The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
250 Washington Street, Boston, MA 02108-4619

CHARLES D. BAKER
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March 7, 2022

Steven T. James
House Clerk
State House Room 145
Boston, MA 02133

William F. Welch
Senate Clerk
State House Room 335
Boston, MA 02133

Dear Mr. Clerk,

Pursuant to Section 2 of Chapter 111 of the Massachusetts General Laws, the attached report summarizes mortality data and statistics for the 2019 calendar year.

Sincerely,

Margret R. Cooke
Commissioner
Department of Public Health

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

CHARLES D. BAKER
GOVERNOR

KARYN POLITO
LT. GOVERNOR

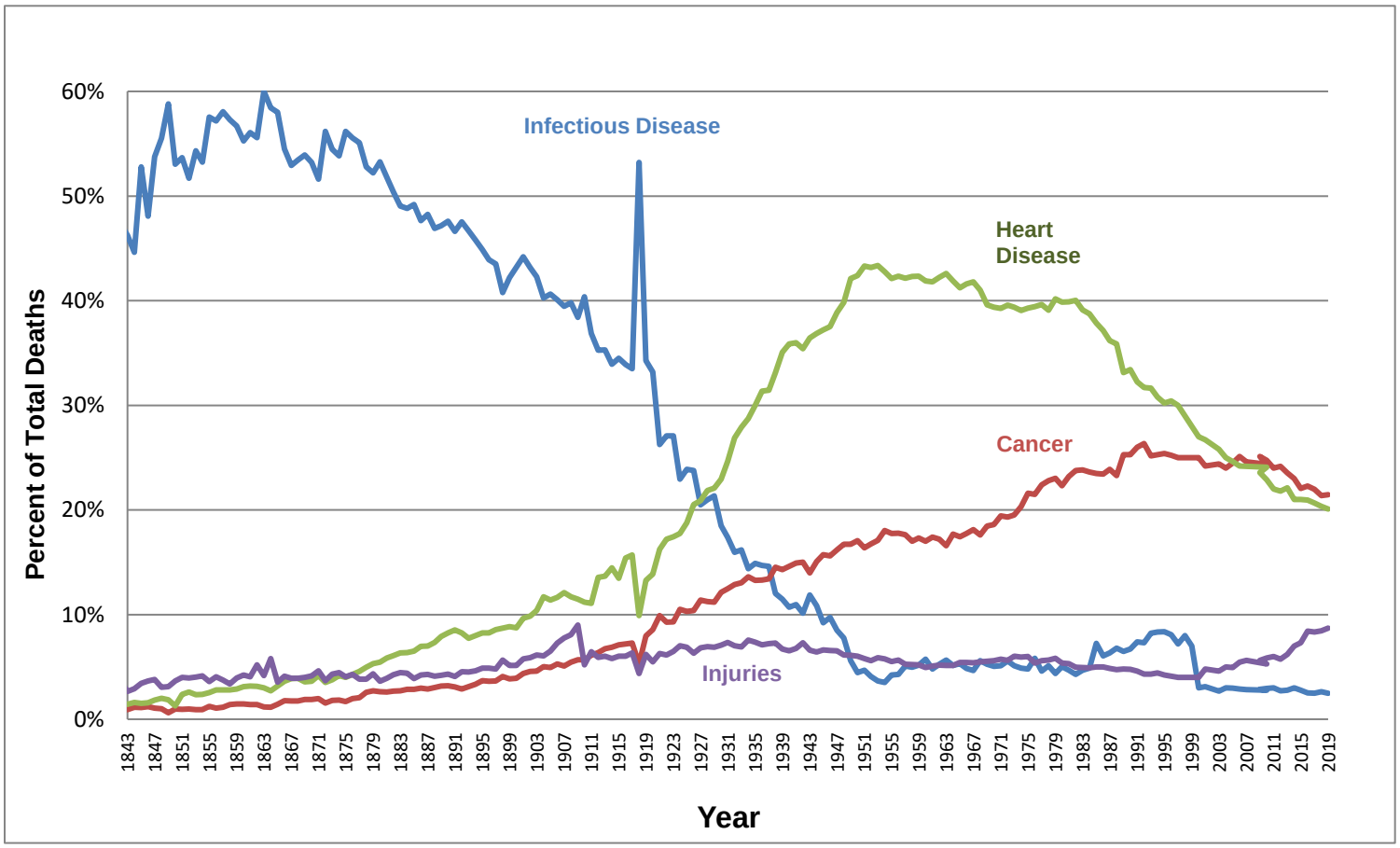
MARYLOU SUDDERS
SECRETARY

MARGRET R. COOKE
COMMISSIONER

Massachusetts Deaths 2019

February 2022

Massachusetts Deaths 2019



Office of Population Health

Massachusetts Department of Public Health

February 2022

Massachusetts Deaths 2019

Charles D. Baker, Governor
Marylou Sudders, Secretary of Health and Human Services
Margret R Cooke, Commissioner of Public Health

Abigail R. Averbach
Assistant Commissioner and Director
Office of Population Health

Karin Barrett
Registrar
Registry of Vital Records and Statistics

Massachusetts Department of Public Health

February 2022

Acknowledgments

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To obtain additional copies of this report, contact:

Massachusetts Department of Public Health
Registry of Vital Records and Statistics
150 Mt. Vernon Street 1st Floor
Dorchester, MA 02125
(617) 740-2670

To obtain more information on deaths in Massachusetts and other Department of Public Health data please visit the Department's free, Internet-based public health information reports at: https://www.mass.gov/orgs/population-health-information-tool-phit.

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2019 Massachusetts Deaths Highlights

- From 2018 to 2019, the age-adjusted mortality rate for Massachusetts residents decreased from 662.8 deaths per 100,000 to 654.0 deaths per 100,000. There were no significant changes in any category (Table 1).
- The average life expectancy of Massachusetts residents was 81.1 years in 2019 (Figure 1). Since 2006, the Massachusetts life expectancy has remained close to 80 years, with 2019 being the highest yet. Hispanic women had the highest life expectancy, living 88.2 years from birth, on average, while the life expectancies for White non-Hispanic women and Black non-Hispanic women were 83.2 and 84.4 years, respectively (Table 3).
- In 2019, the premature mortality rate (which only includes deaths that occur before age 75) remained higher for Black non-Hispanic residents (330.0 deaths per 100,000) than for White non-Hispanic (280.9), Hispanic (250.2), and Asian non-Hispanic (125.3) residents (Figure 6). However, the life expectancy of Black non-Hispanic residents who lived to age 75 was higher than that of White non-Hispanic residents (Table 3), which suggests that Black non-Hispanic residents live longer upon reaching old age.
- Among Massachusetts residents ages 25-64, the death rate for those who completed high school or less was more than three times higher than the corresponding rate among those who completed education above high school. This is most notable in the 25-34 year age group where residents with a high school education or less have a death rate five times higher than those with more than a high school education. (Table 5).
- Cancer was the leading cause of death for Massachusetts residents in 2019 (Table 6). The rate of cancer deaths was highest for White non-Hispanic residents (144.4 per 100,000) and lowest for Asian non-Hispanic residents (91.4 per 100,000) (Table 9). Lung cancer remained the leading cancerous cause of death (Table 11).
- In 2019, Black non-Hispanic, Asian non-Hispanic and Hispanic residents died from cancer at younger ages when compared to White non-Hispanic residents (Figure 11). Black non-Hispanic, Hispanic, and Asian non-Hispanic residents died from heart disease at younger ages when compared to White non-Hispanic residents (Figure 9).
- In 2019, the rate of heart disease deaths remained higher for White non-Hispanic men and women than for any other racial/ethnic group (Table 10).
- Poisonings, which include opioid overdoses, continued to be the largest cause of injury deaths in 2019, the injury death rate due to poisoning was 34.1 per 100,000 in 2018 and 33.8 per 100,000 in 2019 (Table 18). For all leading causes of injury death, rates were higher for men than for women, with the greatest disparity in poisoning deaths (50.7 per 100,000 for men and 17.5 per 100,000 for women).
- The rate of suicide deaths for White non-Hispanic residents (10.1 per 100,000) was almost double the corresponding rates for other groups (5.5 per 100,000 for Black non-Hispanics, 3.4 per 100,000 for Asian non-Hispanics, and 4.8 per 100,000 for Hispanics) (Table 23).
- In 2019, the rate of infant mortality for Black non-Hispanic residents (6.6 per 1,000 live births) was over two times times higher than the corresponding rate for White non-Hispanic residents (2.7 per 1,000 live births) (Table 30).
- Certain conditions originating in the perinatal period was the leading cause of all infant deaths in 2018, both overall (58.0%) and for each race (Tables 31 & 32). Specifically, disorders relating to short gestation and low birthweight accounted for 22.3% of all infant deaths (Table 31).

Note to Readers

Please review the information below before reading the report. As required by Chapter 111, Section 2 of the General Laws, this report satisfies the requirement of the annual report on statistics on deaths for calendar year 2019 (Annual Report Vital Statistics of Massachusetts-Deaths, Public Document #1 2019). Public Document #1 information on 2019 births, marriages, and divorces is covered in separate reports.

1. **Please Note:** Collection of vital records is a complex process. The National Center for Health Statistics (NCHS) deems an annual file closed when it has reached a certain level of completeness. In the past, the Massachusetts Department of Public Health has followed their definition to match the national numbers. Starting with the 2013 report, the department is closing our annual file later than the file sent to the NCHS to get more complete reporting of events[1]. While cause of death information will be more complete due to this change, it may also cause the appearance of an increase in the number of deaths when compared to previous years. Thus, comparisons between years should be interpreted with caution. This caution should be applied especially for causes of death that are often referred to the Office of the Chief Medical Examiner for determination of underlying causes of death. See Figure 5 for details. Accidental deaths, poisonings, and complex cases are most likely to be impacted by closure dates that differ from year to year.

2. VIP System

- The Vitals Information Partnership (VIP) is an electronic registration system designed to streamline and integrate vital event registration, securely, across the Commonwealth. The VIP death application was launched in September 2014, and a revised version of the death certificate was also introduced at that time. Therefore 2015 was the first full year of data using improved data collection methods and new data items. Changes in data fields promote accuracy and now align with national standards.
    - Changes in data fields impact figures and tables that report trends over time. The reader must use caution when comparing 2019 results to findings from years prior to 2015.
        - For example, families of decedents now report race separately from ethnicity and may choose more than one race from the standard checkbox lists. Previously, families wrote free-form responses in a single field that were often difficult to categorize and may have resulted in some misclassifications. (See Note to Readers.)
        - While the new method improves accuracy, an algorithm must still be used to analyze multiple race responses and choose the most appropriate standard race category as used in this report. (See Technical Notes.)

3. 2003 Revisions of the U.S. Standard Certificate of Death

This report includes 2019 data on items that are collected on both the 1989 revision of the Standard Certificate of Death (unrevised) and the 2003 revision of the Standard Certificate of Death (revised). In addition to the collection of new variables, the 2003 revision allows the reporting of more than one race in accordance with the revised standards issued by the Office of Management and Budget (OMB) in 1997. See “Technical Notes” for detailed

[1] This report uses death record data prepared on 3/26/2021. In a very small number of cases, additional data will be obtained at a later date. Therefore, the statistics presented in this report could change slightly based on any information received after 3/26/2021.

information on the 2019 multiple-race reporting area and methods used to bridge responses for those who report more than one race to a single race.

4. **Cabo Verdean Race Categorization**
   Prior to launching the VIP death application in September 2014, "Cape Verdean" [2] was an option that could be selected for a decedent's race. Decedents of Cabo Verdean race were then reclassified as non-Hispanic Black for Death Report analyses for consistency with NCHS standards. However, in the VIP death application "Cape Verdean"[2] is considered an ethnicity, and is collected separately from race. For this reason, decedents of Cabo Verdean ethnicity are now classified according to their reported race and may be distributed to any one of the five MDPH race/ethnicity categories (non-Hispanic White, non-Hispanic Black, non-Hispanic Asian and Pacific Islander, non-Hispanic American Indian and Alaska Native, or Hispanic). This change in categorization may result in fewer non-Hispanic Black deaths, and may particularly impact rates stratified by race/ethnicity that are based on smaller counts.

   - **Population Source.** State, County, and Small Area Population Estimates 2011-2020, version 2019, Massachusetts Department of Public Health, Bureau of Environmental Health. Population estimates used for years following the decennial census were developed by the University of Massachusetts Donahue Institute (UMDI) in partnership with the Massachusetts Department of Public Health, Bureau of Environmental Health. Detailed population estimates at fine levels of geography are prone to estimation error. Estimated error was best described by age and population size and was used to adjust final population numbers, however a margin of error exists for all estimates.

5. **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.

Suggested Citation
Massachusetts Deaths 2019. Boston, MA: Office of Population Health, Registry of Vital Records and Statistics, Massachusetts Department of Public Health. February 2022.

[2] The U.S. Board on Geographic Names approved the change of the country name from "Cape Verde" to "Cabo Verde" on December 9, 2013. However, in earlier years and in 2019 the death worksheet still used the name "Cape Verdean".

Table 1. Trends in Mortality Characteristics, Massachusetts: 2009-2019

Year		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Resident deaths	Number	51,915	52,420	53,536	53,169	54,609	55,159	57,785	56,953	58,844	59,169	58,660
	Crude rate[1,2,3]	787.4	800.6	812.7	807.1	815.9	817.7	850.5	836.1	849.7	848.1	840.9
	Age-adjusted rate[4]	675.1	672.7	674.0	669.2	664.1	662.5	684.6	668.9	675.7	662.8	654.0
Race/ethnicity of decedent [5,6]												
White non-Hispanic	Number	47,520	48,010	48,844	48,430	49,486	49,621	51,688	50,654	52,038	52,196	51,456
	Percent[7]	91.5	91.6	91.2	91.1	90.6	90.0	89.4	88.9	88.4	88.2	87.7
	Age-adjusted rate[4]	682.8	684.4	686.9	681.0	680.9	679.5	703.3	687.9	697.1	686.8	676.3
Black non-Hispanic	Number	2,288	2,278	2,333	2,318	2,446	2,390	2,349	2,504	2,636	2,717	2,760
	Percent[7]	4.4	4.3	4.4	4.4	4.5	4.3	4.1	4.4	4.5	4.6	4.7
	Age-adjusted rate[4]	812.2	702.6	707.6	701.8	675.5	630.4	589.5	612.4	641.6	625.4	626.7
Asian non-Hispanic	Number	697	759	806	811	816	938	1,091	1,028	1,165	1,222	1,270
	Percent[7]	1.3	1.4	1.5	1.5	1.5	1.7	1.9	1.8	2.0	2.1	2.2
	Age-adjusted rate[4]	353.1	364.8	375.2	372.4	320.5	344.7	371.8	324.7	361.1	351.8	351.4
Hispanic	Number	1,337	1,308	1,477	1,487	1,548	1,702	2,037	2,126	2,372	2,377	2,544
	Percent[7]	2.6	2.5	2.8	2.8	2.8	3.1	3.5	3.7	4.0	4.0	4.3
	Age-adjusted rate[4]	439.8	443.9	468.9	484.9	444.9	447.9	493.0	473.2	505.7	480.4	506.3
Gender of decedent[6]												
Female	Number	27,356	27,368	27,983	27,883	28,558	28,289	29,880	28,952	29,665	29,891	29,481
	Age-adjusted rate[4]	572.8	567.2	572.8	571.1	569.5	557.9	581.2	560.2	563.2	555.1	546.9
Male	Number	24,557	25,051	25,553	25,280	26,051	26,867	27,905	28,000	29,178	29,276	29,177
	Age-adjusted rate[4]	822.1	811.9	808.5	797.9	786.5	795.9	814.7	804.9	817.9	798.3	789.2
Age of decedent												
<1 year	Number	366	319	310	309	298	321	310	283	263	291	255
1-14 years	Number	118	113	114	99	118	129	119	115	122	111	106
15-24 years	Number	440	453	471	419	449	441	519	526	501	416	389
25-44 years	Number	1,974	1,823	1,870	1,880	1,993	2,234	2,475	2,742	2,788	2,751	2,646
45-64 years	Number	8,688	8,753	8,808	8,791	9,013	9,214	9,348	9,270	9,516	9,350	9,417
65-74 years	Number	7,380	7,423	7,616	7,891	8,259	8,678	9,038	9,332	9,719	9,918	9,974
75-84 years	Number	13,943	13,639	13,598	13,272	13,182	12,784	13,299	12,870	13,272	13,806	13,570
85+ years	Number	19,004	19,888	20,747	20,506	21,296	21,356	22,677	21,813	22,663	22,526	22,303

1. Deaths per 100,000 residents. 2. See Glossary for further definition of terms and rates. 3. Rate calculations are based on resident population estimates. 4. Rates are age-adjusted per 100,000 residents using the 2000 US standard population. 5. 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. 6. Column sum may not equal total because the race, gender or age of some decedents was unknown. 7. Percent of all resident deaths in that year.

Table 2. Selected Leading Causes of Death, Age-Adjusted Rates, Massachusetts and United States: 2003-2019

Year	Age-Adjusted Rates[1,2]	Heart Disease		Cancer		Stroke	
		MA	US[3]	MA	US[3]	MA	US[3]
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	173.7	30.2	37.9
	% of Total	22.1	23.7	24.0	23.7	4.6	5.1
2012	Rate	141.3	170.5	166.7	166.5	28.7	36.9
	% of Total	21.8	23.6	24.2	22.9	4.4	5.1
2013	Rate	142.2	169.8	159.5	163.2	27.7	36.2
	% of Total	22.1	23.5	23.5	22.5	4.3	5.0
2014	Rate	137.5	167.0	155.6	161.2	28.7	36.5
	% of Total	21.5	23.4	23.2	22.5	4.5	5.1
2015	Rate	138.7	167.0	152.8	161.2	28.4	36.5
	% of Total	21.0	23.4	22.1	22.5	4.3	5.1
2016	Rate	134.8	165.5	149.8	155.8	27.9	37.3
	% of Total	20.9	23.1	22.3	21.8	4.3	5.2
2017	Rate	134.5	165.0	149.1	152.5	26.5	37.6
	% of Total	20.7	23.0	22.0	21.3	4.0	5.2
2018	Rate	131.1	163.6	142.5	149.1	27.1	37.1
	% of Total	20.3	23.1	21.4	21.1	4.2	5.2
2019	Rate	126.9	197.2	139.5	185.4	26.6	43.7
	% of Total	20.1	23.4	21.5	22.0	4.2	5.2

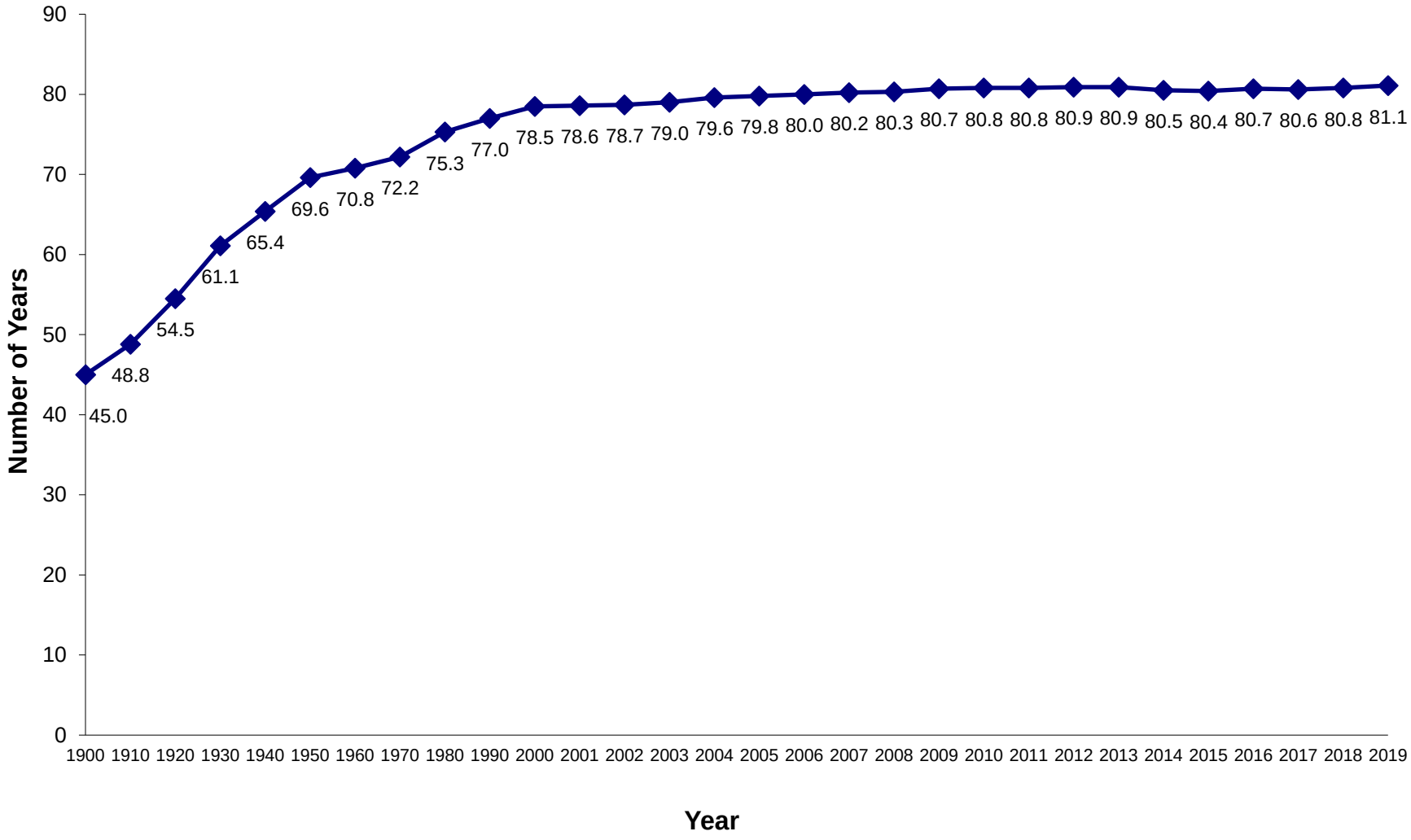
Table 2 (continued). Selected Leading Causes of Death, Age-Adjusted Rates, Massachusetts and United States: 2003-2019

Year	Age-Adjusted Rates[1,2]	Influenza/Pneumonia		Unintentional Injuries		All Causes	
		MA	US[3]	MA	US[4]	MA	US[3]
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	15.7	30.0	39.4	674.0	740.6
	% of Total	2.6	2.0	4.1	4.9		
2012	Rate	16.3	14.4	30.0	39.1	669.2	732.8
	% of Total	2.6	2.0	4.1	5.0		
2013	Rate	18.0	15.9	34.0	39.4	664.1	731.9
	% of Total	2.8	2.2	4.6	5.0		
2014	Rate	15.7	15.1	39.4	40.5	662.5	724.6
	% of Total	2.5	2.1	5.2	5.2		
2015	Rate	17.1	15.1	45.5	40.5	684.6	724.6
	% of Total	2.6	2.1	5.8	5.2		
2016	Rate	14.1	13.5	53.6	47.4	668.9	728.8
	% of Total	2.2	1.9	6.8	5.9		
2017	Rate	15.8	14.3	52.6	49.4	675.7	731.9
	% of Total	2.4	2.0	6.7	6.0		
2018	Rate	15.8	14.9	52.8	48	662.8	723.6
	% of Total	2.4	2.1	6.7	5.9		
2019	Rate	13.1	17.8	53.7	49.3	654.0	844.0

	% of Total	2.1	2.1	7.0	6.1		

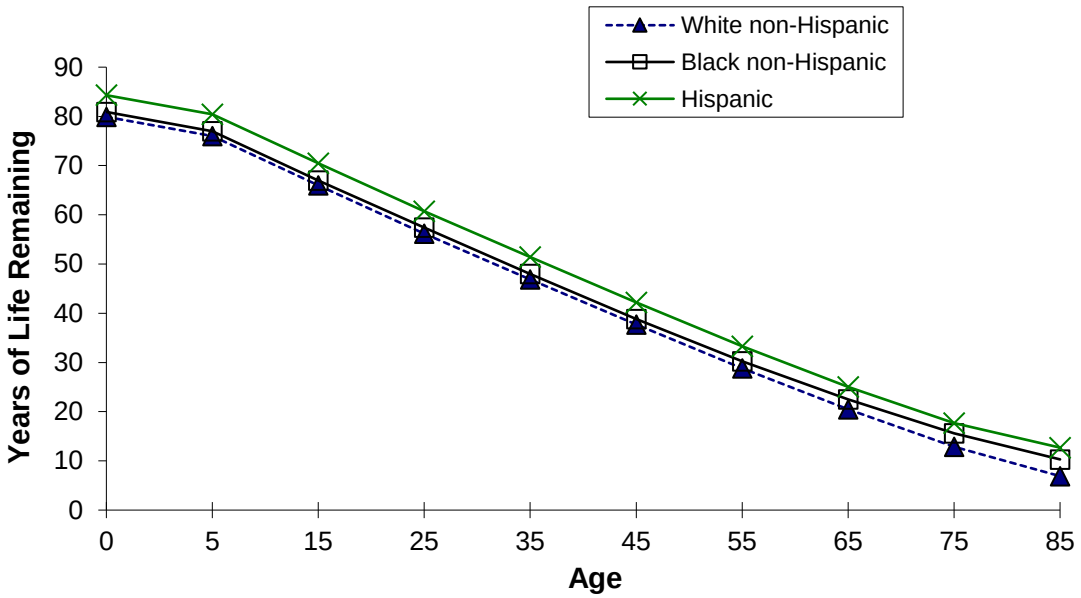
Note: Cause of death: the disease or injury that initiated the events leading to death or the circumstances of the unintentional or intentional injury that resulted in the death.
1. Data coded according to ICD-10. ICD-10 codes used in this publication are listed in the Appendix. 2. Rates are age-adjusted per 100,000 residents using the 2000 US standard population. 3. US data for 2019 obtained from NCHS Data Brief Mortality in the United States, 2019.

Figure 1. Life Expectancy at Birth, Massachusetts: 1900-2019



Note: 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[1] at Different Ages by Race and Hispanic Ethnicity[2], Massachusetts: 2019



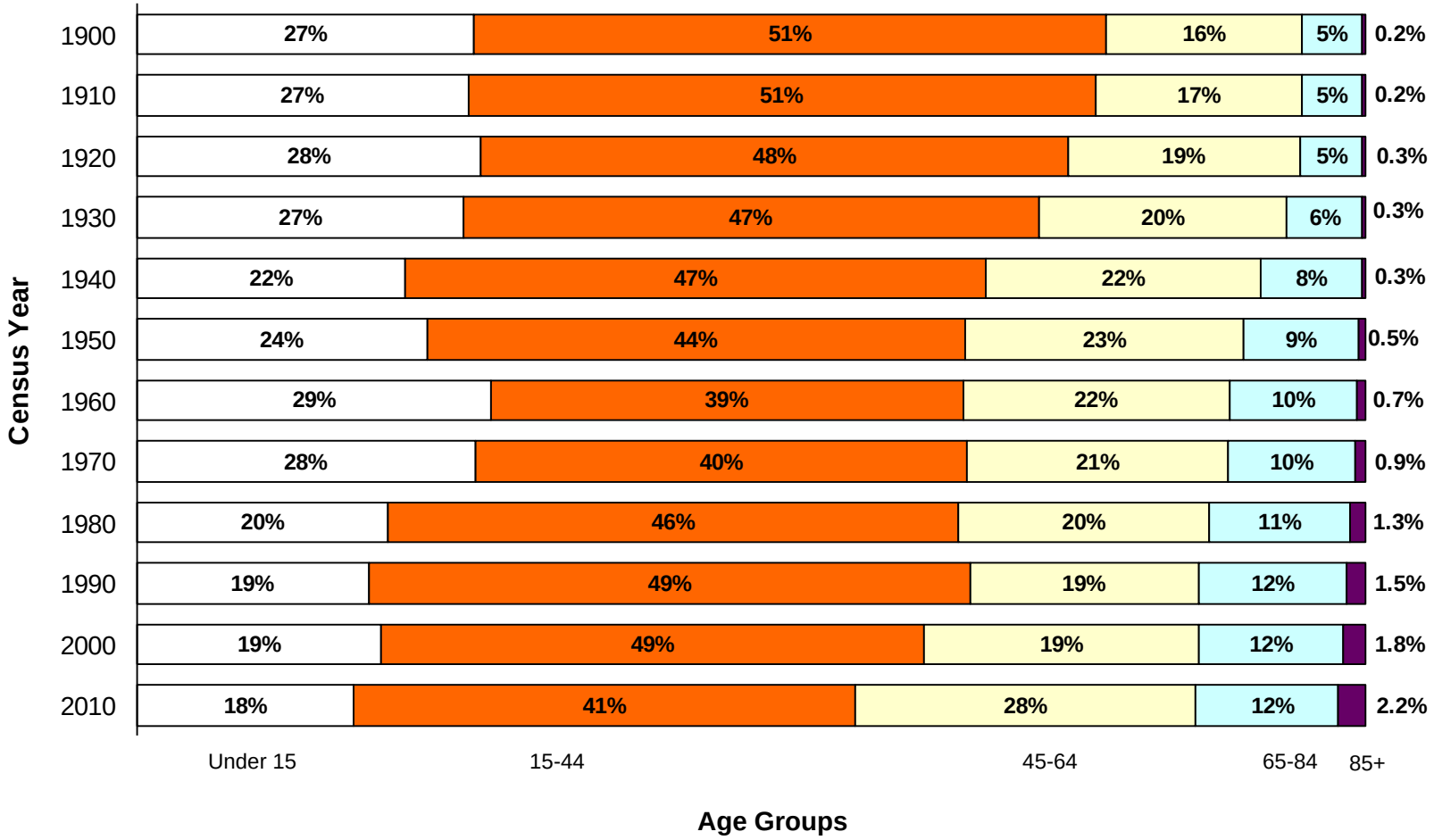
1. Years of Life Remaining calculated using the Greville Abridged Life Table Method (source: Dublin LI. Length of Life - A Study of the Life Table. Ronald Press Co. New York. 1949). 2. Population estimates are from 2018 bridged population file, MARS (Modified Age, Race/Ethnicity, and Sex) file. Please see the technical notes for more information on race and ethnicity.

