1	4	0	1	3	0
Williamsburg	24	739.2	8	10	1	0	0	0	0	0	0	0	0	0
Williamstown	75	478.5	18	12	1	1	2	7	2	3	1	0	0	0
Wilmington	198	807.8	44	54	16	6	7	7	3	7	3	0	3	1
Winchendon	83	872.2	16	20	7	0	3	7	5	1	2	0	3	2
Winchester	171	487.6	25	40	8	3	21	4	4	9	0	0	1	1
Windsor	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0
Winthrop	199	837.9	32	60	16	9	4	8	2	4	2	0	0	3
Woburn	351	680.1	71	86	22	7	23	26	6	11	3	0	1	5
Worcester	1,518	779.4	299	333	94	20	57	71	39	32	10	9	15	22
Worthington	12	871.1	2	3	0	1	1	1	0	0	0	0	1	1
Wrentham	117	852.4	20	22	8	3	4	9	1	6	2	0	0	0
Yarmouth	419	784.1	103	107	35	6	22	28	11	8	2	0	7	3

1. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population. Data presented in this table are classified according to ICD-10. Please see Appendix for a 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. Rates based on 1 to 4 deaths are not calculated. 5. Deaths due to narcotics and hallucinogens including cannabis, cocaine, codeine, heroin, lysergic acid diethylamide (LSD), mescaline, methadone, morphine, and opium (alkaloids). **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 45. Selected Causes of Death by Community Health Network Area (CHNA), Massachusetts: 2011

CHNA Name	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[4]
Massachusetts	**53,534**	**674.0**	**11,818**	**12,831**	**3,402**	**851**	**2,465**	**2,666**	**1,124**	**1,416**	**382**	**201**	**590**	**516**
Community Health Network of Berkshire	1,416	688.9	304	316	89	13	80	86	31	41	14	5	17	7
Upper Valley Health Web (Franklin County)	818	714.5	175	168	34	12	56	50	11	27	3	0	3	9
Partnership for Health in Hampshire County (Northampton)	1,157	654.5	274	279	67	20	65	68	21	28	9	0	12	7
The Community Health Connection (Springfield)	2,610	727.9	598	552	139	37	123	126	56	65	28	17	23	30
Community Health Network of Southern Worcester County	1,056	745.8	231	263	97	13	46	74	27	29	4	1	11	17
Community Partners for Health (Milford)	1,110	675.8	275	275	76	21	28	48	19	26	10	0	13	10
Community Health Network of Greater Metro West (Framingham)	2,793	643.5	634	675	174	42	102	138	47	72	18	6	34	20
Common Pathways (Worcester)	2,573	725.7	535	581	163	30	108	126	57	64	21	9	31	32
Community Health Network of North Central Massachusetts	2,036	728.0	433	479	142	29	138	113	57	51	19	3	35	21
Greater Lowell Community Health Network	2,119	785.4	445	493	131	38	74	109	41	61	16	5	28	26
Greater Lawrence Community Health Network	1,359	667.4	299	302	77	27	49	62	30	37	7	11	13	9
Greater Haverhill Community Health Network	1,211	722.1	313	294	84	23	52	60	17	26	13	1	14	6
Community Health Network North (Beverly/Gloucester)	1,073	655.6	247	252	60	25	61	57	24	22	4	1	15	8
North Shore Community Health Network	2,609	681.5	597	647	167	45	132	121	56	62	18	7	19	18
Northwest Suburban Health Alliance	1,653	551.2	335	406	91	36	101	87	30	49	14	2	13	10
North Suburban Health Alliance (Medford/Malden/Melrose)	2,222	676.5	499	570	161	43	100	106	38	53	6	8	20	25
Greater Cambridge/Somerville Community Health Network	1,727	614.0	320	452	100	35	80	77	32	52	8	6	26	11
West Suburban Health Network (Newton/Waltham)	2,040	559.5	455	473	114	27	101	72	31	48	5	3	16	8
Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	4,837	673.4	940	1,230	296	88	188	199	127	111	33	58	59	64
Blue Hills Community Health Alliance (Greater Quincy)	3,518	682.2	806	829	226	50	167	166	95	102	18	10	32	43
Community Health Network of Chicopee, Holyoke, Ludlow, Westfield	1,594	762.9	342	364	102	17	86	87	27	59	10	7	19	12
Greater Brockton Community Health Network	1,905	762.7	464	451	130	28	74	103	49	53	17	15	30	23
South Shore Community Health Network	1,512	711.4	348	394	93	24	52	80	33	38	12	7	18	17
Greater Attleboro-Taunton Health & Education Response	1,977	730.3	458	487	153	29	87	97	47	55	12	3	23	18
Partners for Healthier Communities	1,507	771.5	344	336	98	15	52	88	30	47	17	2	13	23
Greater New Bedford Community Health Network	2,101	777.5	473	488	136	28	77	96	27	72	26	9	16	29
Cape Cod and Islands Health Network	3,000	656.2	674	775	202	56	185	170	64	66	20	5	37	13

1. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population. Data presented in this table are classified according to ICD-10. Please see Appendix for a 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). **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

Table 46. Selected Causes of Death by County, Massachusetts: 2011

County	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Narcotics[4]
Massachusetts	**19,189**	**674.0**	**3,272**	**6,537**	**1,826**	**494**	**487**	**865**	**493**	**267**	**328**	**196**	**561**	**515**
Barnstable	831	268	128	316	94	29	24	47	16	7	13	3	33	13
Berkshire	467	293	81	138	44	4	16	26	17	8	9	5	16	7
Bristol	1,897	316	337	643	200	34	35	84	39	39	45	12	46	60
Dukes	44	192	9	17	4	0	2	1	1	2	0	1	3	0
Essex	2,145	263	399	726	182	72	41	104	59	31	35	19	59	41
Franklin	230	254	42	69	12	4	15	16	9	1	3	0	2	6
Hampden	1,620	334	310	482	150	35	48	70	41	31	34	23	39	43
Hampshire	394	243	74	153	38	10	10	14	10	3	8	0	10	7
Middlesex	3,745	235	627	1,365	331	126	94	149	83	47	56	28	118	98
Nantucket	21	194	6	8	2	1	1	0	0	0	0	1	1	0
Norfolk	1,775	240	279	646	176	42	49	81	56	24	18	13	52	52
Plymouth	1,648	292	285	576	174	37	30	77	33	19	32	22	50	50
Suffolk	1,984	309	319	617	159	51	45	56	58	19	29	57	53	62
Worcester	2,388	285	376	781	260	49	77	140	71	36	46	12	79	76

1. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population. Data presented in this table are classified according to ICD-10. Please see Appendix for a 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). **Please note that counts and rates may differ from other sources. Please see "Note to readers" (page 7) for details.**

TECHNICAL NOTES

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, for example, *the number of deaths per 100,000*.

DATA SOURCES

Data for this document are derived from Massachusetts death certificates, Massachusetts birth certificates, the US 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 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; 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 was renamed Asians, which includes Pacific Islanders.

CAPE VERDEANS

The US 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 NCHS. Beginning with 1999 data, we have separated the concept of "Race" from "Ethnic Group" for reporting death 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 have no Cape Verdean population counts or estimates with which to calculate rates at the state or lower geographic levels. Although we can identify Cape Verdeans in the count of deaths (numerator), because we have no count or estimate of the number of Cape Verdeans in the

Massachusetts population (denominator), we are unable to calculate death rates. Beginning with the 2000 report, we have included a detailed table and figure summarizing age and cause of deaths among Cape Verdeans.

POPULATION ESTIMATES

Since the year 2010 is one in which the Census Bureau conducted a decennial count of the population, we were able to use the Census Bureau counts for 2010 as the denominators for state rates, e.g., birth rate, teen birth rate, age-specific birth rates, and the crude birth rate.

The Massachusetts Department of Public Health Race Allocated Census 2010 Estimates (MRACE 2010), which are population estimates based upon the Census 2010 Summary File 1, was used to calculate city and town rates. In this estimates file, the Census 2010 race categories, "Two or more races" and "Some other race" are redistributed to the MDPH standard race categories: Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Asian and Pacific Islander, and Non-Hispanic American Indian and Alaska Native. All persons in the Census 2010 Hispanic ethnicity category are counted as "Hispanic" race in the MDPH estimates. This kind of file is often referred to as a "bridged" file, that is, one that bridges the new race and ethnicity collections to the conventionally used categories. These population estimates are available from MassCHIP (http://masschip.state.ma.us).

When state rates were calculated by race and Hispanic ethnicity, e.g., age adjusted death rates, we used the 2010 bridged population file, MARS (Modified Age, Race/Ethnicity, and Sex) file, which is produced by the National Center for Health Statistics (NCHS) and the Census Bureau Population Estimates Program. This file has data by single year or age, sex, race and Hispanic ethnicity in the five mutually exclusive categories used by the Department: White Non-Hispanic, Black Non-Hispanic, Asian Non-Hispanic, American Indian/Alaska Native Non-Hispanic.

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 US 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 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.

TESTS OF STATISTICAL SIGNIFICANCE

Beginning with *Massachusetts Deaths 2004,* statistics presented in the text section have been tested to determine whether they differ significantly from a target statistic. For example, the number of deaths in 2008 was compared with the number of deaths in 2007 to determine whether their difference was unlikely to have occurred by chance. When a difference is unlikely to have occurred by chance, it is referred to as "significant."

Note that with respect to statistical difference, the language of this year's report differs from the language of reports prior to 2004, and caution must be used when comparing the text of previous reports with this year's report.

In testing for statistical significance, we have used the testing methods from the National Center for Health Statistics (NCHS). These methods are presented in the following document:

> National Vital Statistics Reports, Volume 52, Number 10
> Births: Final Data for 2002
> by Joyce A. Martin, M.P.H.; Brady E. Hamilton, Ph.D.; Paul D. Sutton, Ph.D.; Stephanie J. Ventura, M.A.; Fay Menacker, Dr. P.H.; and Martha L. Munson, M.S.;
> From the Division of Vital Statistics, NCHS. (Technical Notes, "Significance testing" section begins on page 110).

This document is available from the following website:
http://www.cdc.gov/nchs/products/pubs/pubd/nvsr/52/52-23.htm
For comparisons of more than 100 events, whether they are rates, proportions, or numbers, the binomial distribution is assumed, and confidence intervals are examined to see whether they overlap (Refer to the “Confidence Intervals” section in the next page for an explanation of using confidence intervals to determine statistical significance). When the number of events is less than 100, a Poisson distribution is assumed, and confidence intervals are constructed based upon the Poisson distribution. For more details and exact formulas for calculating confidence intervals or other tests of statistical significance, refer to the publication listed above.

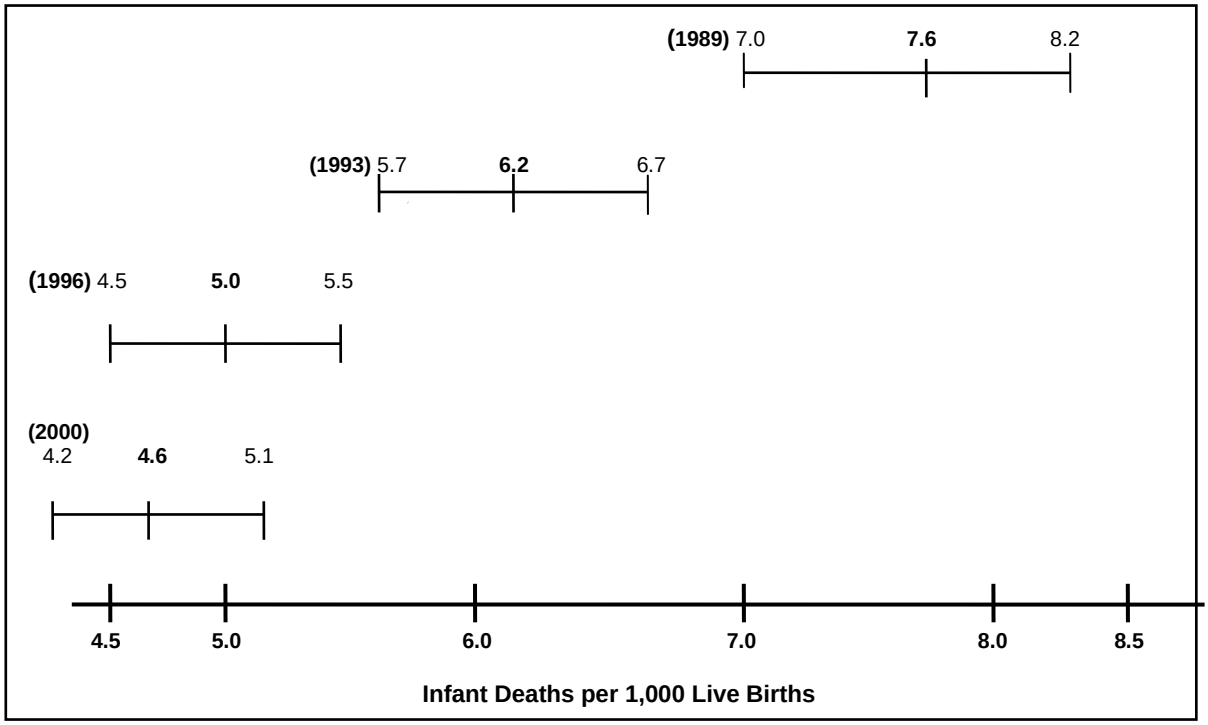
When two statistics are determined to differ significantly, they are referred to in the text with language expressing differences, such as, “higher” and “lower”, or “increased” and “decreased”. Otherwise, differences that are not significant are reported as having “no change” or “no statistical difference.”