Table 3. Years of Life Remaining[1] by Race and Hispanic Ethnicity[2] and Gender, Massachusetts: 2019

At Age:	All	All Females	White non-Hispanic Females	Black non-Hispanic Females	Hispanic Females	All Males	White non-Hispanic Males	Black non-Hispanic Males	Hispanic Males
Birth	81.1	83.5	83.2	84.4	88.2	78.5	78.1	77.9	81.5
1 year old	80.4	82.8	82.4	84.0	87.6	77.8	77.4	77.5	80.9
5 years old	76.4	78.8	78.4	80.0	83.6	73.8	73.4	73.5	76.9
15 years old	66.5	68.9	68.4	70.1	73.8	63.9	63.5	63.6	66.9
25 years old	56.7	59.0	58.5	60.3	63.9	54.2	53.8	54.1	57.3
35 years old	47.3	49.4	48.9	50.6	54.1	45.1	44.7	45.0	48.2
45 years old	38.0	39.9	39.5	41.3	44.6	36.0	35.7	35.9	39.3
55 years old	29.1	30.7	30.3	32.4	35.3	27.3	27.0	27.4	30.8
65 years old	20.8	22.0	21.7	24.4	26.4	19.3	19.0	20.0	23.0
75 years old	13.2	14.0	13.7	17.2	18.8	12,0	11.7	13.4	16.1
85 years old	7.2	7.7	7.4	11.4	13.4	6.4	6.1	8.6	11.4

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 2019 bridged population file, MARS (Modified Age, Race/Ethnicity, and Sex) file. Please see the technical notes for more information on race and ethnicity.

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: 1843-2019

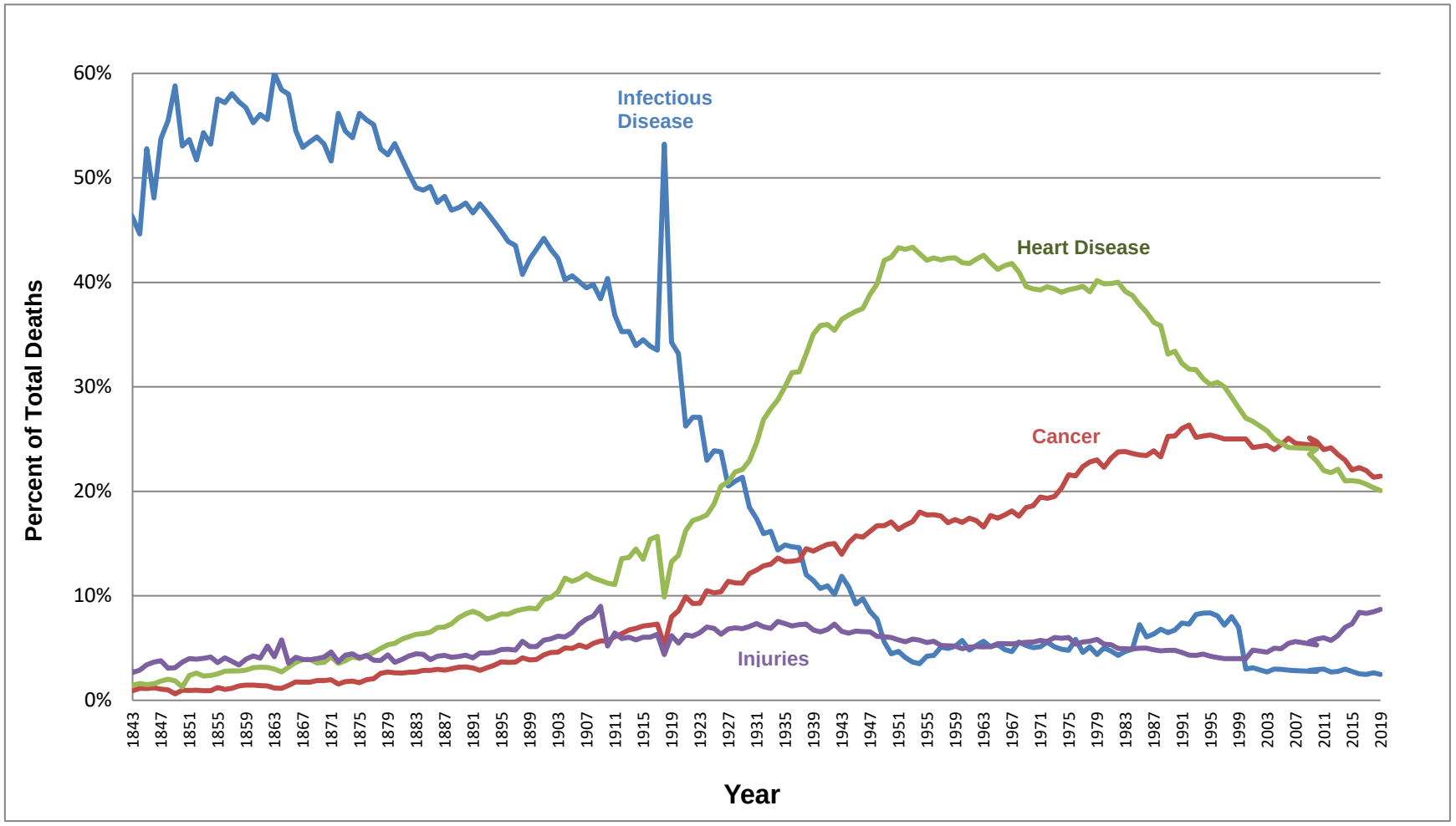
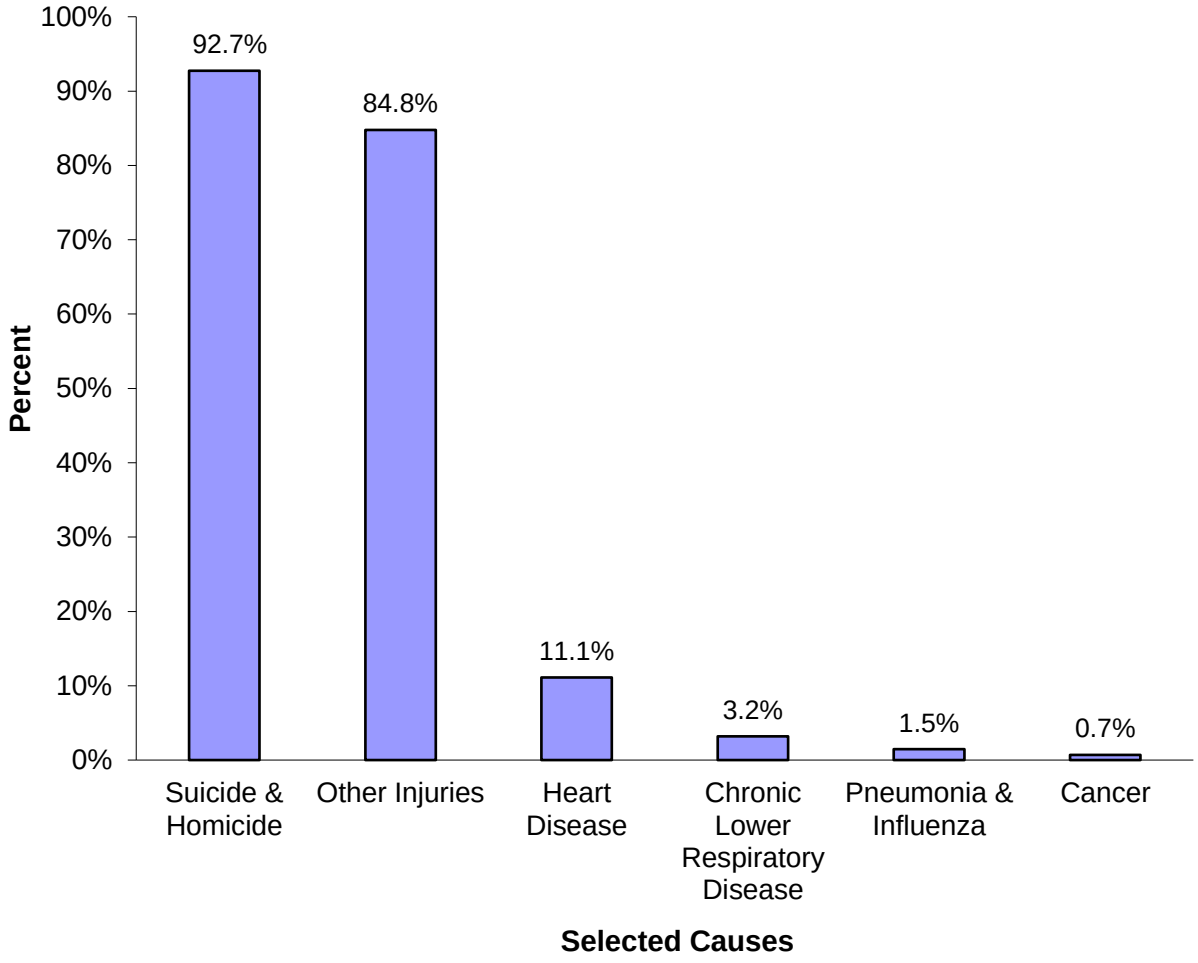


Table 4. Distribution of Deaths by Place of Occurrence, Massachusetts: 2015-2019

Type of Place where Death Occurred	2015		2016		2017		2018		2019	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Hospital (inpatient/outpatient)	21,397	37%	20,579	36%	21,343	36%	21,502	36%	21,267	36%
Dead on Arrival	602	1%	732		644	1%	681	1%	515	1%
Nursing Home	16,099	28%	14,800		15,003	26%	14,606	25%	13,830	24%
Hospice	2,628	5%	3,137	6%	3,321	6%	3,525	6%	3,656	6%
Assisted Living Facility or Rest Home	1,251	2%	1,332	2%	1,646	3%	1,864	3%	1,963	3%
At Home	14,419	25%	14,925	26%	15,361	26%	15,552	26%	15,888	27%
Other	1,382	2%	1,446	3%	1,520	3%	1,438	2%	1,535	3%
Unknown	7	0.01%	2		6	0%	1	0%	6	0%

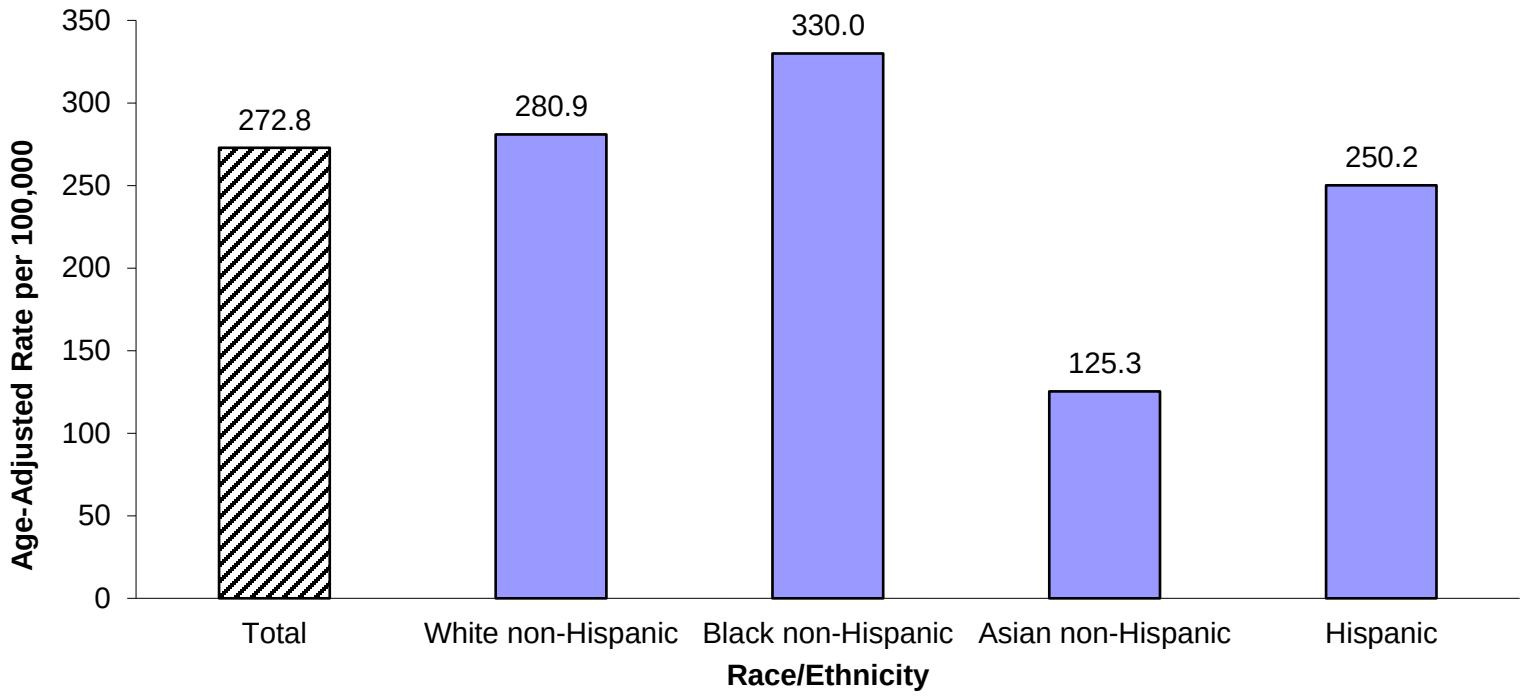
Figure 5. Proportion of Deaths Certified by Medical Examiner for Selected Causes of Death, Massachusetts: 2019



Note: 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.

Note: Other Injuries include motor vehicle-related, poisonings, falls, etc.

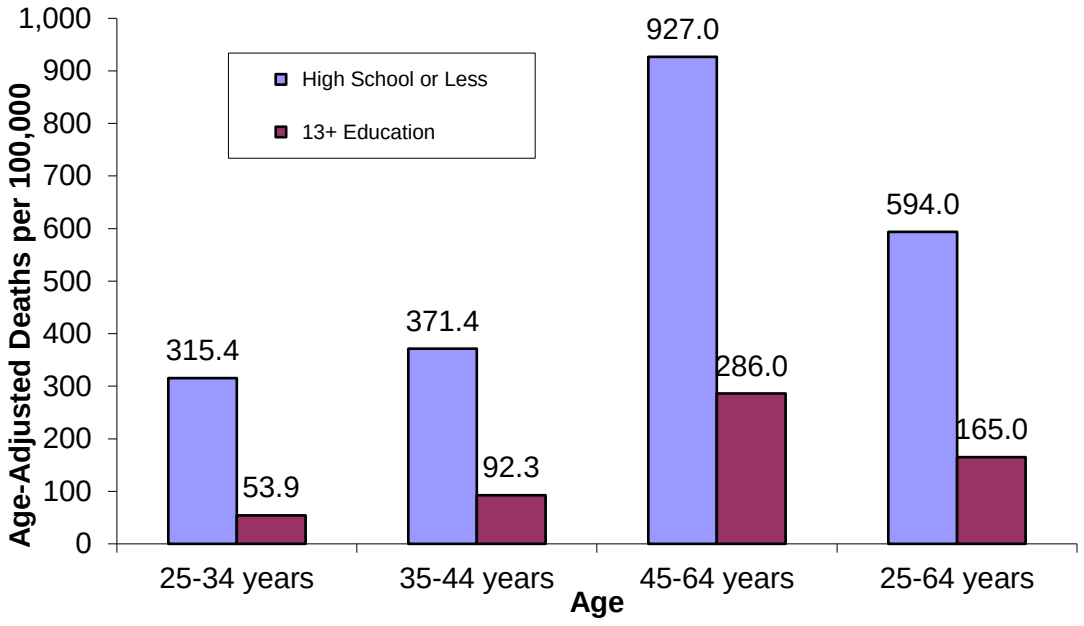
Figure 6. Premature Mortality Rate (PMR) by Race and Hispanic Ethnicity, Massachusetts: 2019



Note: 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. Please see the technical notes for more information on race and ethnicity.

Table 5. Age-Specific and Age-Adjusted Death Rates for Ages 25-64 Years by Educational Attainment, Massachusetts: 2019

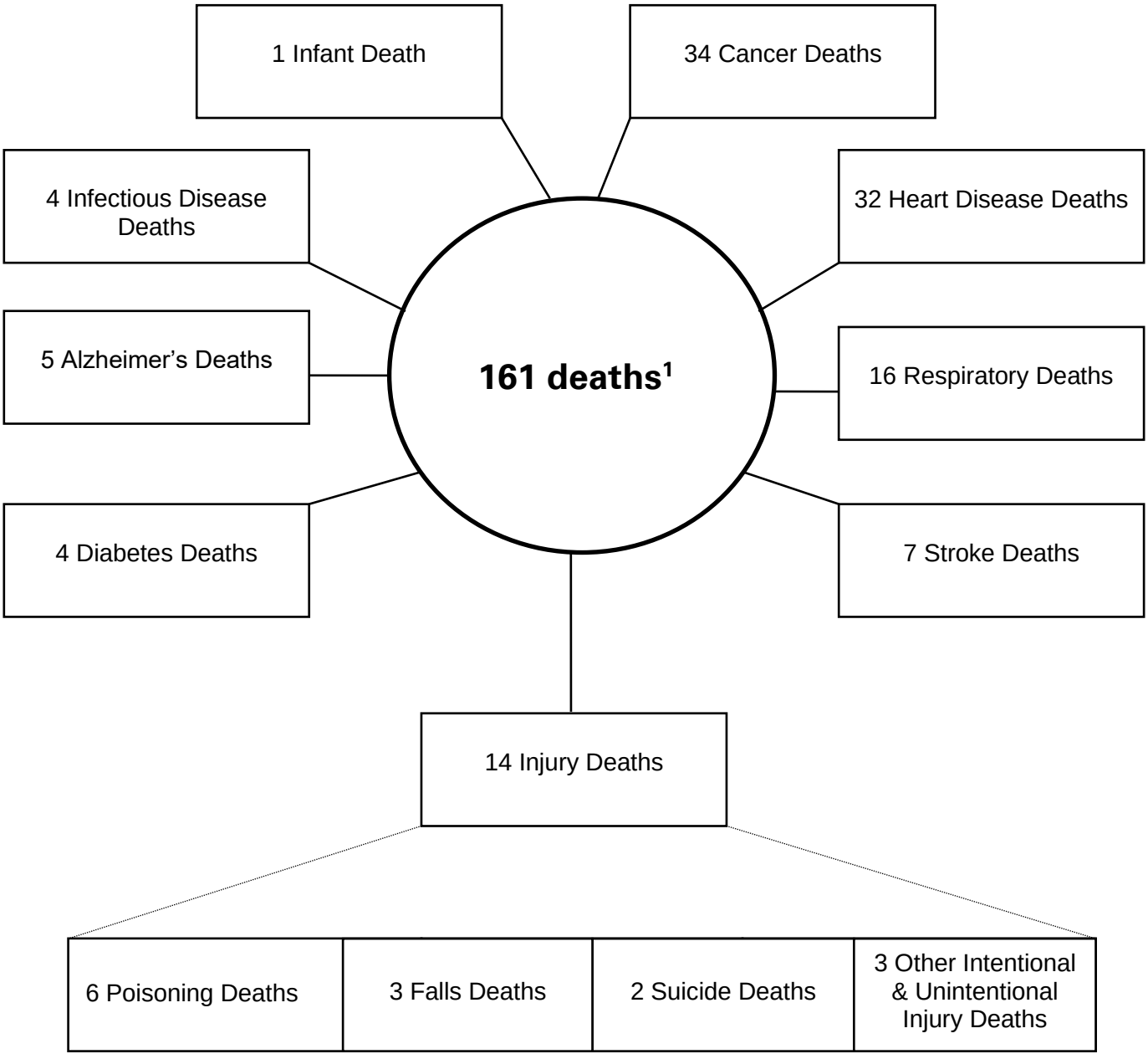
	Age-Specific Rates			Age-Adjusted Rates
Years of School Completed	**25-34 years**	**35-44 years**	**45-64 years**	**25-64 years**
High School or Less	315.4	371.4	927.0	**594.0**
13+ Education	53.9	92.3	286.0	**165.0**



Source: C15001: SEX BY AGE BY EDUCATIONAL ATTAINMENT FOR THE POPULATION 18 YEARS AND OVER
Universe: Population 18 Years And Over. 2014 American Community Survey Estimates.

Figure 7. Daily Mortality Statistics, Massachusetts: 2019

Every day in 2019, in Massachusetts there were on average:



1. Includes 45 deaths due to other causes. Individual categories may not sum to the total due to rounding.

Table 6. Top Ten Leading Underlying Causes of Death by Age, Massachusetts: 2019

	Age Groups (number of deaths)								
Rank	**<1 year**	**1-14 years**	**15-24 years**	**25-44 years**	**45-64 years**	**65-74 years**	**75-84 years**	**85+ years**	**All**
1	Short gestation and LBW[1] (57)	Unintentional Injuries[3] (20)	Unintentional Injuries[3] (186)	Unintentional Injuries[3] (1319)	Cancer (2781)	Cancer (3446)	Cancer (3430)	Heart Disease (5622)	**Cancer (12584)**
2	Congenital malformations (56)	Cancer (17)	Suicide (67)	Cancer (241)	Heart Disease (1585)	Heart Disease (1786)	Heart Disease (2581)	Cancer (2641)	**Heart Disease (11779)**
3	SIDS[2] (21)	Congenital malform (9)	Homicide (43)	Suicide (202)	Unintentional Injuries[3] (1138)	Chronic Lower Respiratory Disease[5] (632)	Chronic Lower Respiratory Disease[5] (893)	Stroke (1260)	**Unintentional Injuries[3] (4094)**
4	Complications of placenta (19)	Other infect (8)	Cancer (27)	Heart Disease (193)	Chronic liver disease (383)	Unintentional Injuries[3] (340)	Stroke (629)	Alzheimer's Disease (1128)	**Chronic Lower Respiratory Disease[5] (2842)**
5	Pregnancy Complications (13)	Homicide (8)	Heart Disease (7)	Homicide (77)	Chronic Lower Respiratory Disease[5] (350)	Stroke (331)	Alzheimer's Disease (415)	Chronic Lower Respiratory Disease[5] (941)	**Stroke (2463)**
6	Respiratory distress (8)	Ill-defined conditions-signs and symptoms[4] (7)	Injuries of Undetermined Intent[3] (7)	Chronic liver disease (62)	Diabetes (312)	Diabetes (300)	Unintentional Injuries[3] (381)	Unintentional Injuries[3] (709)	**Alzheimer's Disease (1662)**
7	Bacterial sepsis of newborn (7)	Influenza & Pneumonia (4)	Diabetes (6)	Ill-defined conditions-signs and symptoms[4] (37)	Suicide (281)	Nephritis (221)	Diabetes (358)	Influenza & Pneumonia (612)	**Diabetes (1386)**
8	Necrotizing entercolitis (6)	Suicide (3)	Influenza & Pneumonia (4)	Diabetes (29)	Stroke (212)	Septicemia (181)	Nephritis (339)	Nephritis (553)	**Nephritis (1280)**
9	Circulatory System (5)	Septicemia (2)	Ill-defined conditions-signs and symptoms[4] (4)	Stroke (29)	Septicemia (171)	Chronic liver disease (180)	Parkinsons (285)	Diabetes (381)	**Influenza & Pneumonia (1217)**
10	Intrauterine Hypoxia (4)	In situ neoplasms (2)	Chronic Lower Respiratory Disease[5] (2)	Injuries of Undetermined Intent[3] (26)	Nephritis (150)	Influenza & Pneumonia (179)	Influenza & Pneumonia (276)	Ill-defined conditions-signs and symptoms[4] (355)	**Septicemia (942)**
All Causes	**255**	**106**	**389**	**2,646**	**9,417**	**9,974**	**13,570**	**22,303**	**58,660**

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

1. LBW: Low birthweight. 2. SIDS: Sudden Infant Death Syndrome. 3. 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). 4. Ill-Defined Conditions: Includes ICD-10 codes R00-R99. 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).

Table 7. Leading Underlying Causes of Death, Numbers and Age-Specific Rates by Gender, Massachusetts: 2019

		Total		Female		Male	
Age	Cause of Death[1]	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
1-14	**TOTAL**	**106**	**9.9**	**47**	**9.0**	**59**	**10.8**
	Unintentional Injuries	20	1.9	7	1.3	13	2.4
	Cancer	17	1.6	9	1.7	8	1.5
	Congenital Malformations	9	0.8	5	1.0	4	0.7
	Other Infections	8	0.8	5	1.0	3	0.6
15-24	**TOTAL**	**389**	**40**	**104**	**21.3**	**285**	**58.6**
	Unintentional Injuries	186	19.1	36	7.4	150	30.8
	Suicide	67	6.9	18	3.7	49	10.1
	Homicide	43	4.4	8	1.6	35	7.2
	Cancer	27	2.8	11	2.3	16	3.3
25-44	**TOTAL**	**2,646**	**144.0**	**819**	**88.8**	**1,826**	**199.4**
	Unintentional Injuries	1,319	71.8	322	34.9	997	108.9
	Cancer	241	13.1	131	14.2	110	12.0
	Suicide	202	11.0	47	5.1	155	16.9
	Heart Disease	193	10.5	50	5.4	143	15.6
45-64	**TOTAL**	**9,417**	**508.9**	**3,619**	**378.0**	**5,798**	**649.3**
	Cancer	2,781	150.3	1,311	136.9	1,470	164.6
	Heart Disease	1,585	85.7	462	48.3	1,123	125.8
	Unintentional Injuries	1,138	61.5	290	30.3	848	95.0
	Chronic Liver Disease	383	20.7	149	15.6	234	26.2
65+[3]	**TOTAL**	**45,847**	**3,898.3**	**24,780**	**3,726.4**	**21,067**	**4,122.1**
	Heart Disease	9,989	849.3	5,070	762.4	4,919	962.5
	Cancer	9,517	809.2	4,642	698.1	4,875	953.9
	Chronic Lower Respiratory Disease	2,466	209.7	1,420	213.5	1,046	204.7
	Stroke	2,220	188.8	1,382	207.8	838	164.0

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. See Table 8 for leading causes of death for detailed age groups for persons ages 65+ years.

Table 8. Leading Underlying Causes of Death, Numbers and Age-Specific Rates (Ages 65 and Older) by Gender, Massachusetts: 2019

		Total		Female		Male	
Age	**Cause of Death[1]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**
65-74	**TOTAL**	**9,974**	**1,460.7**	**4,284**	**1,166.8**	**5,690**	**1,802.6**
	Cancer	3,446	504.7	1,596	434.7	1,850	586.1
	Heart Disease	1,786	261.6	611	166.4	1,175	372.3
	Chronic Lower Respiratory Disease	632	92.6	327	89.1	305	96.6
	Unintentional Injuries	340	49.8	125	34.0	215	68.1
75-84	**TOTAL**	**13,570**	**4,089.2**	**6,670**	**3494.6**	**6,900**	**4,894.0**
	Cancer	3,430	1,033.6	1,647	862.9	1,783	1,264.6
	Heart Disease	2,581	777.8	1,157	606.2	1,424	1,010.0
	Chronic Lower Respiratory Disease	893	269.1	507	265.6	386	273.8
	Stroke	629	189.5	337	176.6	292	207.1
85+	**TOTAL**	**22,303**	**13,817.8**	**13,826**	**12,925.1**	**8,477**	**15,571.9**
	Heart Disease	5,622	3483.1	3,302	3,086.9	2,320	4,261.8
	Cancer	2,641	1,636.2	1,399	1,307.8	1,242	2,281.5
	Stroke	1,260	780.6	892	833.9	368	676.0
	Alzheimers Disease	1,128	698.9	810	757.2	318	584.2

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 ICD-10 codes. 2. Number of deaths per 100,000 residents in each age group.