CONFIDENCE INTERVALS AND INFANT MORTALITY RATES

The confidence interval (CI) provides a measure of stability of the infant mortality rates (IMR) and a basis for comparing rates to determine if they are statistically different. Rates can be compared for the same group in different years or for different groups in the same year. The width of the CI reflects the stability of the IMR. For example, a narrow CI reflects high stability, and a wide CI reflects low stability. If the CIs around two IMRs being compared do not overlap, the difference between the two rates is statistically significant. The following table and chart illustrate the concept of statistically significant differences using actual data from 1989, 1993, 1996, and 2000.

Comparison of Infant Mortality Rates and Confidence Intervals for Selected Years

Year	IMR (per 1,000 births)	95% Confidence Interval
1989	7.6	(7.0-8.2)
1993	6.2	(5.7-6.7)
1996	5.0	(4.5-5.5)
2000	4.6	(4.2-5.1)



The difference between the 1993 IMR and 1996 IMR is statistically significant – the confidence intervals do not overlap. The same is true for the differences between the 1989 IMR and each annual IMR for 1993, 1996, and 2000. However, the difference between the 1996 and 2000 IMRs is not statistically significant, since their confidence intervals overlap.

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 US 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 US standard population. These rates should NOT be compared with age-adjusted rates previously published that used the 1940 US 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 number of deaths for a specific age group by its population 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. CHNAs 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, please see Table A10, which provides the 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 forward.

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 CRs 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 double 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 CR 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 2008 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 (US 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 residents.

Potential Years of Life Lost (PYLL)
Total potential years of life lost (PYLL) 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 US 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 ,Washington, DC, Canada, the US Virgin Islands, and Guam 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 except for diabetes mortality.

Table A1. 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 Disease	C81	201
Non-Hodgkin 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

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

(Sorted by 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 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 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
Unintentional non-transport injuries	W00-X59, Y86	E850-E869, E880-E928, E929.2-E929.9
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

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 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	X93-X95
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 and contact with heat and hot substances	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

Table A4. ICD-10 Codes for Selected Healthy People 2020 Mortality Objectives Used in this Publication
(Sorted by Objective Number)

Cause of Death*	ICD-10 Identifying Codes
Cancer (all sites)	C00-C97
Lung cancer	C33-C34
Female breast cancer	C50
Uterine Cervix cancer	C53
Colorectal cancer	C18-C21
Oropharyngeal cancer	C00-C14
Prostate cancer	C61
Malignant melanoma	C43
Coronary heart disease	I11, I20-I25
COPD	J40-J44
Stroke	I60-I69
HIV infection	B20-B24
Firearm-related deaths	W32-W34, X72-X74, Y22-Y24, Y35.0, X93-X95
Poisoning	X40-X49, X60-X69, X85-X90, Y10-Y19, Y35.2
Hanging, strangulation or suffocation	W75-W84, X70, X91, Y20
Unintentional injuries (Accidents)	V01-X59, Y85-Y86
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
Residential fire deaths	X00, X02
Falls	W00-W19, X80, Y01, Y30
Drownings	W65-W74, X71, X92, Y21
Homicides	X85-Y09, Y87.1
Birth defects	Q00-Q99
Congenital heart and vascular defects	Q20-Q24
Sudden infant death syndrome (SIDS)	R95
Suicide	X60-X84, Y87.0
Asthma	J45-J46
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
Cirrhosis	K74
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 A5. 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 Disease	C81	201	0.9855
Non-Hodgkin 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--[4]29	0.9858
Stroke (Cerebrovascular disease)	I60-I69	430--[4]34, 436--[4]38	1.0588
Influenza and pneumonia	J10-J18	480--[4]87	0.6982
Chronic lower respiratory diseases	J40-J47	490--[4]94,496	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 A6. 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
Anencephaly 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 A7. Population Estimates for Massachusetts Community Health Network Areas (CHNA), 2010[1] and Counties, 2011[2]

CHNA	POPULATION[1]	COUNTY	POPULATION[1]
1. Community Health Network of Berkshire County	131,219	Barnstable	215,769
2. Upper Valley Health Web (Franklin County)	87,130	Berkshire	130,458
3. Partnership for Health in Hampshire County (Northampton)	155,900	Bristol	548,922
4. The Community Health Connection (Springfield)	296,850	Dukes	16,766
5. Community Health Network of Southern Worcester County	119,539	Essex	748,930
6. Community Partners for Health (Milford)	166,824	Franklin	71,599
7. Community Health Network of Greater Metro West (Framingham)	388,909	Hampden	463,783
8 . Common Pathways (Worcester)	309,013	Hampshire	157,822
9. Community Health Network of North Central Massachusetts	262,652	Middlesex	1,518,171
10. Greater Lowell Community Health Network	275,404	Nantucket	10,142
11. Greater Lawrence Community Health Network	194,172	Norfolk	675,436
12. Greater Haverhill Community Health Network	148,563	Plymouth	497,579
13. Community Health Network North (Beverly/Gloucester)	115,782	Suffolk	730,932
14. North Shore Community Health Network	284,642	Worcester	801,227
15. Northwest Suburban Health Alliance	215,757		
16. North Suburban Health Alliance (Medford/Malden/Melrose)	270,281	**STATE**	**6,587,536**
17. Greater Cambridge/Somerville Community Health Network	280,404		
18. West Suburban Health Network (Newton/Waltham)	258,843		
19. Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	780,755		
20. Blue Hills Community Health Alliance (Greater Quincy)	377,279		
21. Community Health Network of Chicopee, Holyoke, Ludlow, Westfield	160,892		
22. Greater Brockton Community Health Network	236,778		
23. South Shore Community Health Network (Plymouth)	190,549		
24. Greater Attleboro-Taunton Health & Education Response	256,322		
25. Partners for Healthier Communities (Fall River)	138,419		
26. Greater New Bedford Community Health Network	202,156		
27. Cape Cod and Islands Health Network	242,595		

1. The Massachusetts Department of Public Health Race Allocated Census 2010 Estimates (MRACE 2010), which are population estimates based upon the Census 2010 Summary File 1, was used to calculate city and town rates.
2. National Center for Health Statistics. Postcensal estimates of the resident population of the United States for July 1, 2010-July 1, 2011, by year, county, single-year of age (0, 1, 2, .., 85 years and over), bridged race, Hispanic origin, and sex (Vintage 2011). Prepared under a collaborative arrangement with the U.S. Census Bureau. Available from: http://www.cdc.gov/nchs/nvss/bridged_race.htm as of July, 2012, following release by the U.S. Census Bureau of the unbridged Vintage 2011 postcensal estimates by 5-year age group on May 17, 2012.

Table A8. Population Estimates for Massachusetts Communities, 2010

TOWN NAME	COUNTY	CHNA	POPULATION	TOWN NAME	COUNTY	CHNA	POPULATION
Abington	Plymouth	22	15,985	Concord	Middlesex	15	17,668
Acton	Middlesex	15	21,924	Conway	Franklin	2	1,897
Acushnet	Bristol	26	10,303	Cummington	Hampshire	3	872
Adams	Berkshire	1	8,485	Dalton	Berkshire	1	6,756
Agawam	Hampden	4	28,438	Danvers	Essex	14	26,493
Alford	Berkshire	1	494	Dartmouth	Bristol	26	34,032
Amesbury	Essex	12	16,283	Dedham	Norfolk	18	24,729
Amherst	Hampshire	3	37,819	Deerfield	Franklin	2	5,125
Andover	Essex	11	33,201	Dennis	Barnstable	27	14,207
Aquinnah (Gay Head)	Dukes	27	311	Dighton	Bristol	24	7,086
Arlington	Middlesex	17	42,844	Douglas	Worcester	6	8,471
Ashburnham	Worcester	9	6,081	Dover	Norfolk	18	5,589
Ashby	Middlesex	9	3,074	Dracut	Middlesex	10	29,457
Ashfield	Franklin	2	1,737	Dudley	Worcester	5	11,390
Ashland	Middlesex	7	16,593	Dunstable	Middlesex	10	3,179
Athol	Worcester	2	11,584	Duxbury	Plymouth	23	15,059
Attleboro	Bristol	24	43,593	East Bridgewater	Plymouth	22	13,794
Auburn	Worcester	8	16,188	East Brookfield	Worcester	5	2,183
Avon	Norfolk	22	4,356	East Longmeadow	Hampden	4	15,720
Ayer	Middlesex	9	7,427	Eastham	Barnstable	27	4,956
Barnstable	Barnstable	27	45,193	Easthampton	Hampshire	3	16,053
Barre	Worcester	9	5,398	Easton	Bristol	22	23,112
Becket	Berkshire	1	1,779	Edgartown	Dukes	27	4,067
Bedford	Middlesex	15	13,320	Egremont	Berkshire	1	1,225
Belchertown	Hampshire	3	14,649	Erving	Franklin	2	1,800
Bellingham	Norfolk	6	16,332	Essex	Essex	13	3,504
Belmont	Middlesex	17	24,729	Everett	Middlesex	16	41,667
Berkley	Bristol	24	6,411	Fairhaven	Bristol	26	15,873
Berlin	Worcester	9	2,866	Fall River	Bristol	25	88,857
Bernardston	Franklin	2	2,129	Falmouth	Barnstable	27	31,531
Beverly	Essex	13	39,502	Fitchburg	Worcester	9	40,318
Billerica	Middlesex	10	40,243	Florida	Berkshire	1	752
Blackstone	Worcester	6	9,026	Foxborough	Norfolk	7	16,865
Blandford	Hampden	4	1,233	Framingham	Middlesex	7	68,318
Bolton	Worcester	9	4,897	Franklin	Norfolk	6	31,635
Boston	Suffolk	19	617,594	Freetown	Bristol	26	8,870
Bourne	Barnstable	27	19,754	Gardner	Worcester	9	20,228
Boxborough	Middlesex	15	4,996	Georgetown	Essex	12	8,183
Boxford	Essex	12	7,965	Gill	Franklin	2	1,500
Boylston	Worcester	8	4,355	Gloucester	Essex	13	28,789
Braintree	Norfolk	20	35,744	Goshen	Hampshire	3	1,054
Brewster	Barnstable	27	9,820	Gosnold	Dukes	27	75
Bridgewater	Plymouth	22	26,563	Grafton	Worcester	8	17,765
Brimfield	Hampden	5	3,609	Granby	Hampshire	3	6,240
Brockton	Plymouth	22	93,810	Granville	Hampden	4	1,566
Brookfield	Worcester	5	3,390	Great Barrington	Berkshire	1	7,104
Brookline	Norfolk	19	58,732	Greenfield	Franklin	2	17,456
Buckland	Franklin	2	1,902	Groton	Middlesex	9	10,646
Burlington	Middlesex	15	24,498	Groveland	Essex	12	6,459
Cambridge	Middlesex	17	105,162	Hadley	Hampshire	3	5,250
Canton	Norfolk	20	21,561	Halifax	Plymouth	23	7,518
Carlisle	Middlesex	15	4,852	Hamilton	Essex	13	7,764
Carver	Plymouth	23	11,509	Hampden	Hampden	4	5,139
Charlemont	Franklin	2	1,266	Hancock	Berkshire	1	717
Charlton	Worcester	5	12,981	Hanover	Plymouth	23	13,879
Chatham	Barnstable	27	6,125	Hanson	Plymouth	23	10,209
Chelmsford	Middlesex	10	33,802	Hardwick	Worcester	9	2,990
Chelsea	Suffolk	19	35,177	Harvard	Worcester	9	6,520
Cheshire	Berkshire	1	3,235	Harwich	Barnstable	27	12,243
Chester	Hampden	21	1,337	Hatfield	Hampshire	3	3,279
Chesterfield	Hampshire	3	1,222	Haverhill	Essex	12	60,879
Chicopee	Hampden	21	55,298	Hawley	Franklin	2	337
Chilmark	Dukes	27	866	Heath	Franklin	2	706
Clarksburg	Berkshire	1	1,702	Hingham	Plymouth	20	22,157
Clinton	Worcester	9	13,606	Hinsdale	Berkshire	1	2,032
Cohasset	Norfolk	20	7,542	Holbrook	Norfolk	22	10,791
Colrain	Franklin	2	1,671	Holden	Worcester	8	17,346