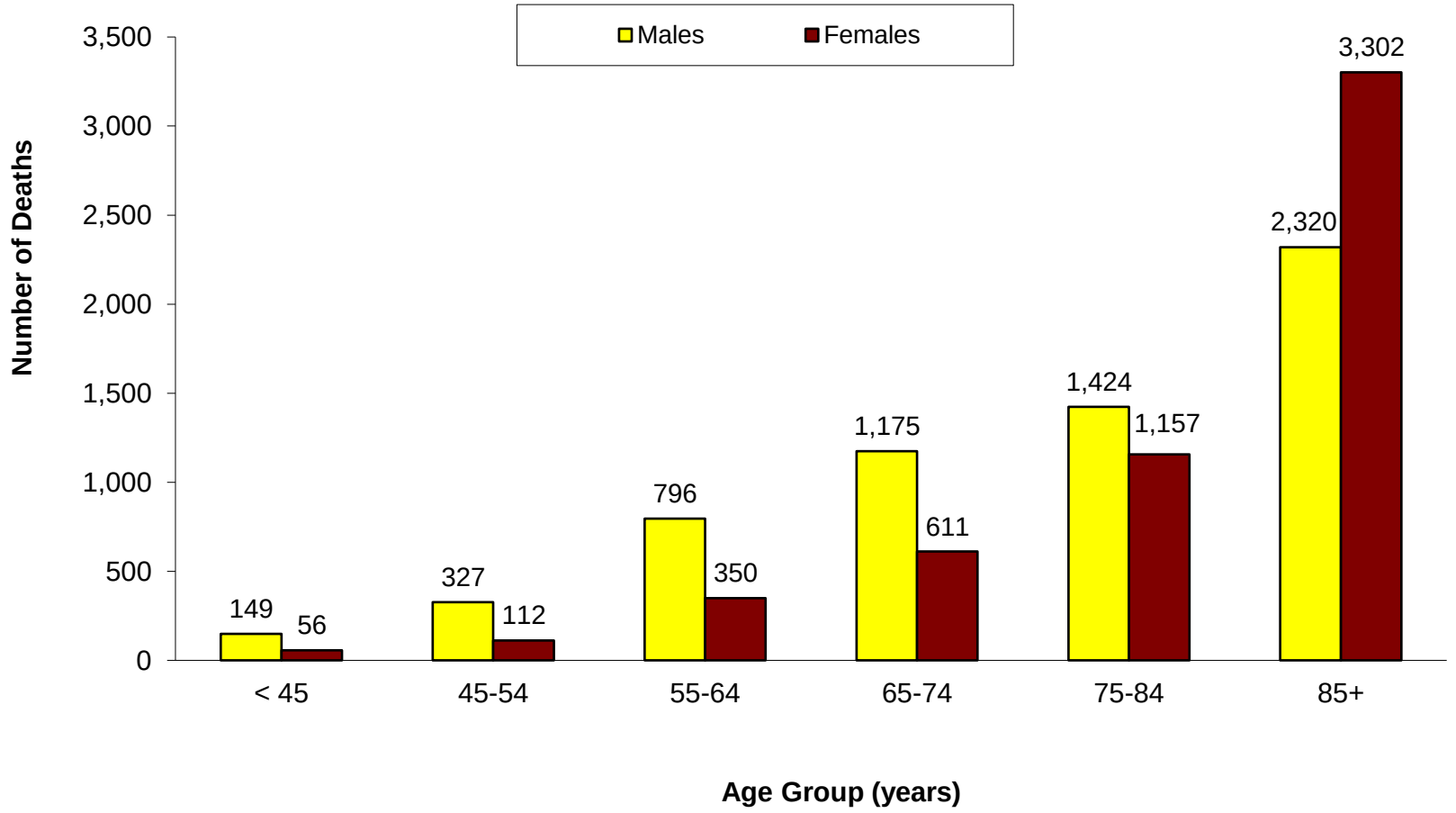
Table 9. Leading Causes of Death[1] and Age-Adjusted Rates by Race and Hispanic Ethnicity, Massachusetts: 2019

White non-Hispanic[2]			Black non-Hispanic[2]			Asian non-Hispanic[2]			Hispanic[2]		
Cause[3]	**#**	**Rate[4]**	**Cause[3]**	**#**	**Rate[4]**	**Cause[3]**	**#**	**Rate[4]**	**Cause[3]**	**#**	**Rate[4]**
Total	**51,456**	**676.3**	**Total**	**2,760**	**626.7**	**Total**	**1,270**	**351.4**	**Total**	**2,544**	**506.3**
Cancer	11,031	144.4	Cancer	601	133.7	Cancer	350	91.4	Cancer	466	95.3
Heart Disease	10,590	132.1	Heart Disease	490	111.3	Heart Disease	209	59.2	Unintentional Injuries[5]	392	53.0
Unintentional Injuries[5]	3,366	58.8	Unintentional Injuries[5]	203	40.5	Stroke	87	25.1	Heart Disease	377	84.0
Chronic Lower Respiratory Disease	2,649	33.8	Stroke	146	36.3	Unintentional Injuries[5]	71	18.2	Stroke	116	27.2
Stroke	2,082	25.7	Diabetes	126	28.5	Nephritis	44	13.2	Diabetes	94	20.2
Alzheimer's Disease	1,531	18.3	Nephritis	89	20.6	Diabetes	38	10.6	Nephritis	73	17.2
Diabetes	1,105	14.3	Chronic Lower Respiratory Disease	75	17.2	Alzheimer's Disease	31	9.6	Chronic Lower Respiratory Disease	67	14.2
Influenza & Pneumonia	1,104	13.8	Hypertension	65	15.4	Hypertension	28	8.4	Chronic Liver Disease	54	9.8
Nephritis	1,066	13.3	Septicemia	55	12.8	Influenza & Pneumonia	28	7.9	Alzheimer's Disease	53	14.8
Septicemia	817	10.5	Homicide	46	8.4	Chronic Lower Respiratory Disease	25	7.6	Homicide	45	4.6

Total		
Cause[3]	**#**	**Rate[4]**
Total	**58,660**	**654.0**
Cancer	12,584	139.5
Heart Disease	11,779	126.9
Unintentional Injuries[5]	4,094	53.7
Chronic Lower Respiratory Disease	2,842	31.2
Stroke	2,463	26.6
Alzheimer's Disease	1,662	17.6
Diabetes	1,386	15.3
Nephritis	1,280	13.9
Influenza & Pneumonia	1,217	13.1
Septicemia	942	10.4

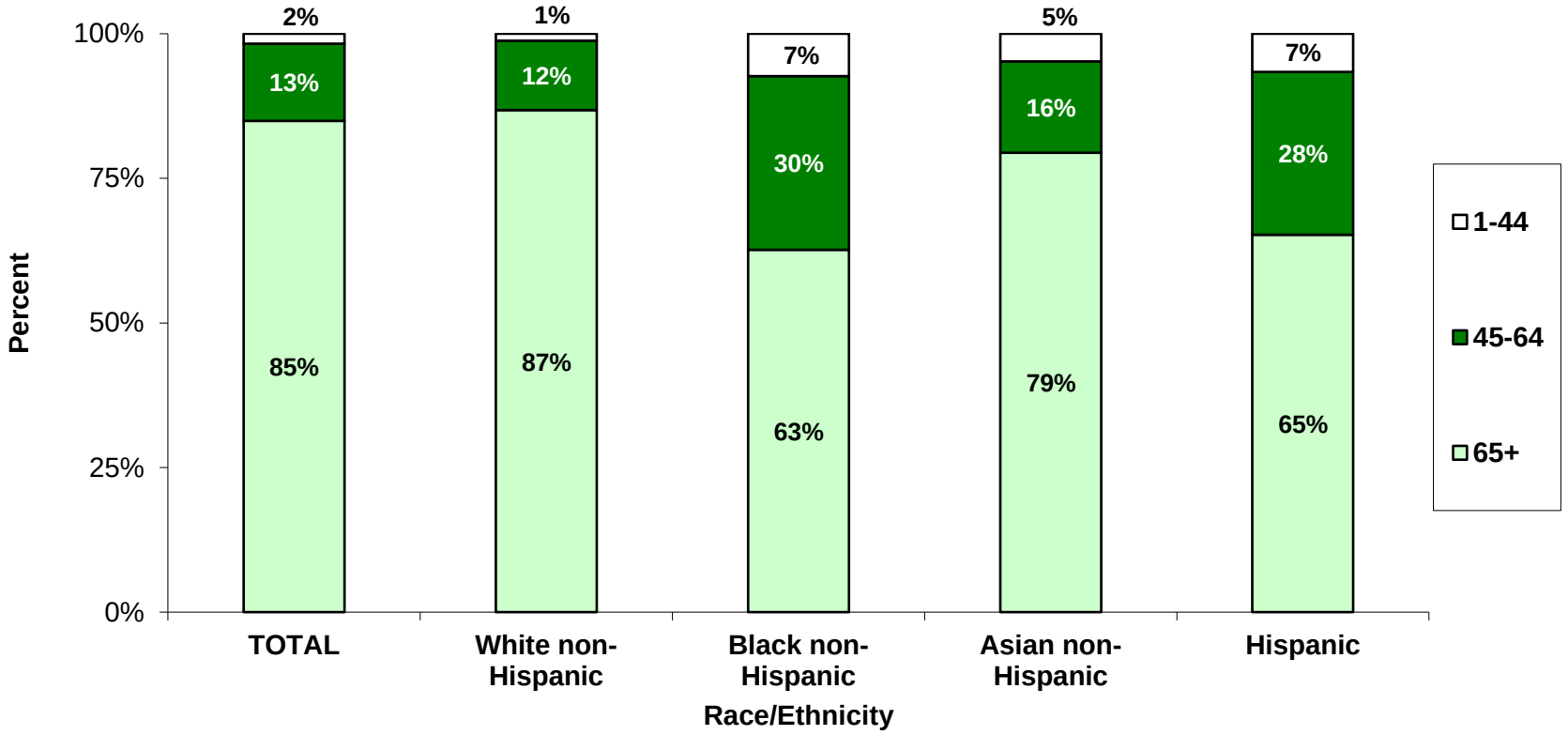
1. Ranking based on number of deaths. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the technical notes for more information on race and ethnicity . 3. Underlying Cause of Death based 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. Unintentional injuries include injuries such as motor vehicle-related and other transportation related deaths, falls, fires, and drownings that were not intended to occur.

Figure 8. Number of Heart Disease Deaths by Age Group and Gender, Massachusetts: 2019



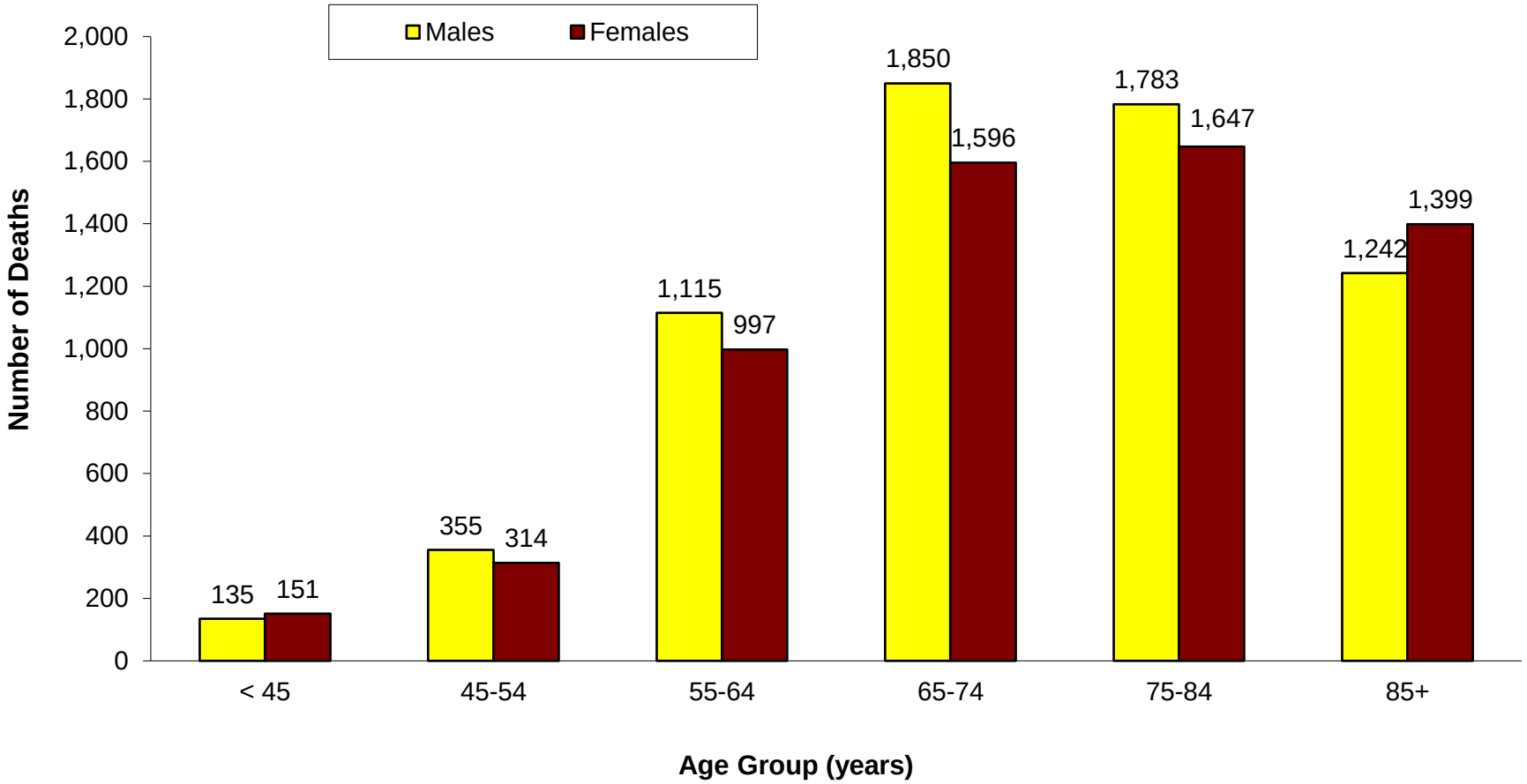
Note: The ICD-10 codes used for heart disease deaths were I00-I09, I11, I13, and I20-I51.

Figure 9. Age Distribution by Race and Hispanic Ethnicity for Heart Disease Deaths, Massachusetts: 2019



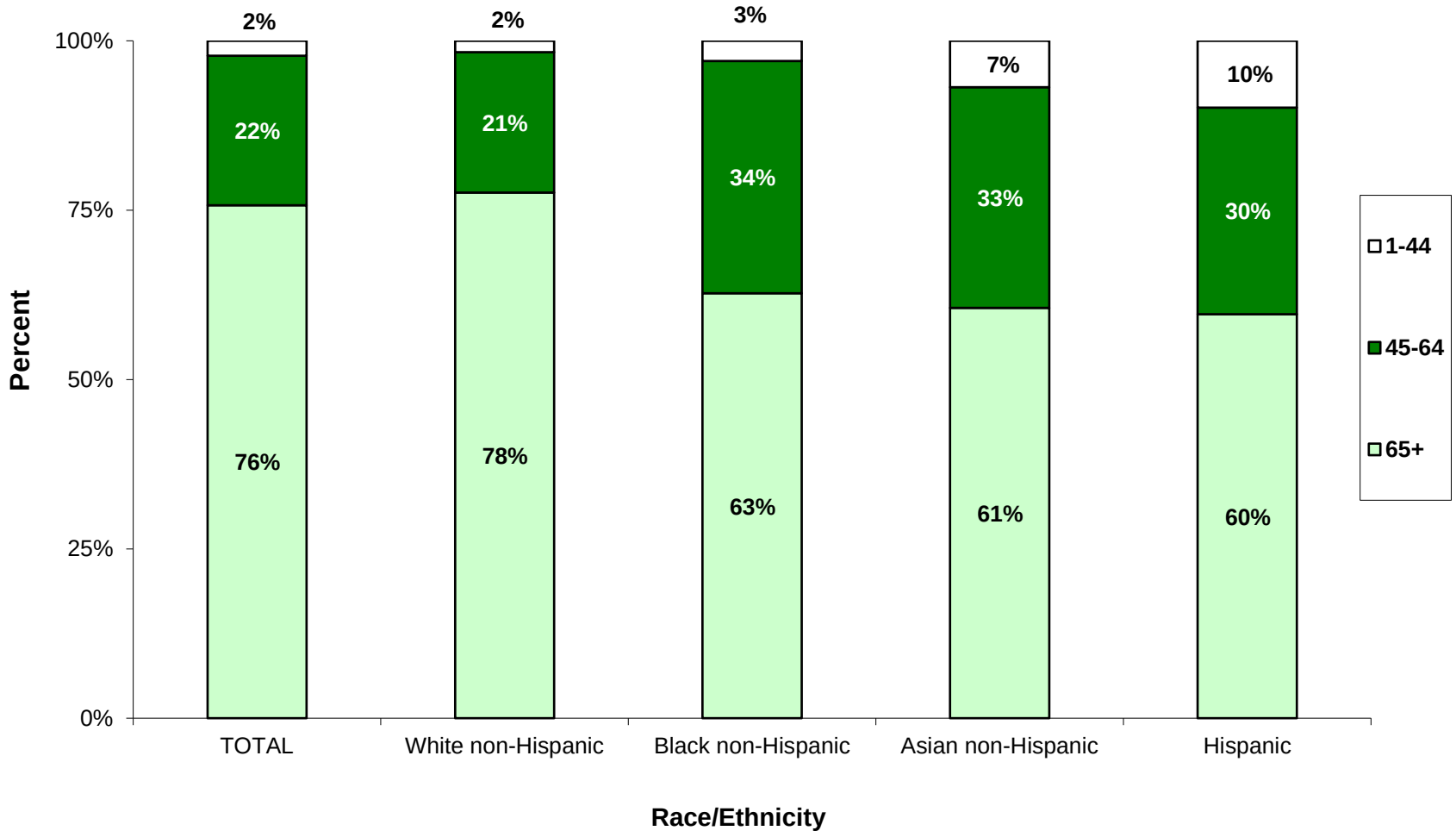
Note: The ICD-10 codes used for heart disease deaths were I00-I09, I11, I13, and I20-I51. Please see the technical notes for more information on race and ethnicity

Figure 10. Number of Cancer Deaths by Age Group and Gender, Massachusetts: 2019



Note: The ICD-10 codes used for cancer deaths were C00-C97.

Figure 11. Age Distribution by Race and Hispanic Ethnicity for Cancer Deaths, Massachusetts: 2019



Note: The ICD-10 codes used for cancer deaths were C00-C97. Please see the technical notes for more information on race and ethnicity.

Table 10. Heart Disease and Cancer Deaths by Race and Hispanic Ethnicity and Gender, Age-Adjusted Rates[1], Massachusetts: 2005-2019

Heart Disease

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
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
2012	187.5	113.0	144.7	167.3	125.2	144.3
2013	192.3	114.3	147.4	164.6	99.1	128.3
2014	185.5	109.4	142.0	168.3	98.0	127.9
2015	184.8	111.1	142.7	156.6	85.6	114.3
2016	179.8	109.1	139.2	147.5	90.8	113.9
2017	187.3	104.1	139.4	148.2	101.9	122.2
2018	179.2	104.6	136.5	150.0	96.7	120.2
2019	174.5	100.7	132.1	146.3	87.5	111.3

Year	Asian non-Hispanic[2] Male	Asian non-Hispanic[2] Female	Asian non-Hispanic[2] Total	Hispanic[2] Male	Hispanic[2] Female	Hispanic[2] Total
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
2012	74.7	43.2	57.1	106.8	70.5	85.8
2013	67.7	43.2	54.4	81.3	56.4	67.7
2014	74.3	42.6	57.5	83.4	65.4	72.9
2015	78.6	47.2	60.6	104.6	77.6	90.0
2016	61.5	50.4	55.3	103.7	73.2	87.5
2017	74.6	52.9	63.1	107.0	71.5	86.1
2018	76.5	42.0	57.9	93.2	60.6	75.0
2019	79.7	42.3	59.2	103.3	68.6	84.0

Table 10 (continued). Heart Disease and Cancer Deaths by Race and Hispanic Ethnicity and Gender, Age-Adjusted Rates, Massachusetts: 2005-2019

Cancer

Year	White non-Hispanic[2] Male	Female	Total	Black non-Hispanic[2] Male	Female	Total
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
2012	201.3	149.1	170.2	229.4	150.7	180.6
2013	193.2	144.0	163.8	207.0	141.7	166.3
2014	192.1	137.4	159.8	194.0	114.1	145.0
2015	185.2	138.6	157.3	161.8	116.3	133.2
2016	185.2	133.2	154.3	165.3	113.6	133.7
2017	181.7	133.3	153.2	192.0	116.5	145.2
2018	178.1	125.1	146.8	169.6	115.0	136.5
2019	172.7	124.9	144.4	169.7	111.6	133.7

Year	Asian non-Hispanic[2] Male	Female	Total	Hispanic[2] Male	Female	Total
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
2012	137.3	78.8	104.6	150.5	94.4	117.7
2013	106.3	66.3	84.4	122.6	91.7	105.1
2014	131.0	83.3	104.7	115.9	89.3	100.2
2015	112.9	86.5	97.9	114.3	83.3	95.6
2016	124.8	71.9	95.0	109.2	80.3	91.7
2017	123.4	83.8	101.4	116.3	86.3	98.0
2018	113.2	83.8	96.6	116.7	88.0	99.1
2019	115.2	71.9	91.4	112.8	83.5	95.3

1. Rates are per 100,000 age-adjusted to the 2000 US standard population. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the technical notes for more information on race and ethnicity.

Table 11. Number and Age-Adjusted Rates of Cancer Deaths by Selected Causes and Gender, Massachusetts: 2019

Cause of Death[1]	ICD-10 Code	Total		Female		Male	
		#	Rate[2,3]	#	Rate[2]	#	Rate[2]
Total Cancer Deaths	**C00-C97**	**12,584**	**139.5**	**6,104**	**119.8**	**6,480**	**167.8**
Bladder	C67	388	4.2	133	2.4	255	6.9
Brain and nervous system	C70-C72	417	4.9	163	3.5	254	6.6
Cervix	C53	61	1.5	61	1.5	NA	NA
Colorectal	C18-C21	990	11.1	474	9.2	516	13.4
Esophagus	C15	365	4.0	85	1.7	280	7.0
Female breast	C50	758	15.3	758	15.3	NA	NA
Hodgkin's disease	C81	25	0.3	10	0.2	15	0.4
Kidney and other urinary organs	C64, C65	241	2.6	90	1.7	151	3.9
Leukemia	C91-C95	476	5.3	190	3.7	286	7.5
Lung	C33, C34	2,954	32.4	1,496	28.9	1,458	37.3
Melanoma of the skin	C43	190	2.2	72	1.5	118	3.2
Multiple myeloma	C88, C90	256	2.8	98	1.8	158	4.1
Non-Hodgkin's lymphoma	C82-C85	390	4.5	177	3.5	213	5.7
Ovary	C56	291	6.0	291	6.0	NA	NA
Pancreas	C25	1,057	11.7	539	10.3	518	13.2
Prostate	C61	653	17.9	NA	NA	653	17.9
Stomach	C16	225	2.6	93	1.9	132	3.4
Uterus	C54, C55	272	5.3	272	5.3	NA	NA
All other cancers	Residual	2,575	28.3	1,102	21.4	1,473	37.2

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. Rates are per 100,000 age-adjusted to the 2000 US standard 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.

Table 12. Selected Causes of Cancer Deaths by Age, Massachusetts: 2019

Age	Cause of death[1]	ICD-10 Code	Number	Age-specific rate[2]
1 – 14 years	**Total**		**17**	**1.6**
	Brain and nervous system	C70-C72	5	0.5
	Leukemia	C91-C95	3	-[3]
	Kidney and other urinary organs	C64, C65	1	-[3]
	Non-Hodgkin's lymphoma	C82-C85	1	-[3]
15 - 24 years	**Total**		**27**	**2.8**
	Brain and nervous system	C70-C72	5	0.5
	Non-Hodgkin's lymphoma	C82-C85	4	-[3]
	Leukemia	C91-C95	3	-[3]
	Colorectal	C18-C21	1	-[3]
25 – 44 years	**Total**		**241**	**13.1**
	Brain and nervous system	C70-C72	35	1.9
	Female breast[4]	C50	32	3.5
	Colorectal	C18-C21	30	1.6
	Lung	C33, C34	14	0.8
45 – 64 years	**Total**		**2,781**	**150.3**
	Lung	C33, C34	636	34.4
	Colorectal	C18-C21	278	15.0
	Female breast[4]	C50	232	24.2
	Pancreas	C25	223	12.1
65 + years	**Total**		**9,517**	**809.2**
	Lung	C33, C34	2,303	195.8
	Pancreas	C25	827	70.3
	Colorectal	C18-C21	681	57.9
	Prostate[5]	C61	602	117.8
65-74 years	**Total**		**3,446**	**504.7**
	Lung	C33, C34	944	138.3
	Pancreas	C25	294	43.1
	Colorectal	C18-C21	206	30.2
	Female breast[4]	C50	172	46.8
75-84 years	**Total**		**3,430**	**1,033.6**
	Lung	C33, C34	882	265.8
	Pancreas	C25	311	93.7
	Prostate[5]	C61	225	159.6
	Colorectal	C18-C21	208	62.7
85+ years	**Total**		**2,641**	**1,636.2**
	Lung	C33, C34	477	295.5
	Colorectal	C18-C21	267	165.4
	Prostate[5]	C61	241	442.7
	Pancreas	C25	222	137.5

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 values 1-4 are excluded.
4. Calculation based on female population in specified age group. 5. Calculation based on male population in specified age group.