Table A8. Population Estimates for Massachusetts Communities, 2010, continued

TOWN NAME	COUNTY	CHNA	POPULATION	TOWN NAME	COUNTY	CHNA	POPULATION
Holland	Hampden	5	2,481	New Marlborough	Berkshire	1	1,509
Holliston	Middlesex	7	13,547	New Salem	Franklin	2	990
Holyoke	Hampden	21	39,880	Newbury	Essex	12	6,666
Hopedale	Worcester	6	5,911	Newburyport	Essex	12	17,416
Hopkinton	Middlesex	7	14,925	Newton	Middlesex	18	85,146
Hubbardston	Worcester	9	4,382	Norfolk	Norfolk	7	11,227
Hudson	Middlesex	7	19,063	North Adams	Berkshire	1	13,708
Hull	Plymouth	20	10,293	North Andover	Essex	11	28,352
Huntington	Hampshire	21	2,180	North Attleboro	Bristol	24	28,712
Ipswich	Essex	13	13,175	North Brookfield	Worcester	5	4,680
Kingston	Plymouth	23	12,629	North Reading	Middlesex	16	14,892
Lakeville	Plymouth	24	10,602	Northampton	Hampshire	3	28,549
Lancaster	Worcester	9	8,055	Northborough	Worcester	7	14,155
Lanesborough	Berkshire	1	3,091	Northbridge	Worcester	6	15,707
Lawrence	Essex	11	76,377	Northfield	Franklin	2	3,032
Lee	Berkshire	1	5,943	Norton	Bristol	24	19,031
Leicester	Worcester	8	10,970	Norwell	Plymouth	20	10,506
Lenox	Berkshire	1	5,025	Norwood	Norfolk	20	28,602
Leominster	Worcester	9	40,759	Oak Bluffs	Dukes	27	4,527
Leverett	Franklin	2	1,851	Oakham	Worcester	9	1,902
Lexington	Middlesex	15	31,394	Orange	Franklin	2	7,839
Leyden	Franklin	2	711	Orleans	Barnstable	27	5,890
Lincoln	Middlesex	15	6,362	Otis	Berkshire	1	1,612
Littleton	Middlesex	15	8,924	Oxford	Worcester	5	13,709
Longmeadow	Hampden	4	15,784	Palmer	Hampden	4	12,140
Lowell	Middlesex	10	106,519	Paxton	Worcester	8	4,806
Ludlow	Hampden	21	21,103	Peabody	Essex	14	51,251
Lunenburg	Worcester	9	10,086	Pelham	Hampshire	3	1,321
Lynn	Essex	14	90,329	Pembroke	Plymouth	23	17,837
Lynnfield	Essex	14	11,596	Pepperell	Middlesex	9	11,497
Malden	Middlesex	16	59,450	Peru	Berkshire	1	847
Manchester	Essex	13	5,136	Petersham	Worcester	2	1,234
Mansfield	Bristol	24	23,184	Phillipston	Worcester	2	1,682
Marblehead	Essex	14	19,808	Pittsfield	Berkshire	1	44,737
Marion	Plymouth	26	4,907	Plainfield	Hampshire	3	648
Marlborough	Middlesex	7	38,499	Plainville	Norfolk	7	8,264
Marshfield	Plymouth	23	25,132	Plymouth	Plymouth	23	56,468
Mashpee	Barnstable	27	14,006	Plympton	Plymouth	23	2,820
Mattapoisett	Plymouth	26	6,045	Princeton	Worcester	9	3,413
Maynard	Middlesex	7	10,106	Provincetown	Barnstable	27	2,942
Medfield	Norfolk	7	12,024	Quincy	Norfolk	20	92,271
Medford	Middlesex	16	56,173	Randolph	Norfolk	20	32,112
Medway	Norfolk	6	12,752	Raynham	Bristol	24	13,383
Melrose	Middlesex	16	26,983	Reading	Middlesex	16	24,747
Mendon	Worcester	6	5,839	Rehoboth	Bristol	24	11,608
Merrimac	Essex	12	6,338	Revere	Suffolk	19	51,755
Methuen	Essex	11	47,255	Richmond	Berkshire	1	1,475
Middleborough	Plymouth	24	23,116	Rochester	Plymouth	26	5,232
Middlefield	Hampshire	3	521	Rockland	Plymouth	23	17,489
Middleton	Essex	11	8,987	Rockport	Essex	13	6,952
Milford	Worcester	6	27,999	Rowe	Franklin	2	393
Millbury	Worcester	8	13,261	Rowley	Essex	12	5,856
Millis	Norfolk	7	7,891	Royalston	Worcester	2	1,258
Millville	Worcester	6	3,190	Russell	Hampden	4	1,775
Milton	Norfolk	20	27,003	Rutland	Worcester	9	7,973
Monroe	Franklin	2	121	Salem	Essex	14	41,340
Monson	Hampden	4	8,560	Salisbury	Essex	12	8,283
Montague	Franklin	2	8,437	Sandisfield	Berkshire	1	915
Monterey	Berkshire	1	961	Sandwich	Barnstable	27	20,675
Montgomery	Hampden	4	838	Saugus	Essex	14	26,628
Mt. Washington	Berkshire	1	167	Savoy	Berkshire	1	692
Nahant	Essex	14	3,410	Scituate	Plymouth	20	18,133
Nantucket	Nantucket	27	10,172	Seekonk	Bristol	24	13,722
Natick	Middlesex	7	33,006	Sharon	Norfolk	20	17,612
Needham	Norfolk	18	28,886	Sheffield	Berkshire	1	3,257
New Ashford	Berkshire	1	228	Shelburne	Franklin	2	1,893
New Bedford	Bristol	26	95,072	Sherborn	Middlesex	7	4,119
New Braintree	Worcester	9	999	Shirley	Middlesex	9	7,211

Table A8. Population Estimates for Massachusetts Communities, 2010, continued

TOWN NAME	COUNTY	CHNA	POPULATION
Shrewsbury	Worcester	8	35,608
Shutesbury	Franklin	2	1,771
Somerset	Bristol	25	18,165
Somerville	Middlesex	17	75,754
South Hadley	Hampshire	3	17,514
Southampton	Hampshire	3	5,792
Southborough	Worcester	7	9,767
Southbridge	Worcester	5	16,719
Southwick	Hampden	4	9,502
Spencer	Worcester	5	11,688
Springfield	Hampden	4	153,060
Sterling	Worcester	9	7,808
Stockbridge	Berkshire	1	1,947
Stoneham	Middlesex	16	21,437
Stoughton	Norfolk	22	26,962
Stow	Middlesex	7	6,590
Sturbridge	Worcester	5	9,268
Sudbury	Middlesex	7	17,659
Sunderland	Franklin	2	3,684
Sutton	Worcester	6	8,963
Swampscott	Essex	14	13,787
Swansea	Bristol	25	15,865
Taunton	Bristol	24	55,874
Templeton	Worcester	9	8,013
Tewksbury	Middlesex	10	28,961
Tisbury	Dukes	27	3,949
Tolland	Hampden	4	485
Topsfield	Essex	13	6,085
Townsend	Middlesex	9	8,926
Truro	Barnstable	27	2,003
Tyngsborough	Middlesex	10	11,292
Tyringham	Berkshire	1	327
Upton	Worcester	6	7,542
Uxbridge	Worcester	6	13,457
Wakefield	Middlesex	16	24,932
Wales	Hampden	5	1,838
Walpole	Norfolk	7	24,070
Waltham	Middlesex	18	60,632
Ware	Hampshire	3	9,872
Wareham	Plymouth	26	21,822
Warren	Worcester	5	5,135
Warwick	Franklin	2	780
Washington	Berkshire	1	538
Watertown	Middlesex	17	31,915
Wayland	Middlesex	7	12,994
Webster	Worcester	5	16,767
Wellesley	Norfolk	18	27,982
Wellfleet	Barnstable	27	2,750
Wendell	Franklin	2	848
Wenham	Essex	13	4,875
West Boylston	Worcester	8	7,669
West Bridgewater	Plymouth	22	6,916
West Brookfield	Worcester	5	3,701
West Newbury	Essex	12	4,235
West Springfield	Hampden	4	28,391
West Stockbridge	Berkshire	1	1,306
West Tisbury	Dukes	27	2,740
Westborough	Worcester	7	18,272
Westfield	Hampden	21	41,094
Westford	Middlesex	10	21,951
Westhampton	Hampshire	3	1,607
Westminster	Worcester	9	7,277
Weston	Middlesex	18	11,261
Westport	Bristol	25	15,532
Westwood	Norfolk	18	14,618
Weymouth	Norfolk	20	53,743
Whately	Franklin	2	1,496
Whitman	Plymouth	22	14,489
Wilbraham	Hampden	4	14,219
Williamsburg	Hampshire	3	2,482
Williamstown	Berkshire	1	7,754
Wilmington	Middlesex	15	22,325
Winchendon	Worcester	9	10,300
Winchester	Middlesex	15	21,374
Windsor	Berkshire	1	899
Winthrop	Suffolk	19	17,497
Woburn	Middlesex	15	38,120
Worcester	Worcester	8	181,045
Worthington	Hampshire	3	1,156
Wrentham	Norfolk	7	10,955
Yarmouth	Barnstable	27	23,793

1. The Massachusetts Department of Public Health Race Allocated Census 2010 Estimates (MRACE 2010), which are population estimates based upon the Census 2010 Summary File 1, was used to calculate city and town rates.

Table A9. 2011 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	37,453	24,782	3,375	2,709	6,488
	FEMALE	35,890	23,721	3,209	2,643	6,223
	TOTAL	73,343	48,503	6,584	5,352	12,711
1 TO 4	MALE	149,460	98,082	13,940	10,780	26,259
	FEMALE	142,848	93,585	13,243	10,607	25,047
	TOTAL	292,308	191,667	27,183	21,387	51,306
5 TO 14	MALE	399,927	282,040	34,041	24,340	58,497
	FEMALE	383,895	269,068	32,735	24,700	56,402
	TOTAL	783,822	551,108	66,776	49,040	114,899
15 TO 24	MALE	470,216	333,705	41,094	29,494	64,637
	FEMALE	464,913	329,698	39,959	32,421	61,650
	TOTAL	935,129	663,403	81,053	61,915	126,287
25 TO 34	MALE	429,239	304,178	32,401	35,126	56,578
	FEMALE	438,817	307,749	34,458	39,610	56,010
	TOTAL	868,056	611,927	66,859	74,736	112,588
35 TO 44	MALE	422,208	316,481	29,408	31,287	44,067
	FEMALE	443,326	328,629	32,567	33,660	47,516
	TOTAL	865,534	645,110	61,975	64,947	91,583
45 TO 54	MALE	492,566	405,444	29,890	22,622	33,438
	FEMALE	517,024	422,117	31,927	24,320	37,409
	TOTAL	1,009,590	827,561	61,817	46,942	70,847
55 TO 64	MALE	401,470	347,922	19,571	14,746	18,355
	FEMALE	436,395	373,997	22,550	16,658	22,278
	TOTAL	837,865	721,919	42,121	31,404	40,633
65 TO 74	MALE	217,245	192,080	9,067	7,689	7,987
	FEMALE	256,242	223,742	12,350	8,766	10,957
	TOTAL	473,487	415,822	21,417	16,455	18,944
75 TO 84	MALE	122,583	111,460	4,111	3,677	3,133
	FEMALE	175,740	158,887	7,083	4,498	5,036
	TOTAL	298,323	270,347	11,194	8,175	8,169
85 +	MALE	47,174	44,000	1,245	944	924
	FEMALE	102,905	96,689	2887	1,491	1,730
	TOTAL	150,079	140,689	4,132	2,435	2,654
ALL AGES	MALE	3,189,541	2,460,174	218,143	183,414	320,363
	FEMALE	3,397,995	2,627,882	232,968	199,374	330,258
	TOTAL	6,587,536	5,088,056	451,111	382,788	650,621

1. National Center for Health Statistics. Postcensal estimates of the resident population of the United States for July 1, 2010-July 1, 2011, by year, county, single-year of age (0, 1, 2, .., 85 years and over), bridged race, Hispanic origin, and sex (Vintage 2011). Prepared under a collaborative arrangement with the U.S. Census Bureau. Available from: http://www.cdc.gov/nchs/nvss/bridged_race.htm as of July, 2012, following release by the U.S. Census Bureau of the unbridged Vintage 2011 postcensal estimates by 5-year age group on May 17, 2012.
2. Persons of Hispanic ethnicity are NOT included in the race categories. These estimates are used to calculate population based rates published in this report.