Table 13. Leading Causes of Cancer Deaths and Age-Adjusted Rates by Race and Hispanic Ethnicity, Massachusetts: 2019

White non-Hispanic[1]			Black non-Hispanic[1]			Asian non-Hispanic[1]			Hispanic[1]		
Cause[2]	**#**	**Rate[3]**	**Cause[2]**	**#**	**Rate[3]**	**Cause[2]**	**#**	**Rate[3]**	**Cause[2]**	**#**	**Rate[3]**
Lung	2,654	34.2	Lung	106	23.1	Lung	93	25.0	Lung	82	18.0
Pancreas	932	12.1	Pancreas	69	15.1	Colorectal	27	7.0	Colorectal	41	6.8
Colorectal	858	11.3	Colorectal	52	12.2	Stomach	24	6.8	Female breast[4]	34	11.0
Female Breast[4]	664	15.9	Prostate[5]	52	35.9	Pancreas	17	4.8	Pancreas	32	7.0
Prostate[5]	568	18.0	Female Breast[4]	38	15.0	Female Breast[4]	17	7.1	Stomach	21	4.8
Total Cancer	**11,031**	**144.4**	**Total Cancer**	**601**	**133.7**	**Total Cancer**	**350**	**91.4**	**Total Cancer**	**466**	**95.3**

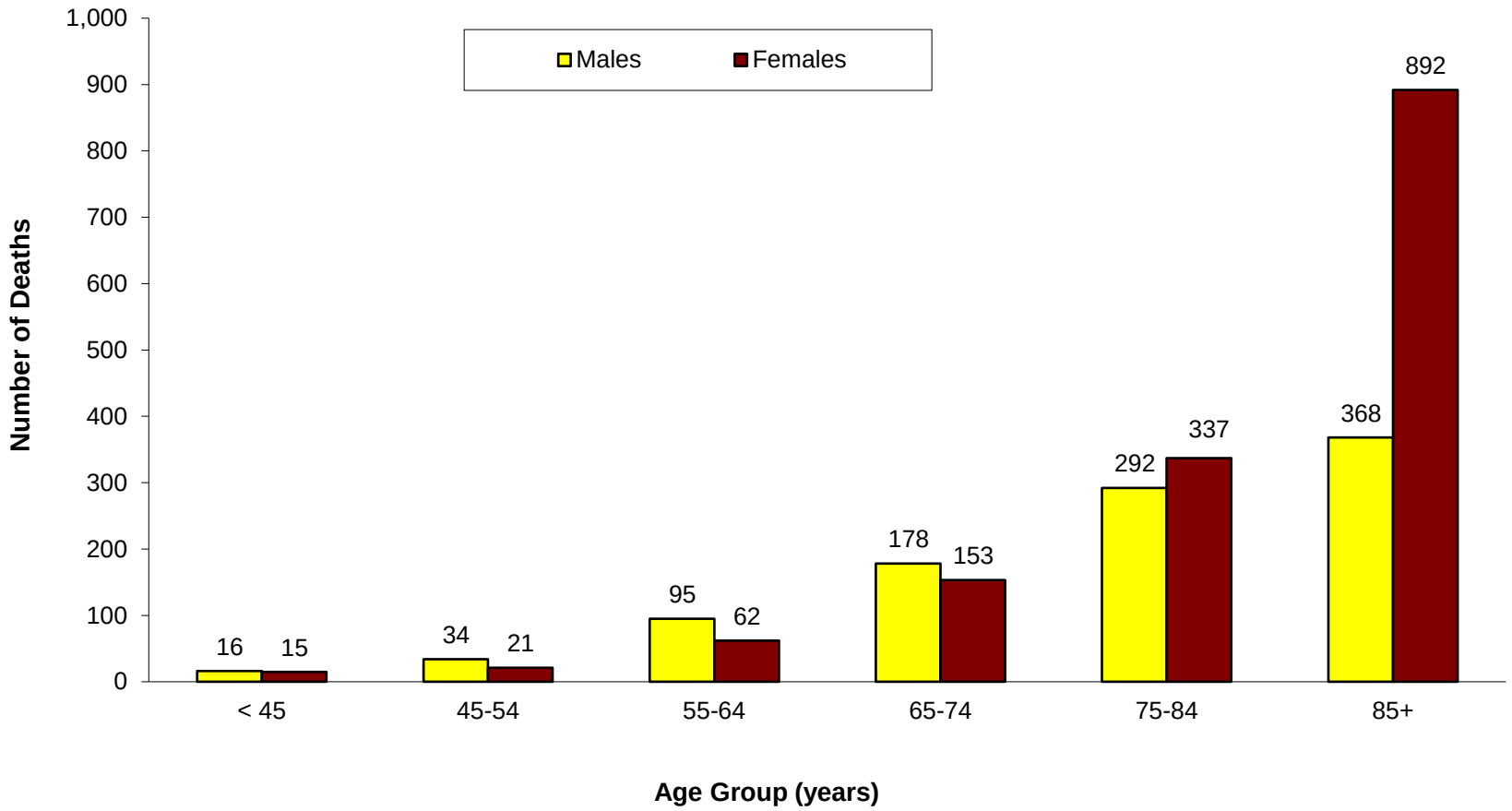
1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the technical notes for more information on race and ethnicity. 2. ICD-10 codes used. Please see the ICD-10 codes listing in the Appendix for detailed terminology. 3. Rates are per 100,000 age-adjusted to the 2000 US standard population. 4. Calculation based on female population. 5. Calculation based on male population.

Table 14. Number, Percent, and Age-Adjusted Rates of Stroke Deaths by Type and Gender, Massachusetts: 2019

Cause of Death	ICD-10 Code	Total			Female			Male		
		#	%	Rate[1]	#	%	Rate[1]	#	%	Rate[1]
Total Stroke Deaths	**I60-I69**	**2,463**	**100%**	**26.6**	**1,480**	**100%**	**25.8**	**983**	**100%**	**26.8**
Subarachnoid hemorrhage	I60	95	3.9%	1.1	65	4.4%	1.3	30	3.1%	0.8
Intracerebral and other intracranial hemorrhage	I61-I62	501	20.3%	5.6	260	17.6%	4.8	241	24.5%	6.5
Cerebral infarction	I63	200	8.1%	2.2	110	7.4%	2.0	90	9.2%	2.4
Stroke, not specified	I64	1,018	41.3%	10.7	656	44.3%	11.0	362	36.8%	9.8
Other	I67, I69	649	26.3%	7.0	389	26.3%	6.7	260	26.4%	7.3

1. All rates are age-adjusted to the 2000 US Standard Population. Rates are per 100,000 population.

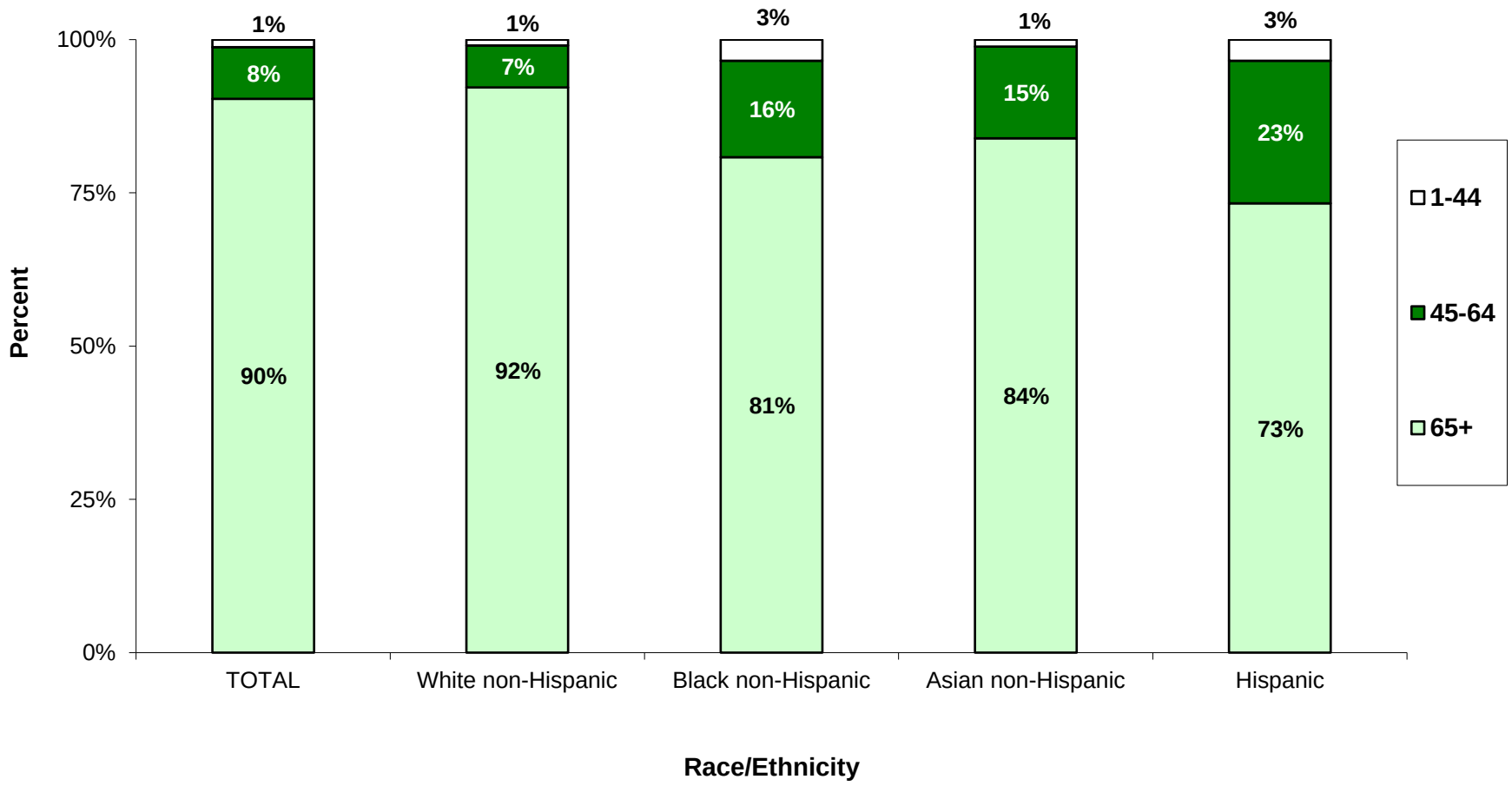
Figure 12. Number of Stroke Deaths by Age Group and Gender, Massachusetts: 2019



Note: The ICD-10 codes used for stroke deaths were I60-I69.

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 Hispanic Ethnicity for Stroke Deaths, Massachusetts: 2019



Note: The ICD-10 codes used for stroke deaths were I60-I69. Please see the technical notes for more information on race and ethnicity.

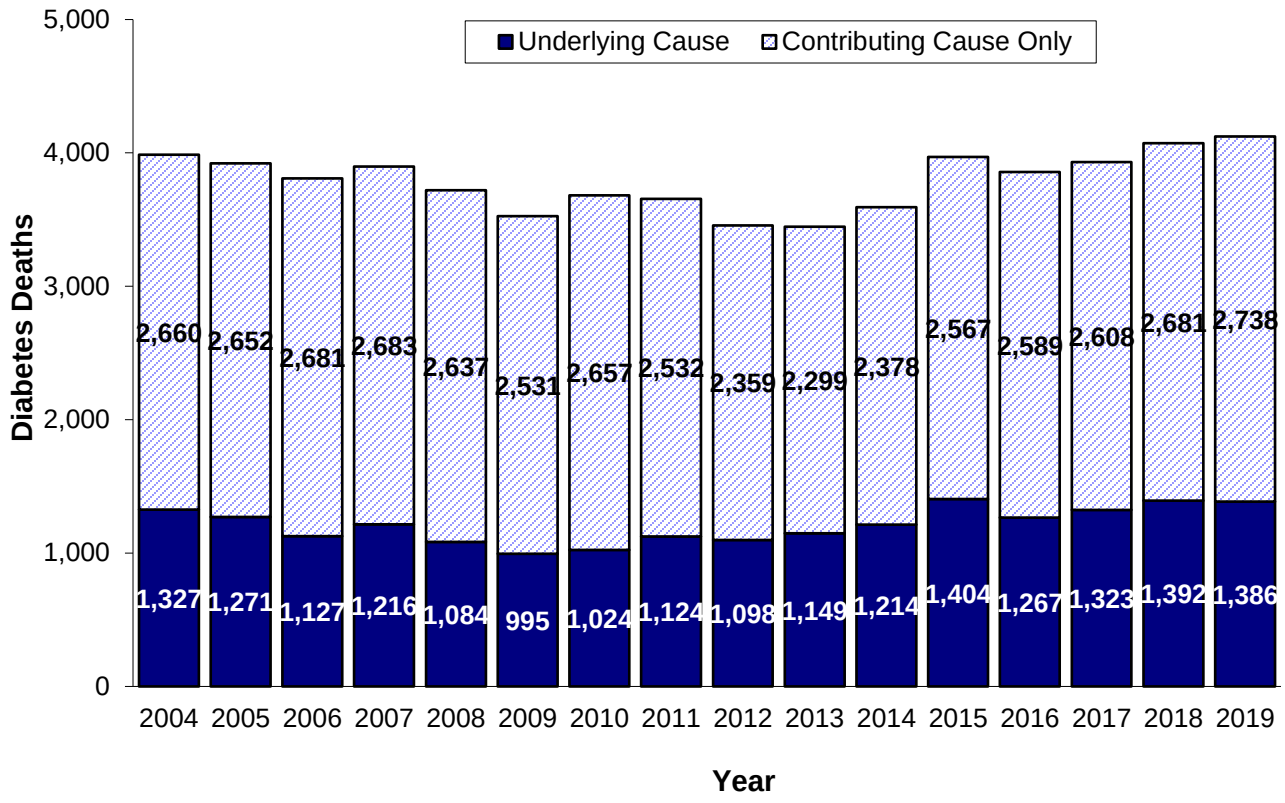
Table 15. Stroke Deaths by Race and Hispanic Ethnicity and Gender, Age-Adjusted Rates[1], Massachusetts: 2006-2019

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
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
2012	27.6	28.0	28.1	37.2	34.2	36.1
2013	26.4	27.9	27.7	33.4	29.6	31.3
2014	26.8	28.8	28.4	35.8	30.2	32.7
2015	27.4	28.0	28.0	33.1	24.7	28.0
2016	26.8	27.2	27.4	29.1	34.0	32.8
2017	26.4	25.3	26.0	39.4	27.3	32.9
2018	27.5	26.2	26.9	33.2	22.0	26.9
2019	25.8	25.2	25.7	40.3	33.5	36.3

Year	Asian non-Hispanic[2] Male	Asian non-Hispanic[2] Female	Asian non-Hispanic[2] Total	Hispanic[2] Male	Hispanic[2] Female	Hispanic[2] Total
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
2012	31.0	24.4	27.0	19.2	27.2	24.7
2013	16.0	25.6	21.6	25.7	18.1	21.2
2014	19.1	20.8	20.4	24.8	22.2	23.4
2015	28.6	26.4	27.3	23.7	22.5	23.5
2016	24.9	26.7	26.4	26.5	19.6	22.4
2017	32.0	28.4	30.0	18.0	19.8	19.7
2018	26.1	24.6	25.8	19.5	21.1	20.8
2019	23.2	26.1	25.1	33.0	23.3	27.2

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 more information on race and ethnicity.

Figure 14. Diabetes Deaths, Massachusetts: 2004-2019



Note: The ICD-10 codes used for diabetes deaths were E10-E14.

Table 16. Diabetes Deaths by Gender, Massachusetts: 2019

	Proportion of all Deaths (%)[1]			Number		
Cause of Death	Males	Females	Total	Males	Females	Total
Underlying	2.8%	1.9%	2.4%	814	572	1,386
Contributing/Associated	5.3%	4.1%	4.7%	1,541	1,197	2,738
Total Diabetes-Related	**8.1%**	**6.0%**	**7.0%**	**2,355**	**1,769**	**4,124**

Note: The ICD-10 codes used for diabetes deaths were E10-E14.

1. Proportions are out of total deaths due to all causes.

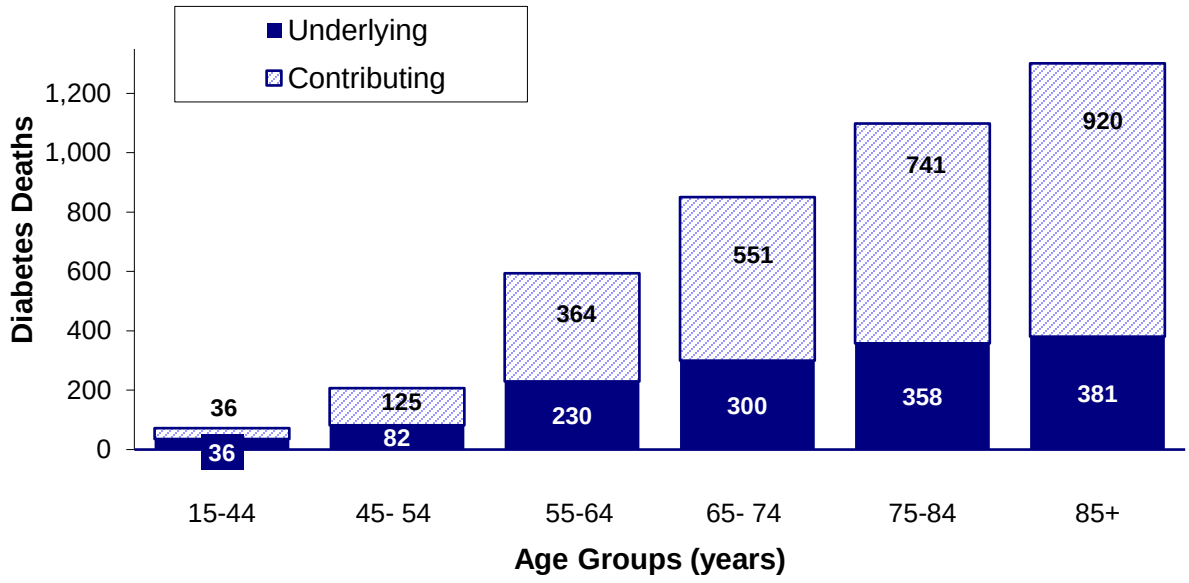
Table 17. Diabetes Deaths by Race and Hispanic Ethnicity, Massachusetts: 2019

Cause of Death	Race/Hispanic Ethnicity				
	White non-Hispanic	Black non-Hispanic	Hispanic	Asian non-Hispanic	Total
	Number				
Underlying	1,105	126	94	38	1,386
Contributing/Associated	2,279	180	166	77	2,738
Total Diabetes-Related	3,384	306	260	115	4,124
Total Deaths (All Causes)	***51,456***	***2,760***	***2,544***	***1,270***	***58,660***
	Proportion of all deaths (%)				
Underlying	2.1	4.6	3.7	3.0	2.4
Contributing/Associated	4.4	6.5	6.5	6.1	4.7
Total Diabetes-Related	***6.6***	***11.1***	***10.2***	***9.1***	***7.0***
	Death Rates[1]				
Underlying	14.3	28.5	20.2	10.6	*15.3*
Contributing/Associated	29.3	41.4	35.1	22.0	*30.1*
Total Diabetes-Related	***43.6***	***70.0***	***55.3***	***32.6***	***45.4***

Note: The ICD-10 codes used for diabetes deaths were E10-E14. Please see the technical notes for more information on race and ethnicity.

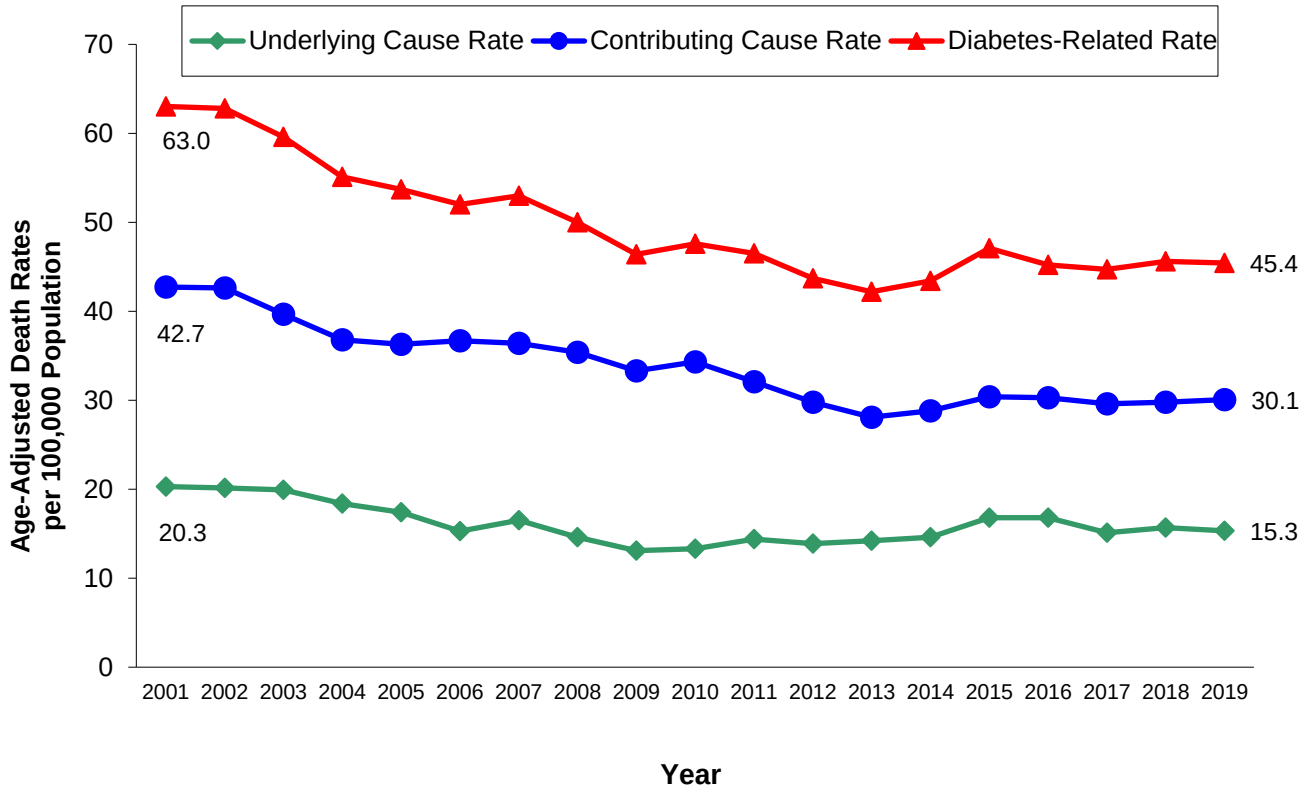
1. Rates are per 100,000 age-adjusted to the 2000 U.S. standard population

Figure 15. Age Distribution of Diabetes Deaths, Massachusetts: 2019



Note: The ICD-10 codes used for diabetes deaths were E10-E14.

Figure 16. Diabetes Death Rates, Massachusetts: 2001-2019



Note: The ICD-10 codes used for diabetes deaths were E10-E14.

Note: Rates are per 100,000 age-adjusted to the 2000 U.S. standard population.

Table 18. Injury Deaths by Leading Causes, Gender, Age: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2019

	All Injury Deaths[1]		Poisoning[2]		Falls		Hanging, Strangulation, or Suffocation		Motor Vehicle-Related[3]		Firearm		Other[4]	
	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]
All Persons	**5,101**	**67.1**	**2,338**	**33.8**	**1,035**	**11.3**	**491**	**6.1**	**398**	**5.1**	**249**	**3.4**	**590**	**7.3**
< 1	3	-[6]	1	-[6]	0	0.0	1	-[6]	0	0.0	0	0.0	1	-[6]
1-14	34	3.2	2	-[6]	2	-[6]	4	-[6]	10	0.9	3	-[6]	13	1.2
15-24	306	31.4	125	12.8	2	-[6]	40	4.1	59	6.1	45	4.6	35	3.6
25-44	1,631	88.7	1,196	65.1	25	1.4	106	5.8	100	5.4	100	5.4	104	5.7
45-64	1,500	81.1	908	49.1	102	5.5	155	8.4	113	6.1	66	3.6	156	8.4
65-74	444	65.0	80	11.7	127	18.6	64	9.4	62	9.1	17	2.5	94	13.8
75-84	441	132.9	17	5.1	249	75.0	46	13.9	33	9.9	12	3.6	84	25.3
85+	742	459.7	9	5.6	528	327.1	75	46.5	21	13.0	6	3.7	103	63.8
All Females	**1,657**	**38.3**	**624**	**17.5**	**528**	**9.2**	**156**	**3.5**	**111**	**2.7**	**29**	**0.8**	**209**	**4.6**
< 1	1	-[6]	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	-[6]
1-14	14	2.7	2	-[6]	1	-[6]	2	-[6]	5	1.0	2	-[6]	2	-[6]
15-24	67	13.7	28	5.7	0	0.0	10	2.1	11	2.3	7	1.4	11	2.3
25-44	395	42.8	301	32.6	7	0.8	24	2.6	24	2.6	7	0.8	32	3.5
45-64	399	41.7	254	26.5	33	3.4	43	4.5	25	2.6	10	1.0	34	3.6
65-74	154	41.9	30	8.2	53	14.4	17	4.6	20	5.4	2	-[6]	32	8.7
75-84	193	101.1	5	2.6	114	59.7	18	9.4	17	8.9	1	-[6]	38	19.9
85+	434	405.7	4	-[6]	320	299.1	42	39.3	9	8.4	0	0.0	59	55.2
All Males	**3,444**	**98.2**	**1,714**	**50.7**	**507**	**14.1**	**335**	**9.1**	**287**	**7.8**	**220**	**6.2**	**381**	**10.4**
< 1	2	-[6]	1	-[6]	0	0.0	1	-[6]	0	0.0	0	0.0	0	0.0
1-14	20	3.7	0	0.0	1	-[6]	2	-[6]	5	0.9	1	-[6]	11	2.0
15-24	239	49.1	97	19.9	2	-[6]	30	6.2	48	9.9	38	7.8	24	4.9
25-44	1,236	134.9	895	97.7	18	2.0	82	9.0	76	8.3	93	10.2	72	7.9
45-64	1,101	123.3	654	73.2	69	7.7	112	12.5	88	9.9	56	6.3	122	13.7
65-74	290	91.9	50	15.8	74	23.4	47	14.9	42	13.3	15	4.8	62	19.6
75-84	248	175.9	12	8.5	135	95.8	28	19.9	16	11.3	11	7.8	46	32.6
85+	308	565.8	5	9.2	208	382.1	33	60.6	12	22.0	6	11.0	44	80.8

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 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.

Table 19. Injury Deaths by Leading Causes, Gender and Race and Hispanic Ethnicity: Numbers and Age Adjusted Rates, Massachusetts: 2019

	All Injury Deaths[1]		Poisoning[2]		Falls		Hanging, Strangulation, or Suffocation		Motor Vehicle-Related[3]		Firearm		Other[4]	
	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]
White non-Hispanic	**4,132**	**72.6**	**1,843**	**38.2**	**934**	**11.9**	**419**	**6.9**	**321**	**5.6**	**149**	**2.7**	**466**	**7.3**
Females	1,425	43.1	529	21.3	480	9.6	132	3.8	92	2.9	22	0.8	170	4.6
Males	2,707	104.2	1,314	55.5	454	14.8	287	10.3	229	8.4	127	4.8	296	10.3
Black non-Hispanic	**296**	**57.9**	**139**	**26.6**	**24**	**5.9**	**19**	**3.8**	**24**	**4.6**	**45**	**8.1**	**45**	**9.0**
Females	71	26.9	38	14.1	12	4.8	3	1.2	6	2.3	1	0.4	11	4.2
Males	225	92.7	101	40.3	12	7.3	16	7.0	18	7.1	44	15.9	34	15.0
Asian non-Hispanic	**103**	**24.3**	**23**	**3.9**	**34**	**10.3**	**18**	**3.9**	**5**	**1.2**	**6**	**0.9**	**17**	**4.0**
Females	42	18.5	5	1.6	13	7.0	12	4.6	3	1.5	0	0.0	9	3.8
Males	61	31.5	18	6.6	21	14.7	6	3.2	2	0.8	6	1.9	8	4.3
Hispanic	**494**	**65.0**	**296**	**36.0**	**36**	**8.4**	**31**	**4.3**	**36**	**4.1**	**42**	**4.1**	**53**	**8.0**
Females	98	27.8	42	10.0	20	8.0	7	1.8	7	1.5	6	1.2	16	5.4
Males	396	104.7	254	63.3	16	9.3	24	7.5	29	7.0	36	7.0	37	10.8

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. 7. Please see the technical notes for more information on race and ethnicity.

Table 20. Unintentional Injury Deaths by Gender, Age: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2019

	All Unintentional[1]		Poisonings		Falls		Motor Vehicle-Related	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
All Persons	**4,094**	**53.7**	**2,177**	**31.7**	**1,007**	**10.9**	**398**	**5.1**
<1	1	-[3]	0	0.0	0	0.0	0	0.0
1-14	20	1.9	1	-[3]	0	0.0	10	0.9
15-24	186	19.1	113	11.6	1	-[3]	59	6.1
25-44	1,319	71.8	1,152	62.7	15	0.8	100	5.4
45-64	1,138	61.5	833	45.0	90	4.9	113	6.1
65-74	340	49.8	62	9.1	125	18.3	62	9.1
75-84	381	114.8	9	2.7	248	74.7	33	9.9
85+	709	439.3	7	4.3	528	327.1	21	13.0
All Females	**1,377**	**31.0**	**542**	**15.5**	**518**	**8.9**	**111**	**2.7**
<1	0	0.0	0	0.0	0	0.0	0	0.0
1-14	7	1.3	1	-[3]	0	0.0	5	1.0
15-24	36	7.4	21	4.3	0	0.0	11	2.3
25-44	322	34.9	284	30.8	3	-[3]	24	2.6
45-64	290	30.3	210	21.9	29	3.0	25	2.6
65-74	125	34.0	20	5.4	52	14.2	20	5.4
75-84	174	91.2	2	-[3]	114	59.7	17	8.9
85+	423	395.4	4	-[3]	320	299.1	9	8.4
All Males	**2,717**	**78.2**	**1,635**	**48.5**	**489**	**13.6**	**287**	**7.8**
<1	1	-[3]	0	0.0	0	0.0	0	0.0
1-14	13	2.4	0	0.0	0	0.0	5	0.9
15-24	150	30.8	92	18.9	1	-[3]	48	9.9
25-44	997	108.9	868	94.8	12	1.3	76	8.3
45-64	848	95.0	623	69.8	61	6.8	88	9.9
65-74	215	68.1	42	13.3	73	23.1	42	13.3
75-84	207	146.8	7	5.0	134	95.0	16	11.3
85+	286	525.4	3	-[3]	208	382.1	12	22.0

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 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.