Table A10. Causes of Death Considered Amenable to Health Care

Cause of Death Considered Amenable to Health Care	Age	ICD-10 Codes
Intestinal infections	0-14	A00-A09
Tuberculosis	0-74	A15-A19, B90
Other infectious (Diphtheria, Tetanus, Poliomyelitis)	0-74	A36, A35,A80, A40-A41
Whooping cough	0-14	A37
Measles	1 to 14	B05
Malignant neoplasm of colon and rectum	0-74	C18-C21
Malignant neoplasm of skin,	0-74	C44
Malignant neoplasm of breast,	0-74	C50
Malignant neoplasm of cervix uteri	0-74	C53
Malignant neoplasm of cervix uteri and body of the uterus	0-44	C54, C55
Malignant neoplasm of testis	0-74	C62
Hodgkin's disease	0-74	C81
Leukemia	0-44	C91-C95
Diseases of the thyroid	0-74	E00-E07
Diabetes mellitus	0-49	E10-E14
Epilepsy	0-74	G40-G41
Chronic rheumatic heart disease	0-74	I05-I09
Hypertensive disease	0-74	I10-I13, I15
Ischemic heart disease	0-74	I20-I25
Cerebrovascular disease	0-74	I60-I69
All respiratory diseases (excl. pneumonia/influenza)	1 to 14	J00-J09, J20-J99
Influenza	0-74	J10-J11
Pneumonia	0-74	J12-J18
Peptic ulcer	0-74	K25-K27
Appendicitis	0-74	K35-K38
Abdominal hernia	0-74	K40-K46
Cholelithiasis & cholecystitis	0-74	K80-K81
Nephritis and nephrosis	0-74	N00-N07, N17-N19, N25-N27
Benign prostatic hyperplasia	0-74	N40
Misadventures to patients during surgical and medical care	All	Y60-Y69, Y83-Y84
Maternal deaths	All	O00-O99
Congenital cardiovascular anomalies	0-74	Q20-Q28
Perinatal deaths, all causes excluding stillbirths	All	P00-P96

Note: Amenable Causes are from E. Nolte and M. McKee, *Does Healthcare Save Lives*? *Avoidable Mortality Revisited* (London: Nuffield Trust, 2004). Available at http://content.healthaffairs.org/cgi/data/27/1/58/DC1/1. Accessed 7/15/2010

Table A11. Comparison of Leading Causes of Death by Race and Hispanic Ethnicity, between 2 death files[1]

White non-Hispanic[2]		Black non-Hispanic[2]		Asian non-Hispanic[2]		Hispanic	
Cause[3]	**N[4]**	**Cause**	**N**	**Cause**	**N**	**Cause**	**N**
Total	**0**	**Total**	**0**	**Total**	**0**	**Total**	**0**
Cancer	+27	Cancer	0	Cancer	+2	Cancer	0
Heart Disease	-113	Heart Disease	-1	Heart Disease	-2	Heart Disease	-1
Chronic Lower Respiratory Disease[5]	-22	Unintentional Injuries[6]	0	Stroke	0	Unintentional Injuries[6]	0
Stroke	-8	Stroke	-1	Unintentional Injuries[6]	0	Stroke	+2
Unintentional Injuries[6]	+16	Diabetes	+2	Alzheimer's Disease	0	Diabetes	+1
Alzheimer's Disease	+3	Homicide	+1	Nephritis	0	Homicide	+1
Influenza & Pneumonia	+1	Nephritis	-4	Influenza & Pneumonia	0	Nephritis	0
Nephritis	+35	Chronic Lower Respiratory Disease[5]	0	Chronic Lower Respiratory Disease[5]	0	Perinatal conditions	-1
Diabetes	+11	Signs and symptoms	0	Perinatal conditions	0	Chronic Lower Respiratory Disease[5]	0
Signs and symptoms	+30	Septicemia	0	Signs and symptoms	+4	Chronic liver disease	-1
Septicemia	+5	Influenza & Pneumonia	0	Suicide	0	Signs and symptoms	+6
Suicide	-13	Alzheimer's Disease	0	Diabetes	0	Congenital malformations	0

Total

Cause	N
Total	**0**
Cancer	+29
Heart Disease	-117
Chronic Lower Respiratory Disease[5]	-22
Stroke	-7
Unintentional Injuries[6]	+16
Alzheimer's Disease	+3
Influenza & Pneumonia	-1
Nephritis	+30
Diabetes	+14
ill-defined conditions-signs and symptoms	+40
Septicemia	+7
Suicide	-13

1. Comparisons of 2 files: File downloaded on 06/21/13 which was used for this report and the second file is the provisional file received from NCHS on 12/09/13. A final file will be received from NCHS in early 2014. None of these changes were statistically significantly different between these 2 files. 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 the Technical Notes in the Appendix for a more detailed explanation. 3. Underlying Cause of Death based on ICD-10 (Please see Appendix for a list of ICD-10 codes used). 4. This represents the difference in counts between these 2 files. None of these changes were statistically significantly different between these 2 files. 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. Unintentional injuries such as motor vehicle-related and other transportation related deaths, falls, fires, and drownings that were not intended to occur.