Table 21. Unintentional Injury Deaths by Gender and Race and Hispanic Ethnicity: Numbers and Age-Adjusted Rates, Massachusetts: 2019

	All Unintentional[1]		Poisonings		Falls		Motor Vehicle-Related	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
White non-Hispanic	**3,366**	**58.8**	**1,699**	**35.7**	**909**	**11.4**	**321**	**5.6**
Females	1,204	35.3	455	18.9	471	9.3	92	2.9
Males	2,162	84.0	1,244	52.9	438	14.2	229	8.4
Black non-Hispanic	**203**	**40.5**	**133**	**25.3**	**24**	**5.9**	**24**	**4.6**
Females	59	22.3	36	13.4	12	4.8	6	2.3
Males	144	61.6	97	38.3	12	7.3	18	7.1
Asian non-Hispanic	**71**	**18.2**	**20**	**3.5**	**33**	**10.1**	**5**	**1.2**
Females	25	12.3	4	-[3]	13	7.0	3	-[3]
Males	46	25.4	16	5.9	20	14.3	2	-[3]
Hispanic	**392**	**53.0**	**288**	**35.1**	**35**	**8.2**	**36**	**4.1**
Females	71	20.8	37	8.8	19	7.7	7	1.5
Males	321	88.2	251	62.6	16	9.3	29	7.0

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. 4. Please see the technical notes for more information on race and ethnicity.

Table 22. Intentional Injury Deaths by Gender, Age: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2019

	All Intentional[1]		Suicide		Homicide	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
All Persons	**810**	**11.0**	**651**	**8.7**	**159**	**2.3**
<1	0	0.0	0	0.0	0	0.0
1-14	11	1.0	3	-[3]	8	0.8
15-24	110	11.3	67	6.9	43	4.4
25-44	279	15.2	202	11.0	77	4.2
45-64	306	16.5	281	15.2	25	1.4
65-74	65	9.5	61	8.9	4	-[3]
75-84	29	8.7	27	8.1	2	-[3]
85+	10	6.2	10	6.2	0	0.0
All Females	**195**	**5.3**	**159**	**4.2**	**36**	**1.1**
<1	0	0.0	0	0.0	0	0.0
1-14	5	1.0	1	-[3]	4	-[3]
15-24	26	5.3	18	3.7	8	1.6
25-44	62	6.7	47	5.1	15	1.6
45-64	85	8.9	78	8.1	7	0.7
65-74	12	3.3	10	2.7	2	-[3]
75-84	3	-[3]	3	-[3]	0	0.0
85+	2	-[3]	2	-[3]	0	0.0
All Males	**615**	**17.0**	**492**	**13.4**	**123**	**3.6**
<1	0	0.0	0	0.0	0	0.0
1-14	6	1.1	2	-[3]	4	-[3]
15-24	84	17.3	49	10.1	35	7.2
25-44	217	23.7	155	16.9	62	6.8
45-64	221	24.7	203	22.7	18	2.0
65-74	53	16.8	51	16.2	2	-[3]
75-84	26	18.4	24	17.0	2	-[3]
85+	8	14.7	8	14.7	0	0.0

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 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.

Table 23. Intentional Injury Deaths by Gender and Race and Hispanic Ethnicity: Numbers and Age-Adjusted Rates, Massachusetts: 2019

	All Intentional[1]		Suicide		Homicide	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
White non-Hispanic	**610**	**11.4**	**557**	**10.1**	**53**	**1.2**
Females	151	5.8	131	4.8	20	0.9
Males	459	17.3	426	15.8	33	1.5
Black non-Hispanic	**75**	**13.9**	**29**	**5.5**	**46**	**8.4**
Females	6	2.3	3	-[3]	3	-[3]
Males	69	25.9	26	10.1	43	15.8
Asian non-Hispanic	**26**	**4.6**	**19**	**3.4**	**7**	**1.2**
Females	14	4.9	12	4.2	2	-[3]
Males	12	4.2	7	2.4	5	1.8
Hispanic	**86**	**9.4**	**41**	**4.8**	**45**	**4.6**
Females	21	4.9	12	2.9	9	2.0
Males	65	14.0	29	6.9	36	7.1

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. 4. Please see the technical notes for more information on race and ethnicity.

Table 24. Injury Deaths by Intent, Method and Gender: Numbers and Age-Adjusted Rates, Massachusetts: 2019

Type of Injury[1]	All Injury Deaths		Female		Male	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
Unintentional Injuries (Accidents)	**4,094**	**53.7**	**1,377**	**31.0**	**2,717**	**78.2**
Motor vehicle-related	398	5.1	111	2.7	287	7.8
Injury to pedestrian	88	1.1	35	0.8	53	1.4
Injury to pedal cyclist	2	-[3]	1	-[3]	1	-[3]
Injury to motorcyclist	38	0.5	2	-[3]	36	0.9
Injury to occupant	35	0.5	12	0.3	23	0.7
Other and unspecified	235	3.1	61	1.6	174	4.8
Poisoning	2,177	31.7	542	15.5	1,635	48.5
Falls	1,007	10.9	518	8.9	489	13.6
Hanging, strangulation or suffocation	182	2.0	86	1.6	96	2.6
Cut or pierce	1	-[3]	0	0.0	1	-[3]
Firearm	1	-[3]	0	0.0	1	-[3]
Drowning and submersion	56	0.7	12	0.3	44	1.2
Smoke, fire and flames	41	0.5	13	0.2	28	0.7
Other and unspecified	210	2.5	90	1.7	120	3.3
Suicide	**651**	**8.7**	**159**	**4.2**	**492**	**13.4**
Poisoning	118	1.5	56	1.4	62	1.7
Hanging, strangulation or suffocation	304	4.1	67	1.9	237	6.5
Firearm	143	1.9	14	0.3	129	3.5
Other and unspecified	86	1.1	22	0.6	64	1.7
Homicide	**159**	**2.3**	**36**	**1.1**	**123**	**3.6**
Firearm	96	1.4	13	0.4	83	2.4
Cut or pierce	41	0.6	14	0.4	27	0.8
Other and unspecified	22	0.3	9	0.3	13	0.4
Injury Deaths of Undetermined Intent	**86**	**1.2**	**44**	**1.2**	**42**	**1.2**
Poisoning	43	0.6	26	0.7	17	0.5
Other and unspecified	43	0.6	18	0.5	25	0.7
Legal Intervention	**7**	**0.1**	0	0.0	**7**	**0.2**
Firearm	5	0.1	0	0.0	5	0.2
Other and unspecified	2	-[3]	0	0.0	2	-[3]
Adverse Effects	**104**	**1.2**	**41**	**0.8**	**63**	**1.7**
Medical care	98	1.1	37	0.8	61	1.6
Drugs	6	0.1	4	-[3]	2	-[3]
ALL INJURIES	**5,101**	**67.1**	**1,657**	**38.3**	**3,444**	**98.2**

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.

Table 25. HIV/AIDS[1] Deaths by Place of Occurrence, Massachusetts: 2005-2019

Year		Total[2]	Place of Occurrence			
			At Home	Hospital	Out of State	Hospice/Nursing Home/Other
2005	#	180	28	122	1	30
	%	100.0	15.6	67.8	--[3]	16.7
2006	#	179	22	122	2	33
	%	100.0	12.3	68.2	--[3]	18.4
2007	#	143	15	98	2	28
	%	100.0	10.5	68.5	--[3]	19.6
2008	#	143	27	92	1	23
	%	100.0	18.9	64.3	--[3]	16.1
2009	#	124	25	76	1	22
	%	100.0	20.2	61.3	--[3]	17.7
2010	#	119	22	68	1	28
	%	100.0	18.5	57.1	--[3]	23.5
2011	#	91	14	58	0	19
	%	100.0	15.4	63.7	0.0	20.9
2012	#	100	24	56	0	20
	%	100.0	24.0	56.0	0.0	20.0
2013	#	86	13	53	0	20
	%	100.00	15.1	61.6	0.0	23.3
2014	#	80	13	50	0	17
	%	100.00	16.3	62.5	0.0	21.3
2015	#	92	26	42	0	24
	%	100.00	28.3	45.7	0.0	26.1
2016	#	75	11	44	0	20
	%	100.00	14.7	58.7	0.0	26.7
2017	#	79	19	45	0	15
	%	100.00	24.1	57.0	0.0	19.0
2018	#	70	9	43	0	18
	%	100.00	12.9	61.4	0.0	25.7
2019	#	60	12	33	0	15
	%	100.00	20.0	55.0	0.0	25.0

1. AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus. 2. The deaths reported are cases for which AIDS or HIV-related disease was the underlying cause of death. Deaths were coded according to ICD-10: B20-B24. 3. Calculations based on values 1-4 are excluded.

Table 26. HIV/AIDS1 Deaths[2] by Age, Massachusetts: 2001-2019								
Year		Age (in years)						
		<15	15-24	25-34	35-44	45-54	55-64	65+
2001	#	1	2	25	111	91	16	3
	%	--[3]	--[3]	10	44.6	36.5	6.4	--[3]
2002	#	1	1	10	91	92	26	8
	%	--[3]	--[3]	4.4	39.7	40.2	11.4	3.5
2003	#	1	3	14	94	83	22	9
	%	--[3]	--[3]	6.2	41.6	36.6	9.7	4
2004	#	0	2	9	79	93	22	6
	%	0	--[3]	4.3	37.4	44.1	10.4	2.8
2005	#	0	1	6	64	76	25	8
	%	0	--[3]	3.3	35.6	42.2	13.9	4.4
2006	#	0	1	6	71	73	22	6
	%	0	--[3]	3.4	39.7	40.8	12.3	3.4
2007	#	0	0	5	34	68	31	5
	%	0	0	3.5	32.7	47.6	21.7	3.5
2008	#	0	1	6	32	54	34	16
	%	0	--[3]	4.2	22.4	37.8	23.8	11.2
2009	#	0	0	6	25	52	32	9
	%	0	0	4.8	20.2	41.9	25.8	7.3
2010	#	0	1	4	24	47	38	5
	%	0	--[3]	3	20.2	39.5	31.9	4.2
2011	#	0	2	1	19	37	21	11
	%	0	--[3]	3	20.9	40.7	23.1	12.1
2012	#	0	0	2	16	40	33	9
	%	0	0	3	16	40	33	9
2013	#	0	2	3	3	28	39	11
	%	0	--[3]	3	3	32.6	45.3	12.8
2014	#	0	1	6	9	23	33	8
	%	0	--[3]	7.5	11.3	28.8	41.3	10
2015	#	0	0	4	7	29	31	21
	%	0	0	--[3]	7.6	31.5	33.7	22.8
2016	#	0	0	2	5	26	25	17
	%	0	0	--[3]	6.7	34.7	33.3	22.7
2017	#	0	1	2	5	15	28	28
	%	0	--[3]	--[3]	6.3	19	35.4	35.4
2018	#	1	0	2	5	18	28	16
	%	--[3]	0	--[3]	7.1	25.7	40.0	22.9
2019	#	0	0	4	6	12	23	15
	%	0	0	--[3]	10.0	20.0	38.33	25.0

1. AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus. 2. The deaths reported are cases for which AIDS or HIV-related disease was the

underlying cause of death. Deaths were coded according to ICD-10: B20-B24. 3. Calculations based on values 1-4 are excluded.

Table 26. HIV/AIDS[1] Deaths[2] by Gender, Race and Hispanic Ethnicity, Massachusetts: 2002-2019

Year		Gender		Race and Ethnicity			
		Male	Female	White non-Hispanic[3]	Black non-Hispanic[3]	Other[4]	Hispanic[3]
2002	#	163	66	108	68	1	52
	%	71.2	28.8	47.1	29.7	--[5]	22.7
2003	#	150	76	113	58	2	53
	%	66.4	33.6	50.0	25.7	--[5]	23.5
2004	#	151	60	976	55	4	55
	%	71.6	28.4	46.0	26.1	--[5]	26.1
2005	#	122	58	75	56	4	45
	%	67.8	32.2	41.7	31.1	--[5]	25.0
2006	#	122	57	91	49	2	37
	%	68.2	31.8	50.8	27.4	--[5]	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	--[5]	21.8
2011	#	64	27	36	30	1	24
	%	70.3	29.7	39.6	33.0	--[5]	26.4
2012	#	62	38	50	26	1	23
	%	62.0	38.0	50.0	26.0	--[5]	23.0
2013	#	58	28	35	32	0	18
	%	67.4	32.6	41.2	37.6	0.0	21.2
2014	#	59	21	41	21	1	16
	%	73.8	26.3	51.3	26.3	--[5]	20.0
2015	#	74	18	41	28	2	21
	%	80.4	19.6	44.6	30.4	--[5]	22.8
2016	#	49	26	36	23	5	11
	%	65.3	34.7	48.0	30.7	6.7	14.7
2017	#	49	30	31	16	2	30
	%	62.0	38.0	39.2	20.3	--[5]	38.0
2018	#	44	26	35	22	1	12
	%	62.9	37.1	50.7	31.9	--[5]	17.4
2019	#	42	18	22	16	2	20
	%	70.0	30.0	36.7	26.7	--[5]	33.3

1. AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus. 2. The deaths reported are cases for which AIDS or HIV-related disease was the underlying cause of death. Deaths were coded according to ICD-10: B20-B24. 3. 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 for a more information on race and ethnicity. 4. The "Other" category represents Asian non-Hispanics, American Indian non-Hispanics, and other non-Hispanics. 5. Calculations based on values 1-4 are excluded.

Table 27. HIV/AIDS[1] Deaths by Gender, Race and Hispanic Ethnicity: Numbers, Percent and Age-Adjusted Rates, Massachusetts: 2006-2019

	White non-Hispanic[2]			Black non-Hispanic[2]			Hispanic[2]		
Year	**#**	**Percent**	**Rate[3]**	**#**	**Percent**	**Rate[3]**	**#**	**Percent**	**Rate[3]**
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
2012	50	51%	0.8	26	26%	6.1	23	23%	4.6
2013	35	41%	0.5	32	38%	6.7	18	21%	3.2
2014	41	51%	0.6	21	26%	4.4	16	20%	3.2
2015	41	46%	0.6	28	31%	5.9	21	23%	3.6
2016	36	51%	0.5	23	33%	4.7	11	16%	1.8
2017	31	41%	0.4	16	21%	3.8	30	39%	1.9
2018	35	51%	0.5	22	32%	4.4	12	17%	1.8
2019	22	38%	0.3	16	28%	3.3	20	34%	2.9
MALE									
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
2012	35	57%	1.2	14	23%	7.8	12	20%	5.6
2013	24	69%	0.7	21	21%	9.8	12	12%	4.3
2014	34	59%	1.0	14	24%	6.5	10	17%	4.7
2015	33	45%	1.0	23	32%	10.3	17	23%	6.4
2016	28	61%	0.9	12	26%	5.7	6	13%	2.2
2017	22	45%	0.7	12	24%	8.8	15	31%	6.6
2018	25	57%	0.7	12	27%	5.7	7	16%	2.5
2019	17	43%	0.5	10	25%	4.8	13	33%	4.1
FEMALE									
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
2012	15	39%	0.4	12	32%	4.9	11	29%	3.9
2013	11	11%	0.3	11	11%	4.4	6	6%	2.1
2014	7	35%	0.2	7	35%	2.7	6	30%	2.0
2015	8	47%	0.3	5	29%	2.1	4	--[4]	--[4]
2016	8	33%	0.2	11	46%	4.0	5	21%	1.5
2017	9	32%	0.2	4	14%	--[4]	15	54%	2.3
2018	10	40%	0.2	10	40%	3.6	5	20%	1.3
2019	5	28%	0.1	6	33%	2.2	7	39%	1.9

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 for a more information on race and ethnicity. 3. Number of deaths per 100,000 persons; rates are age-adjusted to the 2000 US standard population. 4. Calculations based on values 1-4 are excluded

Table 29. HIV/AIDS[1] Deaths by Race, Hispanic Ethnicity, and Gender of Persons Ages 25-44, Massachusetts: 2006-2019

	White non-Hispanic[2]		Black non-Hispanic[2]		Hispanic[2]	
Year	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**
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
2012	6	0.5	3	--[4]	9	4.4
2013	1	--[4]	3	--[4]	2	--[4]
2014	1	--[4]	9	6.4	5	2.2
2015	2	--[4]	6	4.2	3	--[4]
2016	2	--[4]	2	--[4]	2	--[4]
2017	1	--[4]	1	--[4]	3	--[4]
2018	1	--[4]	2	--[4]	2	--[4]
2019	2	--[4]	4	--[4]	4	--[4]
MALE						
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]
2012	5	0.8	1	--[4]	5	4.8
2013	1	--[4]	2	--[4]	1	--[4]
2014	1	--[4]	6	8.8	3	--[4]
2015	1	--[4]	4	--[4]	1	--[4]
2016	1	--[4]	2	--[4]	2	--[4]
2017	0	--[4]	1	--[4]	2	--[4]
2018	1	--[4]	2	--[4]	1	--[4]
2019	1	--[4]	3	--[4]	3	--[4]
FEMALE						
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]
2012	1	--[4]	2	--[4]	4	--[4]
2013	0	0.0	1	--[4]	1	--[4]
2014	0	0.0	3	--[4]	2	--[4]
2015	1	--[4]	2	--[4]	2	--[4]
2016	1	--[4]	0	0.0	0	0.0
2017	1	--[4]	0	0.0	1	--[4]
2018	0	0.0	0	0.0	1	--[4]
2019	1	--[4]	1	--[4]	1	0.0

1. AIDS and HIV disease deaths coded using ICD-10: B20-B24. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the Technical Notes for a more information on race and ethnicity. 3. Number of deaths per 100,000 residents in the specified population group. 4. Calculations based on values 1-4 are excluded.

Table 30. Trends in Infant, Neonatal, and Post Neonatal Mortality, by Race and Hispanic Ethnicity, Massachusetts: 2009-2019

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]
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
2012	309	4.3	158	3.5	57	8.2	71	5.4	17	2.6	4	--[4]
2013	298	4.2	161	3.6	63	8.9	49	3.9	15	2.4	3	--[4]
2014	321	4.5	169	3.8	54	7.6	62	5.0	20	3.2	8	10.5
2015	310	4.3	146	3.3	59	8.3	75	5.7	15	2.3	14	21.8
2016	283	4.0	119	2.8	56	7.7	78	5.8	18	2.7	10	13.7
2017	263	3.7	109	2.6	49	6.6	71	5.1	19	2.9	12	17.1
2018	291	4.3	148	3.7	62	8.7	63	4.6	9	1.4	4	--[4]
2019	255	3.7	108	2.7	48	6.6	67	4.7	15	2.3	7	8.3

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]
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]
2012	216	3.0	111	2.5	41	5.9	46	3.5	13	2.0	3	--[4]
2013	221	3.1	119	2.6	45	6.3	39	3.1	10	1.6	0	0.0
2014	236	3.3	122	2.7	38	5.3	50	3.9	15	2.3	6	9.5
2015	237	3.3	106	2.4	45	6.4	59	4.5	15	2.3	11	17.1
2016	214	3.0	87	2.0	47	6.5	64	4.8	9	1.3	5	6.8
2017	180	2.5	70	1.7	32	4.3	52	3.7	11	1.7	12	17.1
2018	224	2.7	107	2.7	54	7.6	49	3.6	6	0.9	4	5.5
2019	188	2.7	69	1.7	41	5.6	52	3.6	11	1.7	5	5.9

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]
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]
2012	93	1.3	47	1.0	16	2.3	25	1.9	4	--[4]	1	--[4]
2013	77	1.1	42	0.9	18	2.5	10	0.8	5	0.8	1	--[4]
2014	85	1.2	47	1.1	16	2.2	12	0.9	5	0.8	2	--[4]
2015	73	1.0	40	0.9	14	2.0	16	1.2	0	0.0	3	--[4]
2016	69	1.0	32	0.7	9	1.2	14	1.0	9	1.3	5	6.8
2017	83	1.2	39	0.9	17	2.3	19	1.4	8	1.2	0	0.0
2018	67	1.0	41	1.0	8	1.1	14	1.0	3	--[4]	0	0.0
2019	67	1.0	39	1.0	7	1.0	15	1.0	4	--[4]	2	--[4]

1. Deaths of infants of unknown race are included in the total calculation. For rate computations, births of infants of unknown race are allocated into the race categories according to the distribution of births of known race. 2. Other: American Indian and Other races. 3. Rates are expressed per 1,000 live births. 4. Calculations based on values 1-4 are excluded. 5. 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 for more information on race and ethnicity.

Table 31. Infant, Neonatal, and Post Neonatal Deaths by Cause, Massachusetts: 2019

Cause of Death[1]	ICD-10 Code	Infant (<1 year) #	Infant (<1 year) %	Neonatal (<28 days) #	Neonatal (<28 days) %	Post Neonatal (28-365 days) #	Post Neonatal (28-365 days) %
TOTAL		**255**	**100.0**	**188**	**100.0**	**67**	**100.0**
Infectious and parasitic diseases	**A00-B99**	**5**	**2.0**	**0**	**0.0**	**5**	**7.5**
Cancer	**C00-C97**	**1**	--[2]	**0**	**0.0**	**1**	--[2]
Diseases of the blood and blood forming organs (anemia)	**D50-D89**	**2**	--[2]	**2**	--[2]	**0**	**0.0**
Diseases of nervous system and ear	**G00-G98, H60-H93**	**4**	--[2]	**2**	--[2]	**2**	--[2]
Diseases of the respiratory system	**J00-J98**	**2**	--[2]	**0**	**0.0**	**2**	--[2]
Diseases of digestive system	**K00-K92**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Congenital malformations	**Q00-Q99**	**56**	**22.0**	**38**	**20.2**	**18**	**26.9**
Congenital malformations of nervous system	Q00-Q07	3	--[2]	2	--[2]	1	--[2]
Anencephalus and similar malformations	Q00	0	0.0	0	0.0	0	0.0
Congenital malformations of heart	Q20-Q24	14	5.5	7	2.7	7	2.7
Other congenital malformations of circulatory system	Q25-Q28	1	--[2]	0	0.0	1	--[2]
Congenital malformations of respiratory system	Q30-Q34	5	2.0	3	--[2]	2	--[2]
Congenital malformations of genitourinary system	Q50-Q64	3	--[2]	3	--[2]	0	0.0
Congenital malformations of musculoskeletal system	Q65-Q85	8	3.1	6	2.3	2	--[2]
Chromosomal abnormalities	Q90-Q99	14	5.5	12	4.7	2	--[2]
Certain conditions originating in the perinatal period	**P00-P96**	**148**	**58.0**	**140**	**74.5**	**8**	**11.9**
Newborn affected by maternal conditions which may be unrelated to present pregnancy	P00	1	--[2]	1	--[2]	0	0.0
Newborn affected by maternal complications of pregnancy	P01	13	5.1	13	5.1	0	0.0
Newborn affected by complications of placenta, cord and membrane	P02	19	7.4	19	7.4	0	0.0
Newborn affected by other complications of labor and delivery	P03	2	--[2]	2	--[2]	0	0.0
Disorders relating to short gestation and low birthweight	P07	57	22.3	53	20.8	4	--[2]
Intrauterine hypoxia and birth asphyxia	P20-P21	4	--[2]	4	--[2]	0	0.0
Respiratory distress of newborn	P22	8	3.1	8	3.1	0	0.0
Other respiratory conditions of newborn	P23-P28	6	2.3	4	--[2]	2	--[2]
Infections specific to the perinatal period	P35-P39	7	2.7	7	2.7	0	0.0
Neonatal hemorrhage	P50-P52, P54	2	--[2]	2	--[2]	0	0.0
Other and ill-defined conditions originating in the perinatal period	P90-P96	4	--[2]	4	--[2]	0	0.0
Symptoms, signs, and ill-defined conditions	**R00-R99**	29	11.4	5	2.7	24	35.8
Sudden Infant Death Syndrome (SIDS)	R95	21	.	3	.	18	.
Unintentional injuries	**V01-X59**	**1**	--[2]	**0**	**0.0**	**1**	--[2]
Homicide	**X85-Y09**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
All other causes	**Residual**	**7**	**2.7**	**1**	--[2]	**6**	**9.0**

1. Please see Technical Notes in the Appendix for an explanation of ICD-10 codes. 2. Calculations based on values 1-4 are excluded.

Table 32. Infant[1] Deaths by Major Causes[2], Race and Hispanic Ethnicity, Massachusetts: 2019

		White non-Hispanic		Black non-Hispanic		Asian non-Hispanic		Hispanic	
Cause of Death[2]	**ICD-10 Code**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
TOTAL		**107**	**100.0%**	**48**	**100.0%**	**15**	**100.0%**	**68**	**100.0%**
Certain conditions originating in the perinatal period	P00- P96	52	42.6	36	75.0	8	50.0	39	54.9
Congenital malformations	Q00-Q99	24	19.7	7	14.0	5	31.3	17	23.9
Symptoms, signs, and ill-defined conditions	R00-R99	19	15.6	3	-[3]	1	-[3]	6	8.5
SIDS	R95	15	12.3	2	-[3]	1	-[3]	3	-[3]
Unintentional Injuries	V01-X59	1	-[3]	0	0.0	0	0.0	0	0.0
All other causes	Residual	11	9.0	2	-[3]	1	-[3]	6	8.5

1. Deaths less than 1 year of age. 2. Deaths are coded according to ICD-10. 3. Calculations based on values 1-4 are excluded. 4. 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 for more information on race and ethnicity.

Table 33. Target Status for Selected Healthy People 2020 Mortality Objectives (underlying cause of death only)

HEALTHY PEOPLE 2020 OBJECTIVE	TARGET 2020[1]	MA 2010[2]	MA 2016[2]	MA 2017[2]	MA 2018[2]	MA 2019[2]	TARGET STATUS
Overall Cancer	161.4	171.0	149.8	149.1	142.5	139.5	√
Lung Cancer	45.5	47.3	37.3	35.2	33.6	32.4	√
Female Breast Cancer (per 100,000 females)	20.7	19.1	16.8	18.5	15.7	15.3	√
Uterine Cervical Cancer (per 100,000 females)	2.2	4.3	1.1	1.1	0.8	1.5	√
Colorectal Cancer	14.5	14.9	11.6	11.5	11.4	11.1	√
Oropharyngeal Cancer	2.3	3.0	2.1	2.4	2.3	2.2	√
Prostate Cancer (per 100,000 males)	21.8	21.2	18.6	18.1	18.1	17.9	√
Malignant Melanoma	2.4	3.1	3.1	3.1	3.1	2.8	**O**
COPD, Ages 45+	102.6	84.4	86.2	90.8	88.1	90.3	√
Coronary Heart Disease	103.4	96.5	76.9	74.5	72.4	68.5	√
Stroke	34.8	31.2	53.6	52.6	52.8	53.7	●
Cirrhosis	8.2	5.4	4.3	4.8	5.1	5.1	√
Drug-Induced Deaths	11.3	12.5	35.8	34.9	34.8	34.0	●
HIV/AIDS	3.3	1.6	0.9	0.9	0.8	0.7	√
Injury Deaths	53.7	43.3	66.2	66.4	66.6	67.1	**O**
Residential Fire Deaths	0.9	0.2	0.5	0.5	0.4	0.4	√
Falls	7.2	6.9	8.5	9.6	10.4	11.3	√
Falls, Ages 65+	47.0	48.1	57.5	65.3	63.6	63.6	●
Firearm-Related	9.3	4.0	3.4	3.7	3.5	3.4	√
Poisonings	13.2	12.5	35.4	33.8	34.1	33.8	●
Unintentional or Undetermined Intent Injuries	11.1	10.9	33.1	32.0	31.9	32.1	●
Poisonings, Ages 35-54	25.6	22.8	58.1	58.4	58.9	60.3	●
Unintentional or Undetermined Intent Injuries, Ages 35-54	21.6	20.0	58.1	58.4	58.9	60.3	●
Unintentional Injuries	36.4	28.3	53.6	52.6	52.8	53.7	●
Motor Vehicle Crashes	12.4	5.4	6.3	5.7	5.4	4.4	√
Drowning	1.1	1.2	1.2	0.9	1.2	1.0	√
Hanging, Strangulation or Suffocation	1.8	5.8	5.9	6.8	6.5	6.1	●
Homicide	5.5	3.2	2.1	2.7	2.3	2.3	√
Suicide	10.2	8.7	8.8	9.5	9.9	8.7	√
Infant and Child Health							
Infant Deaths (per 1,000 live births)	6.0	4.4	4.0	3.7	4.3	3.7	√
Neonatal Deaths (per 1,000 live births)	4.1	3.3	3.0	2.5	3.3	2.7	√
Post Neonatal Deaths (per 1,000 live births)	2.0	1.1	1.0	1.2	1.0	1.0	√
Birth Defects (per 1,000 live births)	1.3	0.7	0.7	0.8	0.8	0.8	√
Congenital Heart Defects (per 1,000 live births)	0.3	0.1	0.1	0.2	0.2	0.2	√
Sudden Infant Death Syndrome (SIDS) (per 1,000 live births)	0.5	0.5	0.2	0.3	0.3	0.3	√
Child/Adolescent/Young Adults Death Rates							
1-4 years old	26.5	13.6	14.2	15.4	16.1	13.4	√
5-9 years old	12.4	7.3	8.8	8.9	9.7	8.6	√
10-14 years old	14.8	8.6	10.4	10.7	6.7	8.4	√
15-19 years old	54.3	30.9	30.4	32.5	23.4	23.6	√
20-24 years old	88.3	65.2	77.7	67.9	59.3	53.9	√
Asthma Deaths (per million)							
Ages 35-64 Years	4.9	6.3	12.6	11.4	8.5	14.0	●
Ages 65+ Years	21.5	29.9	36.3	30.5	29.7	24.5	**O**

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

1. Data 2020 the Healthy People 2020 Database. (Source: https://www.healthypeople.gov).
2. Death rates are per 100,000 and age adjusted to the 2010 US Population except when noted.

Table 34. Rank of Premature Mortality Rates (PMR) for the Largest 30 Communities, Massachusetts: 2019 (Sorted by PMR)

Largest 30 Communities[1]	Number of Premature Deaths	PMR[2] (per 100,000)
Fall River	501	489.9
New Bedford	520	474.3
Pittsfield	251	467.8
Brockton	452	423.7
Taunton	284	421.3
Lowell	480	412.2
Springfield	637	403.2
Worcester	756	395.3
Chicopee	272	394.8
Haverhill	295	378.8
Lynn	369	356.8
Lawrence	296	355.6
Attleboro	181	330.4
Weymouth	224	313.9
Barnstable	190	296.6
Malden	209	293.0
Revere	196	290.4
Quincy	354	289.9
Plymouth	228	270.3
Peabody	179	267.4
Boston	1,730	263.9
Methuen	163	250.3
Medford	163	234.2
Somerville	148	217.3
Waltham	148	214.4
Framingham	158	200.5
Cambridge	187	193.8
Brookline	89	136.6
Arlington	73	124.5
Newton	139	122.5
STATE	**22,787**	**272.8**

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 different from State PMR.**

Table 35. Premature Mortality Rates (PMR) by Community, Massachusetts: 2019		
City/Town	**Premature Deaths (#)**	**PMR**[1] (per 100,000 population)
STATE	**22,787**	**272.8**
Abington	58	288.5
Acton	43	141.0
Acushnet	35	209.8
Adams	49	451.7
Agawam	147	363.7
Alford	2	-[2]
Amesbury	92	414.1
Amherst	62	295.7
Andover	53	121.0
Aquinnah	1	-[2]
Arlington	73	124.5
Ashburnham	32	414.5
Ashby	12	227.5
Ashfield	4	-[2]
Ashland	51	212.2
Athol	61	409.4
Attleboro	181	330.4
Auburn	72	347.6
Avon	15	255.1
Ayer	49	512.3
Barnstable	190	296.6
Barre	20	292.4
Becket	8	345.8
Bedford	41	202.7
Belchertown	42	209.6
Bellingham	59	249.3
Belmont	39	119.9
Berkley	27	319.9
Berlin	8	216.4
Bernardston	5	144.9
Beverly	149	300.8
Billerica	121	229.8
Blackstone	39	331.0
Blandford	4	-[2]
Bolton	4	-[2]
Boston	1,730	263.9
Bourne	80	267.7
Boxborough	14	233.3
Boxford	12	124.7
Boylston	9	140.7
Braintree	142	307.3
Brewster	28	190.3
Bridgewater	76	234.7
Brimfield	18	301.6
Brockton	452	423.7
Brookfield	11	215.6

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2019

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Brookline	89	136.6
Buckland	6	178.3
Burlington	67	209.4
Cambridge	187	193.8
Canton	62	199.1
Carlisle	11	179.5
Carver	74	421.4
Charlemont	5	244.5
Charlton	34	218.1
Chatham	34	333.5
Chelmsford	91	193.0
Chelsea	130	393.1
Cheshire	20	382.9
Chester	6	334.4
Chesterfield	7	320.4
Chicopee	272	394.8
Chilmark	5	1,156.2
Clarksburg	6	259.7
Clinton	59	363.5
Cohasset	12	151.5
Colrain	7	205.8
Concord	27	115.1
Conway	3	-[2]
Cummington	5	530.3
Dalton	29	364.3
Danvers	129	342.9
Dartmouth	78	180.1
Dedham	79	246.5
Deerfield	15	184.0
Dennis	80	380.2
Dighton	22	243.8
Douglas	32	286.4
Dover	9	185.3
Dracut	120	294.2
Dudley	39	281.7
Dunstable	5	127.4
Duxbury	41	208.3
East Bridgewater	51	274.6
East Brookfield	5	156.6
East Longmeadow	50	228.6
Eastham	24	274.7
Easthampton	55	238.0
Easton	58	200.9
Edgartown	12	223.7
Egremont	7	224.5
Erving	12	480.8
Essex	12	233.4
Everett	129	269.8
Fairhaven	76	345.7

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2019

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Fall River	501	489.9
Falmouth	144	314.3
Fitchburg	216	492.7
Florida	6	586.5
Foxborough	64	272.4
Framingham	158	200.5
Franklin	94	240.4
Freetown	29	262.0
Gardner	91	362.6
Georgetown	15	120.8
Gill	6	223.5
Gloucester	138	315.7
Goshen	2	-[2]
Gosnold	0	0.0
Grafton	59	258.5
Granby	28	302.1
Granville	7	344.9
Great Barrington	27	296.1
Greenfield	90	412.2
Groton	37	261.9
Groveland	18	200.3
Hadley	21	233.0
Halifax	32	298.6
Hamilton	19	212.7
Hampden	16	226.5
Hancock	3	-[2]
Hanover	32	180.7
Hanson	35	277.6
Hardwick	16	416.2
Harvard	4	-[2]
Harwich	60	319.2
Hatfield	15	249.5
Haverhill	295	378.8
Hawley	0	0.0
Heath	3	-[2]
Hingham	48	170.0
Hinsdale	9	326.7
Holbrook	53	379.1
Holden	42	167.9
Holland	14	321.1
Holliston	31	160.4
Holyoke	197	438.6
Hopedale	15	228.1
Hopkinton	18	99.7
Hubbardston	9	191.8
Hudson	55	208.5
Hull	65	439.9
Huntington	9	255.7

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2019

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Ipswich	45	263.0
Kingston	49	314.1
Lakeville	44	257.2
Lancaster	24	229.4
Lanesborough	9	258.8
Lawrence	296	355.6
Lee	29	389.3
Leicester	43	284.7
Lenox	10	139.0
Leominster	160	319.0
Leverett	10	353.0
Lexington	60	133.6
Leyden	2	-[2]
Lincoln	11	151.3
Littleton	24	196.5
Longmeadow	25	121.0
Lowell	480	412.2
Ludlow	98	369.6
Lunenburg	48	342.1
Lynn	369	356.8
Lynnfield	28	173.0
Malden	209	293.0
Manchester	10	120.2
Mansfield	70	258.8
Marblehead	40	125.9
Marion	21	278.6
Marlborough	136	281.5
Marshfield	87	241.2
Mashpee	59	292.0
Mattapoisett	22	245.5
Maynard	30	217.0
Medfield	28	185.6
Medford	163	234.2
Medway	47	291.5
Melrose	74	205.5
Mendon	16	208.6
Merrimac	23	249.9
Methuen	163	250.3
Middleborough	95	269.8
Middlefield	0	0.0
Middleton	28	212.7
Milford	69	205.6
Millbury	57	325.9
Millis	35	346.7
Millville	11	258.8
Milton	60	154.5
Monroe	0	0.0
Monson	28	242.0
Montague	40	302.1

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2019

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Monterey	2	-[2]
Montgomery	5	341.1
Mount Washington	1	-[2]
Nahant	11	349.0
Nantucket	30	229.9
Natick	87	192.4
Needham	54	149.0
New Ashford	0	0.0
New Bedford	520	474.3
New Braintree	3	-[2]
New Marlborough	3	-[2]
New Salem	3	-[2]
Newbury	27	234.0
Newburyport	52	187.9
Newton	139	122.5
Norfolk	26	155.6
North Adams	74	483.4
North Andover	70	209.4
North Attleboro	91	253.3
North Brookfield	12	184.4
North Reading	42	195.4
Northampton	119	326.4
Northborough	43	224.7
Northbridge	62	310.4
Northfield	10	201.5
Norton	54	243.3
Norwell	37	284.9
Norwood	108	284.3
Oak Bluffs	12	164.5
Oakham	11	371.8
Orange	40	385.3
Orleans	20	277.6
Otis	8	249.3
Oxford	68	410.3
Palmer	61	398.1
Paxton	9	147.4
Peabody	179	267.4
Pelham	2	-[2]
Pembroke	57	235.6
Pepperell	44	302.8
Peru	2	-[2]
Petersham	4	-[2]
Phillipston	3	-[2]
Pittsfield	251	467.8
Plainfield	3	-[2]
Plainville	27	227.9
Plymouth	228	270.3
Plympton	8	222.9
Princeton	9	177.0

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2019

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Provincetown	26	656.5
Quincy	354	289.9
Randolph	114	276.5
Raynham	51	263.0
Reading	63	187.5
Rehoboth	39	225.4
Revere	196	290.4
Richmond	6	162.7
Rochester	12	198.8
Rockland	62	265.2
Rockport	23	227.4
Rowe	0	0.0
Rowley	16	193.5
Royalston	3	-[2]
Russell	7	326.9
Rutland	24	251.1
Salem	154	293.9
Salisbury	48	364.1
Sandisfield	9	376.3
Sandwich	53	161.7
Saugus	117	307.0
Savoy	4	-[2]
Scituate	53	201.2
Seekonk	55	324.7
Sharon	31	132.0
Sheffield	16	542.2
Shelburne	10	441.1
Sherborn	10	180.1
Shirley	41	436.0
Shrewsbury	81	177.3
Shutesbury	2	-[2]
Somerset	50	215.6
Somerville	148	217.3
South Hadley	58	265.7
Southampton	23	262.1
Southborough	19	155.8
Southbridge	88	474.6
Southwick	47	318.4
Spencer	60	392.7
Springfield	637	403.2
Sterling	20	244.1
Stockbridge	9	210.6
Stoneham	63	205.3
Stoughton	96	262.9
Stow	16	162.2
Sturbridge	27	206.9
Sudbury	34	190.2
Sunderland	8	249.9
Sutton	31	246.6

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2019

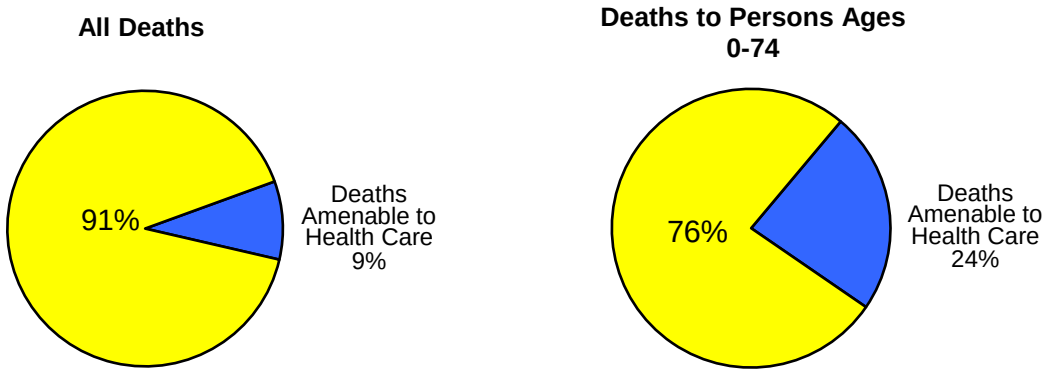
City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Swampscott	37	226.6
Swansea	66	292.1
Taunton	284	421.3
Templeton	29	231.8
Tewksbury	119	287.5
Tisbury	14	298.8
Tolland	2	-[2]
Topsfield	15	195.4
Townsend	34	259.4
Truro	14	420.5
Tyngsborough	43	279.9
Tyringham	2	-[2]
Upton	26	216.7
Uxbridge	48	216.3
Wakefield	74	209.2
Wales	9	384.0
Walpole	66	219.6
Waltham	148	214.4
Ware	63	529.2
Wareham	146	435.7
Warren	16	253.2
Warwick	5	268.0
Washington	0	0.0
Watertown	81	199.8
Wayland	22	128.9
Webster	88	428.0
Wellesley	39	109.2
Wellfleet	12	299.4
Wendell	6	356.6
Wenham	8	171.4
West Boylston	23	202.7
West Bridgewater	31	325.3
West Brookfield	18	361.5
West Newbury	11	147.4
West Springfield	137	376.7
West Stockbridge	7	359.3
West Tisbury	4	-[2]
Westborough	45	213.4
Westfield	182	361.2
Westford	46	147.8
Westhampton	9	259.9
Westminster	25	226.0
Weston	20	125.2
Westport	52	250.9
Westwood	24	137.0
Weymouth	224	313.9
Whately	7	363.1
Whitman	56	324.9
Wilbraham	38	203.2

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2019

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Williamsburg	6	151.3
Williamstown	32	355.1
Wilmington	79	275.6
Winchendon	51	377.6
Winchester	28	118.1
Windsor	3	-[2]
Winthrop	85	318.5
Woburn	131	264.0
Worcester	756	395.3
Worthington	2	-[2]
Wrentham	43	295.2
Yarmouth	112	331.4

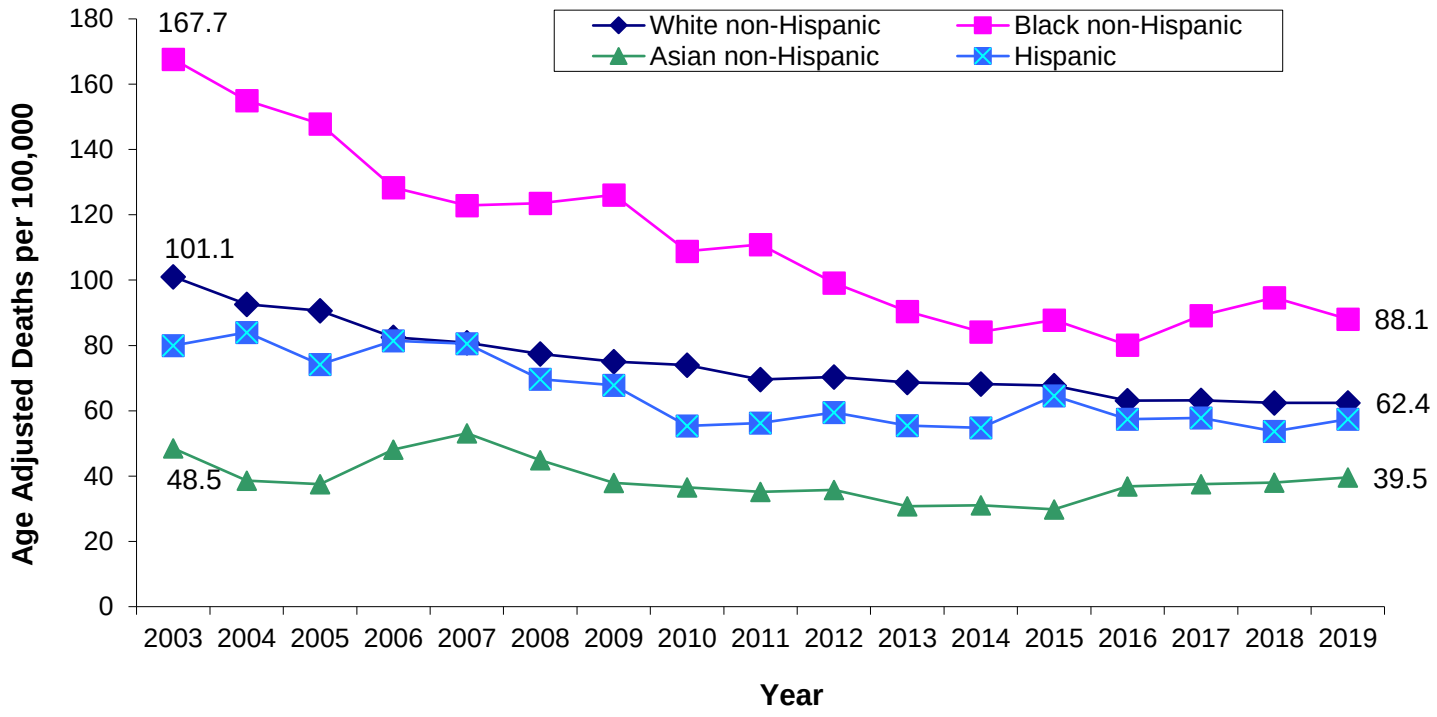
1. Premature mortality rates (PMR) are age-adjusted to the 2000 US Standard Population for persons ages 0-74 years. 2. Age-adjusted rates based on values 1-4 are excluded.

Figure 17. Percent of Deaths Amenable to Health Care[1], Massachusetts: 2019



1. Deaths amenable to health care are deaths that should be preventable with timely and effective health care. See Table A6 for a complete list of ICD codes included in this category.

Figure 18. Amenable Mortality[1] by Race and Hispanic Ethnicity[2], Massachusetts: 2003-2019



1. Deaths amenable to health care are deaths that should be preventable with timely and effective health care. See Table A6 for a complete list of ICD codes included in this category.
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 for more information on race and ethnicity

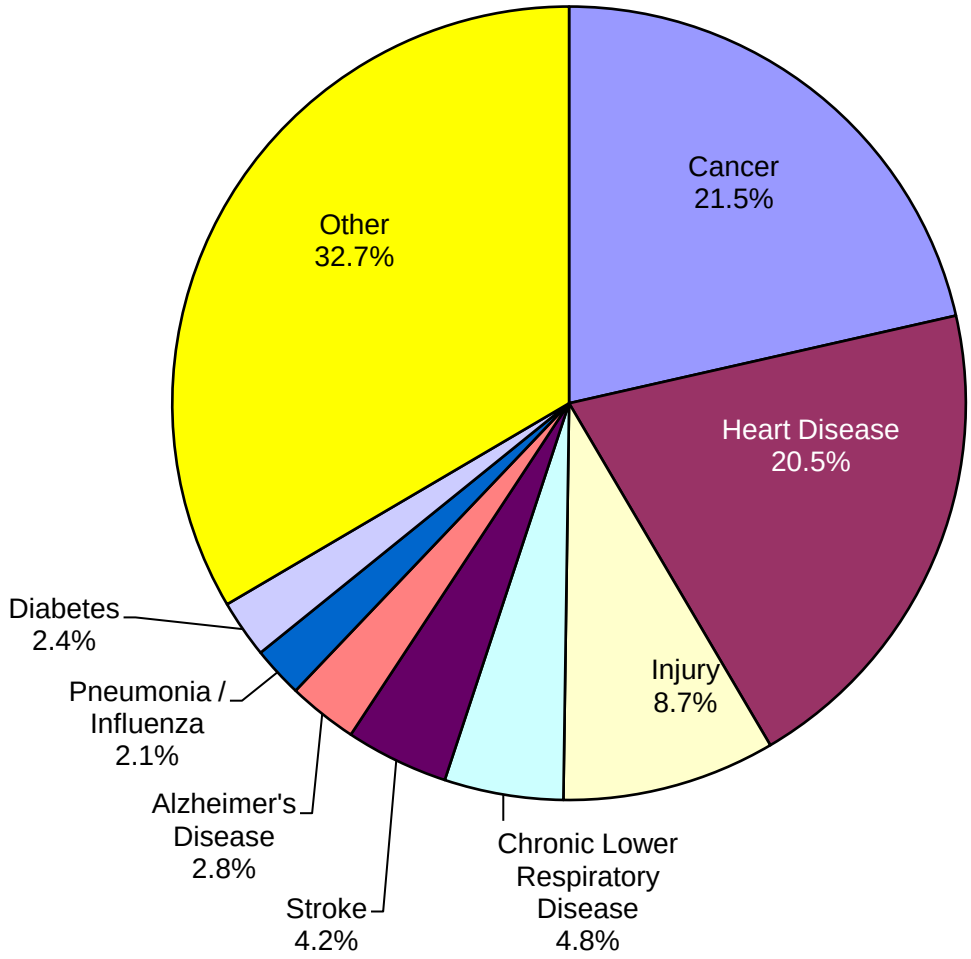
APPENDIX

Additional Tables & Figures

Technical Notes

Glossary

Figure 19. Percent Distribution of Leading Underlying Causes of Death, Massachusetts: 2019



Note: Total Number of Deaths = 58,660
Note: Causes of Death are classified according to ICD-10

Table 36. Number and Age-Specific Rates for Leading Underlying Causes of Death by Race and Hispanic Ethnicity, Massachusetts: 2019

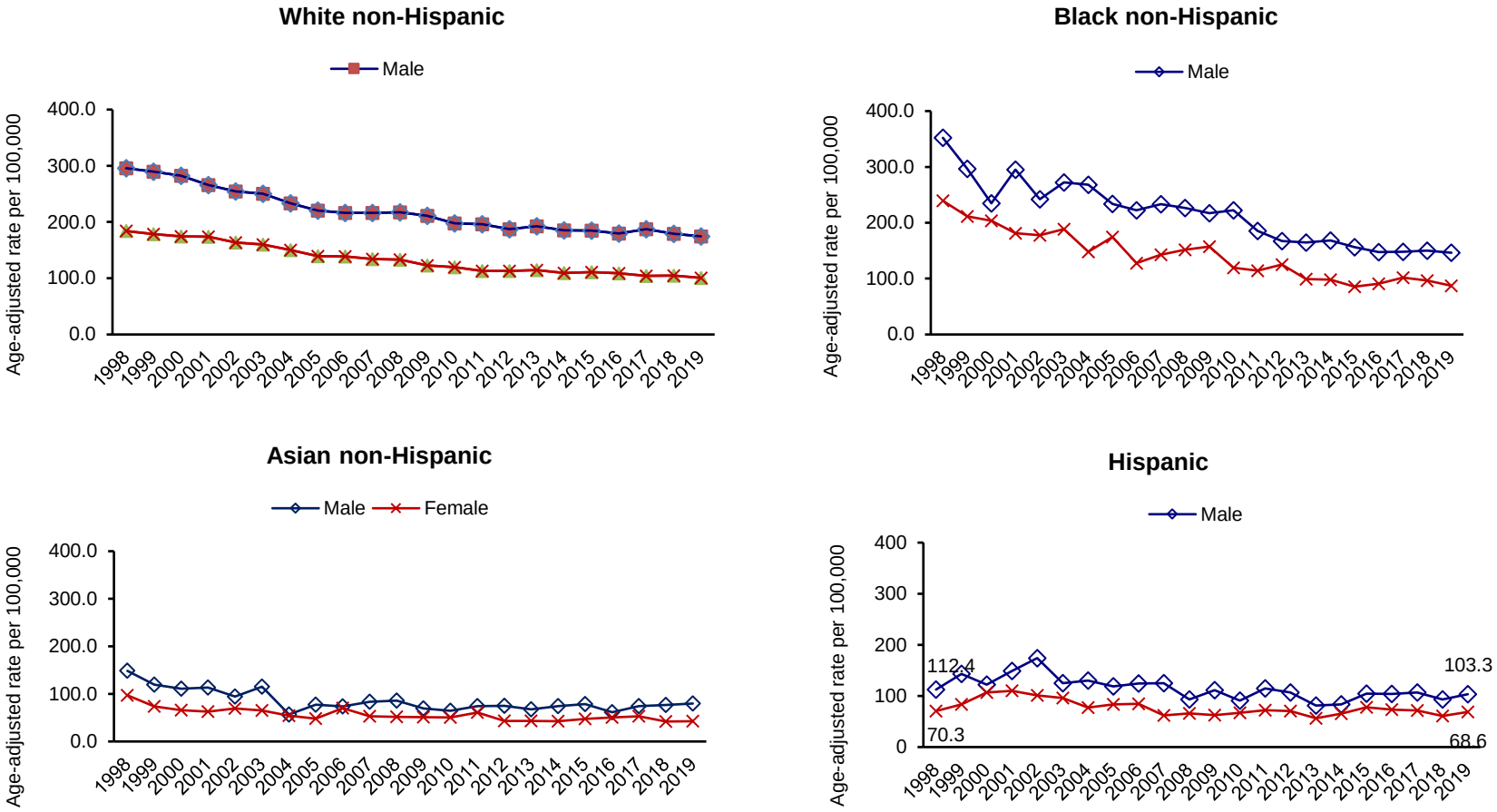
	Total		White non-Hispanic[1]		Black non-Hispanic[1]		Asian non-Hispanic[1]		Hispanic[1]	
Selected Causes[2]	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**
Age: 1-14, TOTAL	**106**	**9.9**	**62**	**9.8**	**11**	**11.6**	**13**	**17.3**	**17**	**8.2**
Unintentional Injuries[4]	20	1.9	15	2.4	1	--[6]	2	--[6]	2	--[6]
Cancer	17	1.6	9	1.4	0	0.0	4	--[6]	3	--[6]
Congenital malformations	9	0.8	3	--[6]	1	--[6]	0	0.0	4	--[6]
Other Infections	8	0.8	5	0.8	0	0.0	2	--[6]	1	--[6]
Age: 15-24, TOTAL	**389**	**40.0**	**246**	**38.9**	**41**	**51.4**	**16**	**20.2**	**66**	**42.9**
Unintentional Injuries[4]	186	19.1	133	21.0	11	13.8	5	6.3	30	19.5
Suicide	67	6.9	45	7.1	6	7.5	5	6.3	10	6.5
Homicide	43	4.4	10	1.6	10	12.5	2	--[6]	16	10.4
Cancer	27	2.8	20	3.2	1	--[6]	1	--[6]	4	--[6]
Age: 25-44, TOTAL	**2,646**	**144.0**	**1,887**	**156.0**	**239**	**153.3**	**73**	**40.0**	**387**	**141.4**
Unintentional Injuries[4]	1,319	71.8	1,019	84.3	67	43.0	16	8.8	194	70.9
Cancer	241	13.1	155	12.8	17	10.9	19	10.4	39	14.3
Suicide	202	11.0	159	13.1	16	10.3	7	3.8	16	5.8
Heart Disease	193	10.5	124	10.3	35	22.5	8	4.4	24	8.8
Age: 45-64, TOTAL	**9,417**	**508.9**	**7,641**	**532.6**	**759**	**633.6**	**233**	**216.6**	**653**	**414.4**
Cancer	2,781	150.3	2,286	159.3	206	172.0	114	106.0	142	90.1
Heart Disease	1,585	85.7	1,271	88.6	147	122.7	33	30.7	106	67.3
Unintentional Injuries[4]	1,138	61.5	912	63.6	81	67.6	7	6.5	121	76.8
Chronic liver disease	383	20.7	328	22.9	18	15.0	6	5.6	27	17.1
Age: 65+, TOTAL	**45,847**	**3,898.3**	**41,513**	**4,102.1**	**1,662**	**3,120.1**	**920**	**2,009.2**	**1,353**	**2,498.8**
Heart Disease	9,989	849.4	9,189	908.0	307	576.3	166	362.5	246	454.3
Cancer	9,517	809.2	8,560	845.8	377	707.7	212	463.0	278	513.4
Chronic lower respiratory disease[5]	2,466	209.7	2,329	230.1	50	93.9	24	52.4	42	77.6
Stroke	2,220	188.8	1,920	189.7	118	221.5	73	159.4	85	157.0

Table 36 (continued). Number and Age-Specific Rates for Leading Underlying Causes of Death by Race and Hispanic Ethnicity, Massachusetts: 2019

	Total		White non-Hispanic[1]		Black non-Hispanic[1]		Asian non-Hispanic[1]		Hispanic[1]	
Selected Causes[2]	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**
Age: 65-74, TOTAL	**9,974**	**1,460.7**	**8,665**	**1,491.6**	**543**	**1,666.9**	**201**	**725.5**	**450**	**1,309.2**
Cancer	3,446	504.7	3,042	523.7	165	506.5	69	249.1	128	372.4
Heart Disease	1,786	261.6	1,553	267.3	103	316.2	34	122.7	71	206.6
Chronic Lower Respiratory Disease[5]	632	92.6	590	101.6	20	61.4	4	14.4	15	43.6
Unintentional Injuries[4]	340	49.8	293	50.4	22	67.5	5	18.0	17	49.5
Age: 75-84, TOTAL	**13,570**	**4,089.2**	**12,086**	**4,209.6**	**550**	**3,712.7**	**323**	**2,467.7**	**477**	**3,316.2**
Cancer	3,430	1,033.6	3,074	1,070.7	136	918.0	88	672.3	102	709.1
Heart Disease	2,581	777.8	2,327	810.5	90	607.5	50	382.0	92	639.6
Chronic Lower Respiratory Disease[5]	893	269.1	841	292.9	20	135.0	8	61.1	16	111.2
Stroke	629	189.5	520	181.1	46	310.5	23	175.7	29	201.6
Age: 85+, TOTAL	**22,303**	**13,817.8**	**20,762**	**14,419.7**	**569**	**9,679.6**	**396**	**7,927.5**	**426**	**7,900.7**
Heart Disease	5,622	3,483.1	5,309	3,687.2	114	1,939.3	82	1,641.6	83	1,539.3
Cancer	2,641	1,636.2	2,444	1,697.4	76	1,292.9	55	1,101.0	48	890.2
Stroke	1,260	780.6	1,138	790.4	48	816.6	35	700.7	33	612.0
Alzheimers	1,128	698.9	1,059	735.5	18	306.2	21	420.4	23	426.6