Table A12. Comparison of Age-Adjusted Death Rates by Race and Hispanic Ethnicity, between 2 death files[1]

White non-Hispanic[2]		Black non-Hispanic[2]		Asian non-Hispanic[2]		Hispanic	
Cause[3]	**Rate[4]**	**Cause**	**Rate**	**Cause**	**Rate**	**Cause**	**Rate**
Total		**Total**		**Total**		**Total**	
Cancer	+0.2%	Cancer	+0.1%	Cancer	+0.7%	Cancer	0.0%
Heart Disease	-1.1%	Heart Disease	-0.3%	Heart Disease	-1.5%	Heart Disease	+0.1%
Chronic Lower Respiratory Disease[5]	-1.1%	Unintentional Injuries[6]	0.0%	Stroke	0.0%	Unintentional Injuries[6]	0.0%
Stroke	-0.3%	Stroke	-1.3%	Unintentional Injuries[6]	0.0%	Stroke	+4.8%
Unintentional Injuries[6]	+0.9%	Diabetes	+2.4%	Alzheimer's Disease	0.0%	Diabetes	+2.7%
Alzheimer's Disease	+0.5%	Homicide	+0.7%	Nephritis	0.0%	Homicide	+1.5%
Influenza & Pneumonia	0.0%	Nephritis	-6.2%	Influenza & Pneumonia	0.0%	Nephritis	+0.6%
Nephritis	+3.5%	Chronic Lower Respiratory Disease[5]	0.0%	Chronic Lower Respiratory Disease[5]	0.0%	Perinatal conditions	-2.1%
Diabetes	+0.7%	Signs and symptoms	0.0%	Perinatal conditions	0.0%	Chronic Lower Respiratory Disease[5]	0.0%
Signs and symptoms	-3.1%	Septicemia	0.0%	Signs and symptoms	+23.4%	Chronic liver disease	-1.8%

Total

Cause	Rate
Total	
Cancer	+0.2%
Heart Disease	-1.0%
Chronic Lower Respiratory Disease[5]	-0.9%
Stroke	-0.3%
Unintentional Injuries[6]	+0.7%
Alzheimer's Disease	+0.5%
Influenza & Pneumonia	0.0%
Nephritis	+2.7%
Diabetes	+1.4%
ill-defined conditions-signs and symptoms	+5.5%

1. Comparisons of 2 files: File downloaded on 06/21/13 which was used for this report and the second file is the updated file received from NCHS on 12/09/13. A final file will be received from NCHS in early 2014. 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 the Technical Notes in the Appendix for a more detailed explanation. 3. Underlying Cause of Death based on ICD-10 (Please see Appendix for a list of ICD-10 codes used). 4. This represents the change in rates between these 2 files. None of these changes were statistically significantly different between these 2 files. 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.

Massachusetts Death Certificate: 2011

OR USE BY
IEDICAL EXAMINERS
NLY

The Commonwealth of Massachusetts
MEDICAL EXAMINER'S CERTIFICATE OF DEATH
REGISTRY OF VITAL RECORDS AND STATISTICS

OCME CASE NUMBER | REGISTERED NUMBER | STATE USE ONLY

ATE USE
NLY

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

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

C HOSP

5 PLACE OF DEATH *(Check only one)*
Hospital ☐Inpatient ☐ER/Outpatient ☐DOA
Other ☐Nursing Home ☐Residence ☐Other (specify):
6 SOCIAL SECURITY NUMBER | 7 IFUS WAR VETERAN *Specify War*

TYPE

DECEDENT

8a WAS DECEDENT OF HISPANIC ORIGIN? (If yes, specify) ☐No ☐Yes: | 8b RACE *(specify)* | 9 DECEDENT'S EDUCATION *(highest grade completed)* Elem-Sec (0-12) College (1-4, 5+)

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

HISP/RACE

12 MARRIED, NEVER MARRIED, WIDOWED OR DIVORCED | 13 LAST SPOUSE *(full name at birth or adoption)* | 14a USUAL OCCUPATION *(Prior, if retired)* | 14b TYPE OF BUSINESS/INDUSTRY

0 AGE

15a RESIDENCE – No. and Street, City/Town, County, State/Country | 15b Zip Code

16 FATHER – *full name at birth or adoption* | 17 STATE OF BIRTH *(If not in US, name country)* | 18 MOTHER – *full name at birth or adoption* | 19 STATE OF BIRTH *(If not in US, name country)*

15 RES

INFORMANT

20 INFORMANT'S NAME | 21 MAILING ADDRESS | 22 RELATIONSHIP

15 OOS

23 METHOD OF IMMEDIATE DISPOSITION
☐ Burial ☐ Cremation
☐ Entombment ☐ Removal from State
☐ Donation ☐ Other:
24 FUNERAL SERVICE LICENSEE OR OTHER DESIGNEE | 25 LICENSE #

DISPOSITION

26a PLACE OF DISPOSITION *(Name of cemetery, crematory, or other)* | 26b LOCATION *(City/Town/State)*

23 DISP

27 DATE OF DISPOSITION *(Mo., Day, Yr.)* | 28a/b NAME AND ADDRESS OF FACILITY OR OTHER DESIGNEE

29 PART I – CAUSE OF DEATH – SEQUENTIALLY LIST IMMEDIATE CAUSE THEN ANTECEDENT CAUSES THEN UNDERLYING CAUSE | APPX INTERVAL

31/32 AUT

CERTIFIER

a Immediate Cause
b Due to
c Due to
d Due to

34 MANNER

30 PART II – OTHER SIGNIFICANT CONDITIONS CONTRIBUTING TO DEATH | 31 AUTOPSY? ☐ Yes ☐ No

34 MANNER OF DEATH
☐ Natural ☐ Accident ☐ Homicide ☐ Suicide ☐ Could not be determined
☐ Pending Investigation ☐
35a DATE OF INJURY | 35b TIME OF INJURY AM PM | 35c INJURY AT WORK? ☐ Yes ☐ No

35c WORK

35d DESCRIBE HOW INJURY OCCURRED | 35e PLACE OF INJURY *(Type)* | 35f LOCATION/ADDRESS OF INJURY

35f PLACE

36-37 CERT

38 MEDICAL EXAMINER CERTIFICATION | 37c APPX TIME OF DEATH | 37d DATE PRONOUNCED

39 LICENSE # | 37e TIME PRONOUNCED AM PM

40a PRON

(Name and Address)
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. ☐ MD ☐ DO
(Signature)
37b DATE SIGNED

PERMANENT BLACK INK ONLY

PRONOUNCEMENT FORM ON FILE ☐

40a RN/ PA/ NP PRONOUNCEMENT? ☐ Yes ☐ No | 40b IF YES, DATE | 40c IF YES, TIME AM PM | 40d NAME OF PRONOUNCER | TITLE: ☐ RN ☐ PA ☐ NP

41 DATE BURIAL PERMIT ISSUED | 42 RECEIVED IN CITY/TOWN OF | 43 DATE OF RECORD

BURIAL AGENT SIGNATURE | CLERK'S SIGNATURE

FORM 301-ME- 010107

SAMPLE

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: 2011 Evaluation Form

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