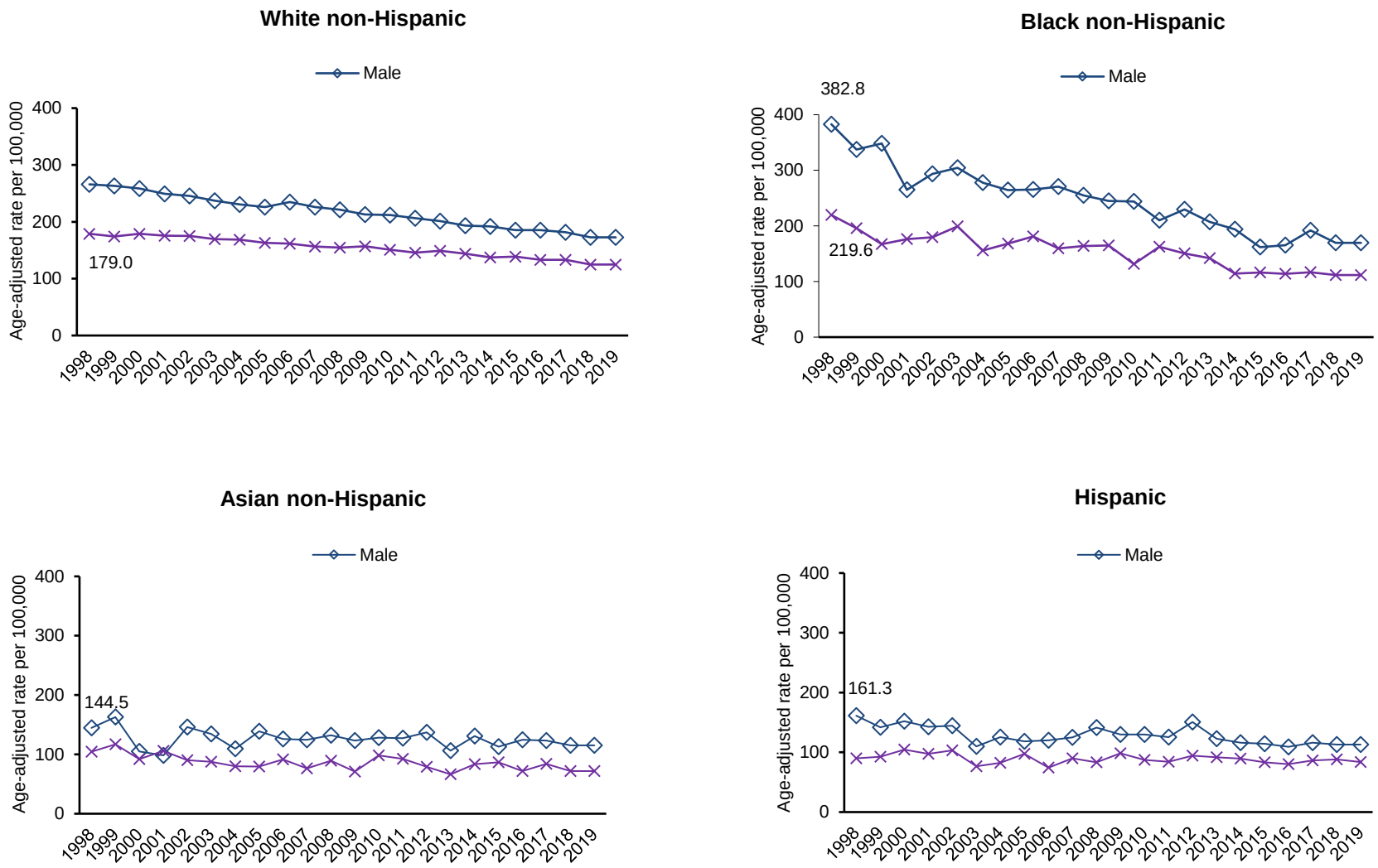
1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the Technical Notes for more information on race and ethnicity. 2. Deaths are coded according to ICD-10. Please see Appendix for a list 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.

Figure 20. Heart Disease Death Rates[1] by Race and Hispanic Ethnicity and Gender, Massachusetts: 1998-2019[2]



1. Rates are per 100,000 population, age-adjusted to the 2010 U.S. Standard Population. 2. For 1998, the comparability-modified rates were used. 3. 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 for more information on race and ethnicity.

Figure 21. Cancer Death Rates[1] by Race and Hispanic Ethnicity and Gender, Massachusetts: 1998-2019[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. 3. 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 for more information on race and ethnicity.

Table 37. Premature Mortality[1] Rates (PMR) by Community Health Network Area (CHNA), Massachusetts: 2019

CHNA (Name and Number)	Number of Deaths	PMR[2] (per 100,000 population)
Massachusetts	**22,787**	**272.8**
1. Community Health Network of Berkshire	643	387.6
2. Upper Valley Health Web (Franklin County)	370	300.8
3. Partnership for Health in Hampshire County (Northampton)	522	282.9
4. The Community Health Connection (Springfield)	1,211	347.0
5. Community Health Network of Southern Worcester County	507	334.6
6. Community Partners for Health (Milford)	549	248.3
7. Community Health Network of Greater Metro West (Framingham)	1,044	208.6
8. Common Pathways (Worcester)	1,151	318.9
9. Community Health Network of North Central Massachusetts	1,080	322.5
10. Greater Lowell Community Health Network	1,025	295.7
11. Greater Lawrence Community Health Network	610	259.3
12. Greater Haverhill Community Health Network	609	297.2
13. Community Health Network North (Beverly/Gloucester)	419	267.6
14. North Shore Community Health Network	1,064	291.8
15. Northwest Suburban Health Alliance	536	188.4
16. North Suburban Health Alliance (Medford/Malden/Melrose)	817	236.6
17. Greater Cambridge/Somerville Community Health Network	528	176.3
18. West Suburban Health Network (Newton/Waltham)	512	160.1
19. Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	2,230	262.8
20. Blue Hills Community Health Alliance (Greater Quincy)	1,310	260.7
21. Community Health Network of Chicopee, Holyoke, Ludlow, Westfield	764	387.5
22. Greater Brockton Community Health Network	946	326.2
23. South Shore Community Health Network	705	262.7
24. Greater Attleboro-Taunton Health & Education Response	1,013	303.9
25. Partners for Healthier Communities (Fall River)	669	395.5
26. Greater New Bedford Community Health Network	939	364.6
27. Cape Cod and Islands Health Network	1,014	282.0

1. Premature mortality is death before 75 years of age. 2. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population for persons ages 0-74 years.

Table 38. Premature Mortality[1] Rates by County, Massachusetts: 2019

County	Number of Deaths	PMR[2] (per 100,000 population)
Massachusetts	**22,787**	**272.8**
Barnstable	936	285.4
Berkshire	643	374.6
Bristol	2,339	335.9
Dukes	48	197.8
Essex	2,702	271.3
Franklin	299	292.1
Hampden	2,007	353.1
Hampshire	531	266.9
Middlesex	4,078	210.4
Nantucket	30	226.0
Norfolk	2,054	228.8
Plymouth	1,972	288.3
Suffolk	2,141	262.8
Worcester	3,007	295.0

1. Premature mortality is death before 75 years of age. 2. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population for persons ages 0-74 years.

Table 39. Selected Causes of Death by Community, Massachusetts: 2019

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
Massachusetts	**58,660**	**654.0**	**11,779**	**12,584**	**2,954**	**758**	**2,463**	**2,842**	**1,386**	**1,217**	**398**	**159**	**651**	**1,989**
Abington	136	788.9	27	28	6	1	5	11	4	3	0	4	2	4
Acton	138	484.4	28	32	7	3	6	4	0	2	0	0	1	0
Acushnet	91	595.0	15	27	9	1	4	7	2	1	0	0	1	1
Adams	107	820.7	25	23	6	1	2	6	2	3	2	0	2	2
Agawam	389	747.0	87	68	18	4	19	14	8	8	3	0	4	13
Alford	6	393.6	1	2	0	0	1	0	0	0	0	0	0	0
Amesbury	189	907.0	41	39	7	2	2	13	6	2	3	0	1	7
Amherst	168	601.8	40	28	10	1	8	3	4	2	4	1	1	3
Andover	204	434.6	48	37	7	3	12	12	6	4	1	0	1	6
Aquinnah	1	-[3]	0	1	1	0	0	0	0	0	0	0	0	0
Arlington	370	532.9	76	84	13	6	17	18	5	5	1	0	4	4
Ashburnham	52	834.0	12	12	4	2	2	2	2	0	0	0	2	2
Ashby	22	614.7	4	5	2	0	2	0	1	1	1	0	0	1
Ashfield	14	562.6	3	3	0	0	0	1	0	0	0	0	1	0
Ashland	131	662.2	27	39	10	2	4	5	2	2	1	0	2	3
Athol	161	977.7	42	29	6	1	7	7	3	2	0	0	3	7
Attleboro	411	746.8	83	78	19	7	9	29	10	13	6	0	4	21
Auburn	206	767.0	43	51	12	6	4	6	4	5	1	0	1	4
Avon	36	600.8	7	10	2	0	2	2	0	1	1	0	1	1
Ayer	98	1,163.0	18	23	4	1	2	6	5	0	0	0	0	4
Barnstable	548	706.0	122	96	28	5	36	32	6	7	1	2	9	18
Barre	44	674.2	8	8	3	0	3	2	1	0	1	0	1	3
Becket	14	657.4	4	2	2	0	0	0	0	0	0	1	1	0
Bedford	141	505.5	29	39	6	2	6	7	2	3	0	0	1	4
Belchertown	118	746.4	31	20	4	1	10	1	4	6	2	0	4	2
Bellingham	137	688.7	26	33	10	2	7	10	4	4	0	0	1	4
Belmont	169	451.0	37	35	4	5	8	6	0	1	0	0	2	3
Berkley	49	853.5	11	9	1	0	2	2	0	1	0	0	2	3
Berlin	21	431.9	4	4	1	0	0	2	0	2	0	0	1	1
Bernardston	15	439.9	5	5	0	1	2	0	0	1	0	0	0	0

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2019														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
Beverly	440	810.5	83	91	21	12	16	40	16	9	1	0	7	17
Billerica	293	589.9	60	68	22	6	15	16	6	10	2	0	1	11
Blackstone	74	688.6	13	26	7	1	4	4	2	0	0	0	1	0
Blandford	6	368.6	2	0	0	0	1	0	0	0	0	0	0	0
Bolton	23	487.6	2	6	1	0	1	1	0	0	0	0	1	0
Boston	3,808	602.1	723	770	162	46	169	140	127	66	27	37	43	172
Bourne	256	738.6	53	52	12	3	13	11	8	5	2	0	1	6
Boxborough	27	491.2	7	6	1	0	0	1	0	2	0	0	2	1
Boxford	46	467.2	9	13	2	0	1	5	0	0	0	0	0	1
Boylston	26	457.4	6	6	1	0	3	0	0	1	0	0	0	0
Braintree	400	690.6	74	98	20	10	15	16	9	9	1	0	5	11
Brewster	149	563.1	35	33	3	2	10	5	4	4	0	0	0	3
Bridgewater	190	664.7	51	41	8	3	7	9	11	6	2	1	1	1
Brimfield	32	628.2	6	7	3	0	0	3	1	0	1	0	1	2
Brockton	889	872.9	173	185	37	14	45	53	36	22	9	5	5	52
Brookfield	32	691.6	7	3	0	0	1	1	2	2	1	0	0	1
Brookline	313	418.5	67	74	12	3	14	9	5	5	2	1	6	4
Buckland	14	476.6	4	2	1	0	2	0	0	1	0	0	1	0
Burlington	219	526.0	57	44	5	0	9	9	6	4	0	1	4	4
Cambridge	513	536.0	95	126	23	13	25	18	19	6	2	1	14	14
Canton	238	583.4	48	43	9	4	14	10	5	4	1	0	1	0
Carlisle	27	524.1	4	9	0	0	0	1	0	0	0	0	1	2
Carver	132	815.3	27	37	10	3	5	7	2	2	1	0	3	5
Charlemont	10	477.9	3	2	0	1	0	2	1	0	0	0	0	1
Charlton	126	576.6	25	22	7	3	9	6	1	2	1	0	1	2
Chatham	123	695.4	24	25	3	1	13	8	0	3	0	0	1	0
Chelmsford	335	599.5	61	66	12	5	9	20	13	4	1	0	2	3
Chelsea	253	807.0	50	49	13	2	7	12	6	5	2	1	3	12
Cheshire	36	761.5	8	12	4	0	1	1	1	2	0	0	1	0
Chester	14	843.5	1	5	0	1	0	1	0	1	0	0	1	1
Chesterfield	11	514.9	6	2	1	0	1	0	0	0	0	0	0	0
Chicopee	637	849.9	138	130	37	6	28	36	16	10	7	2	7	33
Chilmark	6	1,123.1	0	2	1	0	0	0	0	0	0	0	0	0
Clarksburg	18	797.7	3	5	0	0	1	1	0	0	0	0	0	1

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2019														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
Clinton	123	790.2	31	24	7	0	9	6	4	4	2	0	2	5
Cohasset	54	452.7	15	11	2	1	3	3	1	1	0	0	1	1
Colrain	19	755.5	3	6	2	0	1	0	0	1	0	0	1	0
Concord	153	350.0	33	23	4	2	7	2	6	2	0	0	2	0
Conway	6	222.7	1	1	0	0	0	1	0	0	0	0	0	0
Cummington	10	921.8	1	3	2	0	0	0	0	0	0	0	0	1
Dalton	69	655.3	17	13	2	0	2	6	2	2	0	1	3	0
Danvers	384	778.1	89	69	13	0	12	17	11	11	1	0	3	5
Dartmouth	291	529.8	59	49	14	7	12	18	7	7	3	0	6	10
Dedham	305	596.8	44	67	23	4	17	12	9	6	0	0	1	3
Deerfield	38	515.1	8	11	4	1	5	2	0	1	0	1	2	0
Dennis	225	713.7	53	52	14	5	12	9	4	5	2	0	1	6
Dighton	54	642.5	9	13	2	1	2	6	0	0	0	0	2	0
Douglas	68	926.2	18	16	3	2	5	2	0	0	2	0	2	2
Dover	37	716.3	5	13	0	0	2	0	0	0	1	0	1	1
Dracut	265	691.1	46	74	23	3	6	20	3	0	0	0	1	11
Dudley	97	764.5	26	18	0	3	6	6	5	1	2	0	0	0
Dunstable	19	667.9	2	3	0	1	1	2	1	0	0	0	0	1
Duxbury	135	510.9	28	34	4	3	1	5	3	1	3	0	1	2
East Bridgewater	111	633.1	22	25	6	2	8	8	2	1	2	0	4	2
East Brookfield	20	788.3	9	2	1	0	0	0	1	0	0	0	0	1
East Longmeadow	234	639.7	55	39	10	1	10	13	3	3	1	1	4	3
Eastham	89	690.5	20	23	3	0	5	5	1	2	0	0	1	2
Easthampton	144	587.4	30	26	6	2	5	10	1	3	1	0	3	3
Easton	159	568.8	22	36	7	0	6	8	4	11	1	0	2	2
Edgartown	31	602.7	6	10	1	0	1	1	2	0	1	0	1	0
Egremont	10	349.5	3	2	1	0	2	1	0	0	0	0	0	0
Erving	17	634.5	3	4	0	0	0	0	0	0	0	0	0	1
Essex	36	776.7	4	9	1	0	2	1	0	0	1	0	1	0
Everett	296	665.2	52	60	15	3	12	14	12	5	3	3	0	15
Fairhaven	220	751.4	52	32	6	2	3	15	4	8	3	0	1	9
Fall River	1,075	932.1	171	224	64	15	25	62	28	24	11	5	11	67
Falmouth	438	659.7	93	93	20	6	18	27	10	5	1	0	2	13
Fitchburg	430	937.7	71	83	21	5	25	29	14	14	4	2	9	21

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2019														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
Florida	16	1,611.0	4	2	1	0	0	2	1	1	1	0	0	0
Foxborough	149	679.6	25	36	10	2	2	9	6	6	0	0	2	4
Framingham	542	541.7	136	107	23	7	28	14	17	9	1	2	6	21
Franklin	248	729.1	55	58	12	3	11	9	8	7	1	0	2	5
Freetown	72	767.5	11	18	3	1	3	3	1	3	3	0	1	4
Gardner	214	758.7	44	33	11	2	23	19	5	8	2	0	0	6
Georgetown	57	696.8	11	13	4	1	3	6	1	0	0	0	0	1
Gill	11	495.3	4	3	0	0	0	1	0	0	0	0	0	1
Gloucester	342	717.3	63	87	23	3	16	19	2	10	2	0	5	14
Goshen	5	420.9	1	2	1	0	0	0	0	0	0	0	0	0
Gosnold	1	-[3]	0	0	0	0	0	0	0	0	0	0	0	0
Grafton	114	553.6	30	19	4	1	3	4	3	3	2	0	4	6
Granby	63	806.5	12	22	4	0	2	6	1	0	0	0	1	3
Granville	9	425.2	2	1	0	0	1	0	0	0	1	0	1	1
Great Barrington	81	735.5	12	15	3	0	4	7	1	1	0	0	0	1
Greenfield	231	854.1	45	39	13	2	14	14	7	6	2	0	6	7
Groton	83	617.1	19	22	7	2	1	3	1	0	0	1	1	2
Groveland	45	416.2	8	8	2	0	3	2	2	1	0	1	1	2
Hadley	69	562.1	15	7	1	0	7	3	1	2	0	0	2	0
Halifax	74	794.2	13	19	9	1	4	6	0	6	1	0	1	2
Hamilton	46	533.5	11	11	3	0	1	0	0	0	0	0	0	3
Hampden	53	598.5	12	11	3	1	3	4	1	0	0	0	0	1
Hancock	6	454.8	0	1	0	0	0	0	0	0	0	0	0	0
Hanover	107	628.5	25	29	11	0	3	2	2	2	2	0	2	1
Hanson	87	833.0	11	23	6	0	2	9	0	4	1	0	1	5
Hardwick	37	1,075.0	8	11	2	1	2	3	1	1	1	0	1	1
Harvard	26	519.7	4	4	2	0	2	1	0	2	0	0	1	0
Harwich	190	697.1	41	35	7	3	13	7	1	4	0	0	2	3
Hatfield	35	635.9	9	10	1	0	1	2	0	1	0	0	0	0
Haverhill	662	867.7	126	135	37	6	24	40	14	18	6	1	6	24
Hawley	3	-[3]	0	1	0	0	0	0	0	0	0	0	0	0
Heath	9	619.6	2	4	0	0	1	1	0	0	0	0	0	0
Hingham	280	473.8	61	60	12	3	11	8	3	5	0	0	1	2

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2019														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
Hinsdale	19	600.0	3	3	1	0	0	0	0	0	0	0	1	1
Holbrook	118	856.6	26	24	5	1	4	9	3	2	0	0	1	3
Holden	142	563.1	35	29	6	0	4	7	3	0	0	0	4	1
Holland	19	588.7	3	6	0	0	1	4	0	1	0	0	0	0
Holliston	92	544.3	16	22	3	2	3	6	2	2	1	0	3	1
Holyoke	445	839.2	80	86	20	3	20	21	5	7	2	4	4	17
Hopedale	40	526.1	7	8	2	0	4	3	1	0	0	0	0	0
Hopkinton	88	782.9	12	16	4	1	6	6	2	4	0	0	0	1
Hubbardston	24	600.9	11	4	1	0	1	2	1	0	0	0	0	1
Hudson	168	640.2	23	43	10	2	4	6	2	4	1	1	2	7
Hull	115	839.5	18	29	10	4	6	3	2	1	1	0	3	10
Huntington	20	767.0	8	2	0	0	2	0	0	1	0	0	0	0
Ipswich	138	614.9	33	20	6	1	4	5	1	2	1	0	6	5
Kingston	139	698.3	28	18	5	0	6	11	1	3	2	0	1	8
Lakeville	90	660.7	14	22	6	1	9	9	2	1	3	0	0	2
Lancaster	63	655.6	12	14	3	0	1	3	1	3	0	0	0	5
Lanesborough	29	710.4	4	5	1	1	2	3	2	0	0	0	0	1
Lawrence	548	771.6	86	101	25	12	22	23	22	11	3	1	2	55
Lee	86	842.4	18	13	3	1	3	4	2	3	0	0	4	0
Leicester	117	844.4	19	29	4	5	3	7	3	2	2	0	1	4
Lenox	108	605.7	22	16	2	2	11	2	0	4	1	0	0	0
Leominster	391	697.7	75	89	30	1	28	16	10	4	4	1	4	15
Leverett	23	940.2	0	6	1	0	2	0	2	2	1	0	0	0
Lexington	242	392.2	45	47	6	3	12	8	3	6	0	1	4	1
Leyden	4	-[3]	0	1	0	0	0	0	1	0	0	0	0	0
Lincoln	72	1,367.9	20	12	1	0	0	3	1	1	0	0	1	0
Littleton	74	538.9	9	13	2	1	4	4	4	2	1	0	0	3
Longmeadow	157	478.0	38	32	7	4	9	9	0	4	0	0	1	3
Lowell	906	837.5	165	184	52	8	41	46	25	24	7	4	7	44
Ludlow	251	781.9	60	58	12	2	11	8	3	4	4	0	1	10
Lunenburg	100	766.3	18	18	4	1	8	10	3	3	1	0	1	3
Lynn	724	755.9	148	164	49	8	15	33	19	17	4	5	10	55
Lynnfield	117	602.9	29	23	4	3	4	5	3	2	0	0	0	4
Malden	419	633.3	78	106	23	10	11	17	13	10	0	1	8	13

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2019														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
Manchester	37	443.1	5	8	0	0	3	2	0	2	0	0	1	1
Mansfield	153	648.8	27	39	7	3	6	6	3	2	1	0	3	4
Marblehead	166	544.6	32	31	8	4	9	6	5	4	0	0	2	0
Marion	80	789.3	19	18	2	3	3	3	3	1	0	0	0	1
Marlborough	332	616.4	70	70	17	6	12	17	9	9	3	0	2	9
Marshfield	241	752.7	46	52	12	2	8	22	8	5	2	0	4	6
Mashpee	189	654.9	26	50	7	3	9	8	4	1	0	0	1	6
Mattapoisett	59	590.9	13	16	3	0	3	1	0	0	1	0	1	2
Maynard	71	587.6	18	16	6	1	2	2	1	1	1	0	1	2
Medfield	81	553.1	14	20	3	0	3	3	1	0	0	0	0	0
Medford	479	598.7	105	104	20	8	15	20	13	19	2	1	1	10
Medway	113	723.2	16	29	7	2	5	3	0	2	2	0	0	0
Melrose	226	553.6	56	53	12	3	7	14	3	2	2	0	3	4
Mendon	49	894.4	12	10	1	0	1	2	0	1	0	1	1	2
Merrimac	59	747.6	7	17	3	1	1	6	1	1	0	0	0	2
Methuen	455	693.8	107	88	23	3	23	23	10	11	3	0	5	15
Middleborough	233	610.2	42	49	11	4	13	11	2	3	4	0	2	12
Middlefield	4	-[3]	1	1	1	0	0	1	0	0	0	0	0	0
Middleton	71	524.9	11	24	10	0	8	6	1	1	0	0	0	2
Milford	218	611.5	43	34	6	2	15	8	4	5	1	0	5	4
Millbury	157	881.1	25	38	7	3	4	8	4	5	1	0	0	8
Millis	73	820.7	19	19	5	2	2	1	1	1	1	0	3	1
Millville	22	763.5	4	5	1	0	0	2	1	1	1	0	0	0
Milton	193	450.9	35	48	12	4	13	5	2	5	1	0	0	2
Monroe	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0
Monson	65	659.8	12	10	3	0	2	8	3	0	0	0	3	3
Montague	93	715.7	15	19	9	0	5	6	2	10	0	0	1	2
Monterey	10	539.7	1	7	0	1	1	0	0	0	0	0	0	0
Montgomery	8	683.9	1	4	0	0	0	0	0	0	0	0	0	0
Mount Washington	2	-[3]	1	1	0	0	0	0	0	0	0	0	0	0
Nahant	37	688.1	4	6	0	2	0	2	0	0	0	0	2	2
Nantucket	65	501.8	15	16	4	0	3	1	2	2	0	0	2	1
Natick	272	601.7	60	52	11	2	7	10	7	6	1	0	3	5
Needham	245	501.3	37	52	8	6	7	11	6	6	2	0	4	1

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2019														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
New Ashford	1	-[3]	0	0	0	0	0	0	0	0	0	0	0	0
New Bedford	1,092	893.7	192	209	63	7	45	73	30	22	4	4	9	73
New Braintree	7	590.2	2	3	1	1	0	0	0	0	0	0	0	0
New Marlborough	10	400.6	3	2	0	0	0	0	0	0	0	0	0	0
New Salem	7	678.4	1	2	0	0	0	0	1	0	0	0	0	0
Newbury	49	515.4	5	19	2	1	3	2	3	0	0	0	4	0
Newburyport	197	636.0	32	38	8	3	7	8	5	4	1	0	1	3
Newton	595	428.6	147	128	21	10	21	10	11	14	3	0	3	6
Norfolk	55	515.1	11	16	5	1	5	3	1	2	0	0	2	0
North Adams	192	1,045.2	32	36	7	5	9	13	6	6	0	1	0	10
North Andover	298	708.0	56	53	13	3	18	13	5	7	0	0	3	5
North Attleboro	204	653.5	41	47	11	2	9	10	8	2	0	2	4	4
North Brookfield	38	648.2	8	8	5	0	0	2	1	0	0	0	1	1
North Reading	100	504.6	19	29	9	3	4	5	6	2	0	0	4	2
Northampton	284	710.7	50	48	8	6	11	16	6	8	2	1	4	12
Northborough	138	670.5	25	32	4	3	9	6	2	2	2	1	1	1
Northbridge	172	740.1	29	20	4	0	5	5	5	2	0	0	2	4
Northfield	27	569.3	3	6	1	1	2	2	1	0	0	0	1	1
Norton	150	715.8	27	24	8	1	9	10	4	10	1	0	2	7
Norwell	102	623.9	18	21	5	1	6	3	1	4	1	0	0	3
Norwood	332	673.5	77	66	12	2	12	21	5	6	1	0	5	5
Oak Bluffs	47	496.3	7	6	1	0	6	2	0	2	0	1	0	1
Oakham	14	526.2	6	6	0	1	0	0	0	0	0	0	0	0
Orange	87	868.4	17	22	3	1	4	6	4	2	2	0	1	2
Orleans	101	617.8	34	21	3	1	3	6	2	2	0	0	1	1
Otis	19	681.2	5	4	2	2	3	1	1	0	0	0	0	0
Oxford	109	721.4	26	28	6	4	2	9	3	1	1	0	0	8
Palmer	124	789.2	17	36	11	2	3	8	2	0	1	0	0	8
Paxton	30	533.2	6	8	1	2	0	0	1	2	0	0	0	1
Peabody	726	622.7	161	120	21	12	28	25	12	9	3	0	5	18
Pelham	11	546.3	2	4	3	0	0	0	0	0	0	0	0	0
Pembroke	150	812.2	22	40	13	2	7	6	5	3	0	0	1	3
Pepperell	87	705.2	13	29	3	3	3	5	2	3	2	0	1	4
Peru	2	-[3]	1	1	1	0	0	0	0	0	0	0	0	0

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2019														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
Petersham	5	321.6	0	1	1	0	1	0	0	0	0	0	0	1
Phillipston	8	602.5	2	3	1	0	0	1	0	0	1	0	0	0
Pittsfield	540	818.6	109	117	39	4	24	36	14	12	6	0	9	20
Plainfield	6	777.8	1	3	0	0	0	0	0	0	0	0	0	1
Plainville	72	715.1	11	24	9	1	2	9	0	2	0	1	1	2
Plymouth	594	702.2	126	144	31	9	22	27	14	12	5	0	5	20
Plympton	21	590.3	2	7	2	0	0	1	1	1	1	0	0	1
Princeton	24	666.3	2	6	1	1	2	0	1	0	0	0	1	0
Provincetown	55	1,231.3	7	20	7	1	3	2	1	1	0	0	0	2
Quincy	853	636.1	169	207	57	9	32	36	12	14	2	1	11	44
Randolph	258	641.7	51	61	11	7	14	7	6	5	0	4	2	6
Raynham	156	829.8	21	42	13	2	4	14	1	2	1	0	1	2
Reading	201	547.6	43	42	3	1	9	8	5	7	0	0	1	3
Rehoboth	84	587.1	9	22	9	1	4	7	3	3	0	0	1	4
Revere	481	620.6	99	95	23	7	13	29	13	10	5	3	5	28
Richmond	14	522.8	5	2	0	0	1	1	0	0	1	0	0	0
Rochester	36	635.6	6	10	2	1	1	3	1	1	1	0	1	1
Rockland	170	733.4	33	30	6	0	4	20	3	3	0	0	4	5
Rockport	91	693.5	17	24	7	1	2	3	2	2	1	0	1	1
Rowe	2	-[3]	0	1	0	0	0	0	0	0	0	0	0	0
Rowley	46	638.1	12	6	1	0	3	3	1	2	0	0	0	1
Royalston	8	517.9	0	3	1	0	0	1	0	1	0	0	0	0
Russell	11	574.2	2	2	0	0	0	0	0	0	1	0	0	0
Rutland	54	721.7	10	13	3	0	0	4	0	1	0	0	1	3
Salem	345	667.4	84	81	21	2	15	23	8	6	2	1	3	15
Salisbury	79	654.4	16	19	6	0	2	6	4	0	1	0	1	4
Sandisfield	15	845.1	3	3	1	0	2	1	1	0	0	0	0	0
Sandwich	175	579.6	36	39	8	3	6	9	7	3	1	0	2	4
Saugus	273	663.8	58	57	15	7	6	16	7	8	3	0	2	5
Savoy	8	1,070.8	3	2	1	0	0	1	0	0	0	0	0	0
Scituate	186	638.3	35	49	11	3	6	7	4	6	1	0	3	4
Seekonk	139	772.2	28	30	12	2	7	2	8	3	4	0	3	4
Sharon	100	456.1	27	19	4	1	5	3	1	2	1	0	0	2
Sheffield	30	765.0	6	6	0	0	2	1	0	1	0	4	2	1

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2019														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
Shelburne	18	694.9	5	5	1	0	2	0	0	0	2	0	0	1
Sherborn	31	625.5	3	12	1	1	1	1	0	2	0	0	0	0
Shirley	81	1,063.4	14	25	6	2	1	4	2	3	0	0	2	3
Shrewsbury	287	555.4	66	62	9	5	17	18	3	3	1	0	2	6
Shutesbury	12	750.4	3	4	0	0	0	0	1	0	0	0	0	0
Somerset	210	559.3	48	39	11	4	5	13	5	6	3	0	1	2
Somerville	403	645.3	100	93	20	1	15	16	12	4	2	0	2	17
South Hadley	195	704.1	41	46	14	0	16	5	2	4	0	0	1	5
Southampton	46	649.4	6	13	2	2	0	2	1	1	0	0	3	0
Southborough	52	471.8	13	15	3	1	1	2	1	1	1	0	3	2
Southbridge	166	801.8	24	40	12	0	9	7	6	7	1	0	2	14
Southwick	104	658.0	32	28	10	2	2	5	1	1	2	1	2	1
Spencer	140	925.3	38	23	7	1	6	6	0	6	2	0	1	5
Springfield	1,225	808.7	243	259	58	12	49	42	39	22	14	19	10	72
Sterling	64	557.5	10	9	3	2	5	4	0	1	0	0	1	2
Stockbridge	17	402.1	3	5	2	0	1	2	0	1	0	0	0	0
Stoneham	214	559.4	47	48	10	3	8	6	5	11	0	0	1	4
Stoughton	272	666.9	48	59	18	3	14	8	4	5	1	1	1	6
Stow	41	419.1	10	9	0	0	2	0	1	2	0	0	0	1
Sturbridge	74	574.9	13	13	1	1	3	6	1	5	0	0	0	1
Sudbury	112	491.3	32	20	5	2	4	2	1	1	1	0	1	2
Sunderland	17	417.1	3	2	0	0	2	0	2	0	0	0	0	0
Sutton	66	705.2	10	23	4	0	4	2	2	0	0	0	2	2
Swampscott	120	524.7	36	23	4	1	6	1	2	2	1	0	1	3
Swansea	171	674.4	28	50	15	2	11	15	2	3	0	0	2	6
Taunton	571	783.9	104	110	39	5	15	32	9	8	11	2	10	27
Templeton	82	719.7	19	12	3	0	5	4	1	2	1	0	1	2
Tewksbury	326	755.1	65	65	16	5	9	16	19	4	3	1	7	6
Tisbury	40	797.1	8	8	2	0	0	3	0	0	0	0	0	2
Tolland	3	-[3]	0	2	1	0	0	0	0	0	0	0	0	0
Topsfield	63	563.2	9	10	1	0	1	3	2	0	1	0	0	1
Townsend	71	767.4	8	28	5	3	2	4	2	1	0	0	0	2
Truro	29	807.2	5	6	1	0	0	0	1	0	0	0	0	0
Tyngsborough	87	774.6	22	23	7	4	2	5	2	1	0	0	2	2

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2019														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
Tyringham	6	686.0	1	2	0	0	0	0	1	0	0	0	0	0
Upton	51	556.0	10	16	4	2	1	2	0	1	0	0	4	2
Uxbridge	110	536.9	23	28	6	1	4	7	2	1	3	0	3	1
Wakefield	239	664.2	48	49	10	3	8	2	2	7	0	0	5	4
Wales	13	570.2	3	3	0	0	0	0	0	1	0	0	0	1
Walpole	202	554.3	40	57	15	6	7	9	6	4	0	0	0	5
Waltham	434	599.6	91	95	15	7	15	11	15	4	4	0	5	15
Ware	123	967.9	27	30	8	2	3	8	5	3	0	0	0	6
Wareham	312	913.7	73	67	20	4	9	29	6	9	5	1	4	14
Warren	40	757.2	7	6	2	0	1	3	2	3	0	0	0	2
Warwick	10	824.1	2	2	0	1	0	1	0	1	0	0	1	0
Washington	3	-[3]	1	0	0	0	1	0	0	1	0	0	0	0
Watertown	289	664.9	63	66	13	3	9	11	5	5	1	0	5	8
Wayland	115	510.4	28	22	2	3	5	4	1	3	0	0	0	1
Webster	230	910.4	56	38	10	0	11	11	11	5	1	1	2	11
Wellesley	184	473.6	45	44	9	3	9	1	1	0	0	0	2	0
Wellfleet	46	840.5	5	18	7	1	2	1	2	0	0	0	0	1
Wendell	7	713.0	0	2	0	2	0	2	0	0	0	0	0	0
Wenham	35	567.5	9	7	2	2	1	1	2	1	0	0	0	0
West Boylston	80	500.3	21	18	4	1	3	1	1	2	0	0	0	2
West Bridgewater	78	653.0	22	22	4	2	4	4	1	2	2	0	1	0
West Brookfield	58	904.3	13	10	3	0	0	5	1	3	0	0	0	1
West Newbury	34	695.5	4	9	2	2	3	1	3	1	1	0	1	0
West Springfield	281	741.2	57	77	21	7	8	15	6	2	5	0	3	11
West Stockbridge	15	716.4	1	5	1	1	0	2	1	0	0	0	0	1
West Tisbury	18	517.0	4	4	0	0	2	1	0	0	0	0	1	0
Westborough	180	694.0	43	31	9	1	6	9	2	3	2	0	0	1
Westfield	404	765.6	75	97	22	4	24	26	8	8	2	1	2	20
Westford	137	657.1	22	35	4	4	5	6	4	1	2	0	0	0
Westhampton	13	446.9	4	3	0	0	0	0	1	0	0	0	0	0
Westminster	61	747.4	15	12	2	0	5	2	1	1	0	0	0	2
Weston	109	494.9	25	21	5	1	5	3	2	2	0	0	1	0
Westport	158	592.1	33	41	8	1	3	8	3	1	2	0	0	8

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2019

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
Westwood	139	469.4	42	26	3	0	7	8	3	1	0	0	1	0
Weymouth	559	746.3	99	153	39	7	16	27	16	9	6	1	4	15
Whately	12	550.3	3	2	1	0	0	0	0	0	0	0	0	1
Whitman	120	847.9	26	26	7	2	2	9	2	3	1	0	1	7
Wilbraham	156	575.0	28	34	9	3	6	4	2	3	1	0	1	0
Williamsburg	20	554.0	6	3	1	0	1	0	0	0	0	0	0	1
Williamstown	91	662.5	17	19	4	1	5	3	0	3	2	0	0	0
Wilmington	213	678.6	52	47	9	2	11	13	3	4	1	0	1	5
Winchendon	103	891.3	19	19	4	1	6	6	3	2	2	0	1	4
Winchester	140	406.6	22	32	4	0	15	4	3	3	0	0	2	1
Windsor	3	-[3]	0	2	0	0	0	0	0	0	0	0	0	0
Winthrop	203	739.3	37	48	11	1	6	11	2	1	1	0	1	5
Woburn	379	615.2	84	92	24	5	18	13	5	9	2	0	6	13
Worcester	1,603	817.2	293	312	93	15	59	71	31	38	9	12	17	80
Worthington	7	469.8	3	1	0	0	0	0	0	1	0	0	0	0
Wrentham	143	895.5	27	25	4	3	11	5	2	3	1	0	0	0
Yarmouth	410	740.1	94	82	18	3	17	17	6	14	3	0	2	8

1. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population and 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. 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. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (CLRD) (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title). 3. Rates based on 1 to 4 deaths are not calculated. 4. The term opioid designates a class of drugs derived naturally from the opium poppy (opium, morphine, codeine), synthesized or derived from a natural opiate (heroin, oxycodone, hydrocodone), or manufactured synthetically with a chemical structure similar to opium (fentanyl, methadone). (Opioid Overdose Response Strategies in Massachusetts, MDPH, 2014). This report combines all opioid overdoses since classification of specific drugs can be difficult. For example, many deaths related to heroin cannot be specifically coded as such due to the fast metabolism of heroin into morphine, as well as, the possible interaction of multiple drugs.

Table 40. Selected Causes of Death by Community Health Network Area (CHNA), Massachusetts: 2019

CHNA Name	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[3]
Massachusetts	**58,660**	**654.0**	**11,779**	**12,584**	**2,954**	**758**	**2,463**	**2,842**	**1,386**	**1,217**	**398**	**159**	**651**	**1,989**
1. Community Health Network of Berkshire	1,583	762.2	316	328	84	19	78	94	35	40	13	7	23	38
2. Upper Valley Health Web (Franklin County)	888	709.2	177	191	45	11	50	48	25	28	8	1	18	25
3. Partnership for Health in Hampshire County (Northampton)	1,332	672.7	286	272	67	14	65	57	26	31	9	2	19	37
4. The Community Health Connection (Springfield)	2,825	730.1	588	603	151	36	113	122	65	43	29	21	29	116
5. Community Health Network of Southern Worcester County	1,194	749.0	264	227	57	12	49	69	35	37	10	1	8	50
6. Community Partners for Health (Milford)	1,368	675.0	266	306	67	15	66	59	29	24	10	1	23	26
7. Community Health Network of Greater Metro West (Framingham)	3,140	598.0	663	703	159	49	126	129	67	69	17	5	32	69
8. Community Wellness Coalition (Worcester)	2,762	729.0	544	572	141	38	100	122	53	61	16	12	29	112
9. Fitchburg/Gardner Community Health Network	2,399	742.1	459	522	134	29	139	138	61	56	21	4	32	92
10. Greater Lowell Community Health Network	2,368	714.7	443	518	136	36	88	131	73	44	15	5	20	78
11. Greater Lawrence Community Health Network	1,576	669.9	308	303	78	21	83	77	44	34	7	1	11	83
12. Greater Haverhill Community Health Network	1,463	737.8	271	316	74	16	52	92	40	29	12	2	15	45
13. Community Health Network North (Beverly/Gloucester)	1,228	694.5	234	267	64	19	46	74	25	26	7	0	21	42
14. North Shore Community Health Network	2,892	670.3	641	574	135	39	95	128	67	59	14	6	28	107
15. Greater Woburn/Concord/Littleton Community Health Network	1,825	504.7	390	396	69	18	88	69	33	38	4	2	25	34
16. North Suburban Health Alliance (Medford/Malden/Melrose)	2,174	602.5	448	491	102	34	74	86	59	63	7	5	23	55
17. Greater Cambridge/Somerville Community Health Network	1,744	566.0	371	404	73	28	74	69	41	21	6	1	27	46
18. West Suburban Health Network (Newton/Waltham)	2,048	503.2	436	446	84	31	83	56	47	33	10	0	18	26
19. Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	5,058	600.2	976	1,036	221	59	209	201	153	87	37	42	58	221
20. Blue Hills Community Health Alliance (Greater Quincy)	3,670	624.0	727	865	204	56	153	149	67	71	16	6	36	105
21. Four (For) Communities (Holyoke, Chicopee, Ludlow, Westfield)	1,771	810.4	362	378	91	16	85	92	32	31	15	7	15	81
22. Greater Brockton Community Health Network	2,109	751.0	424	456	100	28	97	121	67	56	19	11	19	78
23. South Shore Community Health Network	1,850	699.0	361	433	109	20	62	116	39	42	18	0	23	58
24. Greater Attleboro-Taunton Health & Education Response	2,294	705.2	416	485	138	29	89	138	50	48	31	4	34	90
25. Partners for Healthier Communities	1,614	797.3	280	354	98	22	44	98	38	34	16	5	14	83
26. Greater New Bedford Community Health Network	2,253	773.5	440	446	122	26	83	152	54	52	20	5	24	115
27. Cape Cod and Islands Health Network	3,232	667.7	688	692	151	37	172	155	61	60	11	3	27	77

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. 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). 3. The term opioid designates a class of drugs derived naturally from the opium poppy (opium, morphine, codeine), synthesized or derived from a natural opiate (heroin, oxycodone, hydrocodone), or manufactured synthetically with a chemical structure similar to opium (fentanyl, methadone). (Opioid Overdose Response Strategies in Massachusetts, MDPH, 2014). This report combines all opioid overdoses since classification of specific drugs can be difficult. For example, many deaths related to heroin cannot be specifically coded as such due to the fast metabolism of heroin into morphine, as well as, the possible interaction of multiple drugs.

Table 41. Selected Causes of Death by County, Massachusetts: 2019

County	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer	Stroke	CLRD[2]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioids-related[3]
Massachusetts	**58,660**	**654.0**	**11,779**	**12,584**	**2,954**	**758**	**2,463**	**2,842**	**1,386**	**1,217**	**398**	**159**	**651**	**1,989**
Barnstable	3,023	673.0	648	645	141	37	160	147	57	56	10	2	23	73
Berkshire	1,583	748.6	316	328	84	19	78	94	35	40	13	7	23	38
Bristol	5,510	732.1	991	1,139	321	64	184	340	132	130	54	13	66	258
Dukes	144	559.8	25	31	6	0	9	7	2	2	1	1	2	3
Essex	7,159	671.0	1,454	1,460	351	95	276	371	176	148	40	9	75	277
Franklin	706	670.4	133	155	36	10	42	39	22	25	7	1	15	17
Hampden	4,640	747.6	954	995	245	52	197	221	98	75	45	28	45	200
Hampshire	1,352	651.7	294	274	67	14	67	57	26	32	9	2	19	37
Middlesex	11,686	574.2	2,426	2,613	540	174	454	474	292	239	52	17	128	303
Nantucket	65	502.1	15	16	4	0	3	1	2	2	0	0	2	1
Norfolk	5,909	594.7	1,160	1,392	326	87	255	249	117	112	25	9	58	126
Plymouth	4,867	690.1	981	1,101	259	68	200	287	119	110	51	11	52	175
Suffolk	4,745	600.4	909	962	209	56	195	192	148	82	35	41	52	217
Worcester	7,271	706.1	1,473	1,473	365	82	343	363	160	164	56	18	91	264

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. 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). 3. The term opioid designates a class of drugs derived naturally from the opium poppy (opium, morphine, codeine), synthesized or derived from a natural opiate (heroin, oxycodone, hydrocodone), or manufactured synthetically with a chemical structure similar to opium (fentanyl, methadone). (Opioid Overdose Response Strategies in Massachusetts, MDPH, 2014). This report combines all opioid overdoses since classification of specific drugs can be difficult. For example, many deaths related to heroin cannot be specifically coded as such due to the fast metabolism of heroin into morphine, as well as, the possible interaction of multiple drugs.

TECHNICAL NOTES

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.

RACE AND ETHNICITY DATA

The 2003 revision of the Standard Certificate of Death allows the reporting of more than one race in accordance with the revised standards issued by the Office of Management and Budget (OMB) in 1997. The revised standards require federal data collection programs to allow respondents to select *one or more race categories*. In order to provide uniformity and comparability of the data during the transition period, before multiple-race data are available for all reporting areas, it is necessary to "bridge" the responses of those who reported more than one race to a single-race. The method used to bridge responses for those who report more than one race to a single race is based on a procedure whereby multiple races are assigned to the smallest minority group first (i.e. Asian and White becomes Asian or Black and Native American becomes Native American). All multiple races that include Hispanic will be assigned as Hispanic and this group also includes all respondents who reported Hispanic ethnicities as well. Even though we bridge responses down to 6 categories (White NH, Black NH, Hispanic, Asian NH, American Indian / Alaska Native NH, and Other/Unknown not all categories are used in each table or figure that compares race and ethnicity data. There are well-known difficulties in calculating accurate mortality rates for smaller populations such as Asians, Native Americans and Hispanics. Please use caution when interpreting these numbers.

Decedent Race

☐ American Indian/Alaska Native (specify tribal nation): _____	☐ Native Hawaiian
☐ Asian	☐ Samoan
☐ Black	☐ White
☐ Guamanian or Chamorro	☐ Other Pacific Islander (specify):_____
☐ Hispanic/Latino/Black	☐ Other race not listed (specify): _____
☐ Hispanic/Latino/White	☐ Refused
☐ Hispanic/Latino/Other(specify): _____	☐ Not obtainable
	☐ Unknown

Decedent Race

Enter race to appear on death certificate: _____

Decedent Ethnicity

☐ African (specify): _____	☐ Laotian
☐ African-American	☐ Mexican, Mexican American, Chicano
☐ American	☐ Middle Eastern (specify): _____
☐ Asian Indian	☐ Native American (specify tribal nation(s)): _____
☐ Brazilian	☐ Portuguese
☐ Cambodian	☐ Puerto Rican
☐ Cape Verdean	☐ Russian
☐ Caribbean Islander (specify): _____	☐ Salvadoran
☐ Chinese	☐ Vietnamese
☐ Colombian	☐ Other Asian (specify): _____
☐ Cuban	☐ Other Central American (specify): _____
☐ Dominican	☐ Other Pacific Islander (specify): _____
☐ European (specify): _____	☐ Other Portuguese (specify): _____
☐ Filipino	☐ Other South American (specify): _____
☐ Guatemalan	☐ Other ethnicity (ies) not listed (specify): _____
☐ Haitian	☐ Refused
☐ Honduran	☐ Not obtainable
☐ Japanese	☐ Unknown
☐ Korean	

POPULATION ESTIMATES

State, County, and Small Area Population Estimates 2011-2020, version 2018, Massachusetts Department of Public Health, Bureau of Environmental Health. Population estimates used for years following the decennial census were developed by the University of Massachusetts Donahue Institute (UMDI) in partnership with the Massachusetts Department of Public Health, Bureau of Environmental Health. Detailed population estimates at fine levels of geography are prone to estimation error. Estimated error was best described by age and population size and was used to adjust final population numbers, however a margin of error exists for all estimates.

LIMITATIONS OF SMALL NUMBERS

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

APPLYING COMPARABILITY RATIOS TO EXAMINE TRENDS IN MORTALITY

Beginning with 1999, mortality data are coded according to the International Classification of Diseases Tenth 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 A4. 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 than 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: 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
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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.

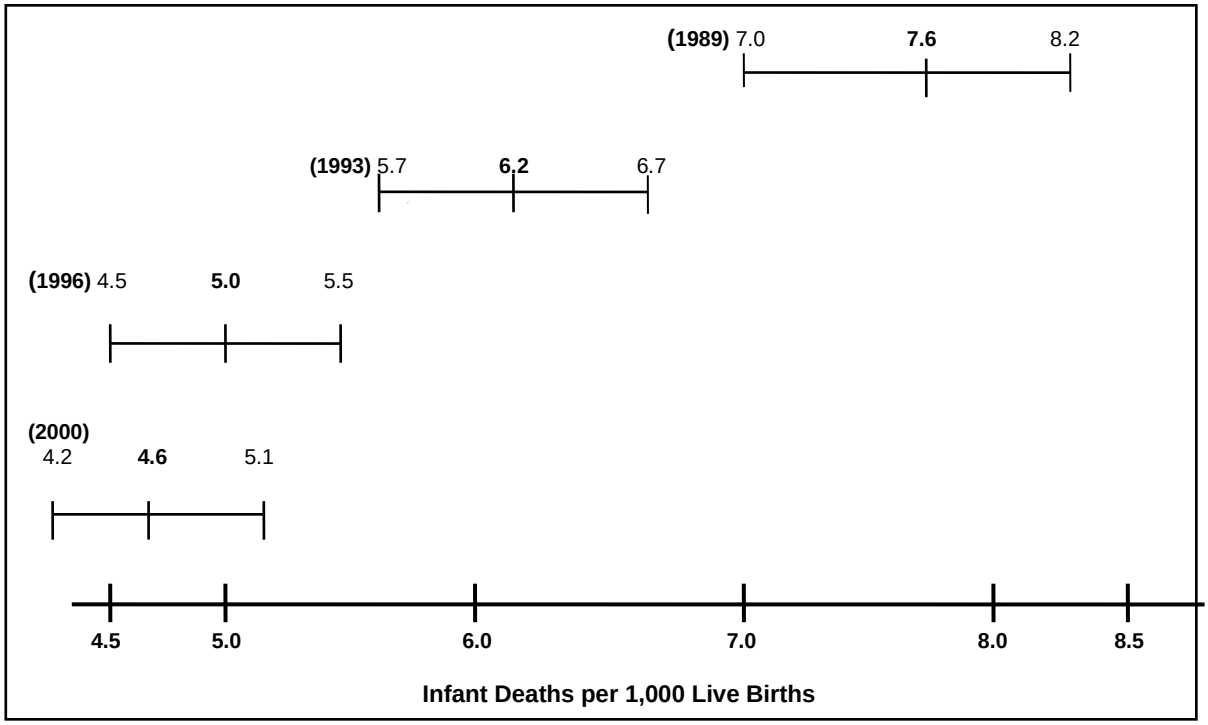
When two statistics are determined to differ significantly, they are referred to in the text as being "significantly" different, either lower or higher than the statistic of comparison.

CONFIDENCE INTERVALS

The confidence interval (CI) provides a measure of rate stability 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 rate. For example, a narrow CI reflects high stability, and a wide CI reflects low stability. If the CIs around two rates 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 infant mortality 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 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. CHNAs 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 A8, 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 than 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 A4 and A5).

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 can be signed by a licensed physician doctor (which includes ME's) or a Nurse Practitioner. Starting in 2016 Physician Assistants (PA) could also sign. Some of the data elements found on the death certificate are cause of death, decedent's name, gender, birth date, place of residence, and place of occurrence. (A copy of the Massachusetts death certificate used 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. Mortality data in this report was coded using ICD-10 codes, though a comparison between these ICD-10 codes and their corresponding ICD-9 codes is presented in Tables A1-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)
Since 1999, the tenth revision of the International Classification of Diseases has been used to code mortality data. For a list of ICD-10 codes used in the publication, please see Tables A1, A4, and A5.

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, Washington, DC, Canada, the US Virgin Islands, and Guam 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.

Opioid
The term opioid designates a class of drugs derived naturally from the opium poppy (opium, morphine, codeine), synthesized or derived from a natural opiate (heroin, oxycodone, hydrocodone), or manufactured synthetically with a chemical structure similar to opium (fentanyl, methadone). (Opioid Overdose Response Strategies in Massachusetts, MDPH, 2014)

This report combines all opioid overdoses since classification of specific drugs can be difficult. For example, many deaths related to heroin cannot be specifically coded as such due to the fast metabolism of heroin into morphine, as well as, the possible interaction of multiple drugs.

Other and Unspecified Narcotics (T40.6)
The Injury Surveillance Workgroup (ISW7) Consensus Recommendations for national and state poisoning surveillance (Safe States Alliance, 2012) states that this category is intended for other and unspecified drugs classified pharmacologically as narcotics (opioids/opiates). However, in practice it may also be used for drugs classified legally as narcotics such as cocaine. The proportion of this category made up by opioids/opiates varies by jurisdiction, so inclusion of this code depends on more detailed analysis of death certificate text and/or medical examiner records. Reviews in Massachusetts indicate that most deaths classified as T40.6 were opioid-related overdose deaths. For that reason, we include T40.6 in our opioid-related definition.

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.

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.

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--29
Stroke (Cerebrovascular Disease)	I60-I69	430-38
Influenza and Pneumonia	J10-J18	480--87
Chronic Lower Respiratory Diseases[1]	J40-J47	490--96
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 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 A3. ICD-10 Codes for Selected Healthy People 2020 Mortality Objectives[1] Used in this Publication

(Sorted by Objective Number)

Cause of Death	ICD-10 Code
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

Cause of Death	ICD-10 Code
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

1. These Healthy People 2020 objectives use underlying cause of death data.

Table A4. 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, 410-429	0.9858
Stroke (Cerebrovascular Disease)	I60-I69	430-434, 436-438	1.0588
Influenza and Pneumonia	J10-J18	480-487	0.6982
Chronic Lower Respiratory Diseases	J40-J47	490-494,496	1.0478
Chronic Liver Disease and Cirrhosis	K70, K73-K74	571	1.0367
Nephritis	N00-N07, N17-N19, N25-N27	580-589	1.2320
Congenital Malformations, Deformations, and Chromosomal Abnormalities	Q00-Q99	740-759	0.8470
Certain Conditions Originating in the Perinatal Period (Perinatal Conditions)	P00-P96	760-771.2, 771.4-779	1.0658
External Causes of Injuries and Poisonings (intentional, unintentional and of undetermined intent)	V01-Y89	E800-E999	NA
Accidents (Unintentional Injuries)	V01-X59, Y85-Y86	E800-E869, E880-E929	1.0305

Motor Vehicle-related injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2	E810-E825	0.9754[3]
Non-transport injuries	W00-X59, Y86	E850-E869, E880-E928, E929.2-E929.9	1.0763
Suicide	X60-X84, Y87.0	E950-E959	0.9962
Homicide	X85-Y09, Y87.1	E960-E969	0.9983
Injuries of undetermined intent	Y10-Y34,Y87.2,Y89.9	E980-E989	*

Source: National Center for Health Statistics, Preliminary Comparability Study. February 2001. NA: not available *: not reliable
Note. Please refer to 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 A5. 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
Note: Please refer to Appendix for an example of how to apply comparability ratios.

Table A6. Causes of Death Considered Amenable to Health Care

Cause of Death Considered Amenable to Health Care	Age	ICD-10 Code
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://researchonline.lshtm.ac.uk/15535/1/does-healthcare-save-lives-mar04.pdf and E. Nolte and M. McKee, In Amenable Mortality—Deaths Avoidable Through Health Care—Progress In The US Lags That of Three European Countries, *Health Affairs 31*(9), 2114-2122. Available at https://www.healthaffairs.org/doi/pdf/10.1377/hlthaff.2011.0851

Table A7. Population Estimates[1] for Massachusetts Community Health Network Areas (CHNA) and Counties: 2018

CHNA	POPULATION[1]	COUNTY	POPULATION[1]
1. Community Health Network of Berkshire County	127,740	Barnstable	216,806
2. Upper Valley Health Web (Franklin County)	88,020	Berkshire	127,740
3. Partnership for Health in Hampshire County (Northampton)	161,930	Bristol	570,972
4. The Community Health Connection (Springfield)	304,597	Dukes	17,365
5. Community Health Network of Southern Worcester County	124,060	Essex	800,017
6. Community Partners for Health (Milford)	179,126	Franklin	71,814
7. Community Health Network of Greater Metro West (Framingham)	416,213	Hampden	475,366
8. Common Pathways (Worcester)	329,127	Hampshire	164,136
9. Community Health Network of North Central Massachusetts	274,395	Middlesex	1,632,505
10. Greater Lowell Community Health Network	298,871	Nantucket	11,332
11. Greater Lawrence Community Health Network	219,144	Norfolk	714,526
12. Greater Haverhill Community Health Network	156,250	Plymouth	524,799
13. Community Health Network North (Beverly/Gloucester)	117,136	Suffolk	810,212
14. North Shore Community Health Network	307,486	Worcester	839,112
15. Northwest Suburban Health Alliance	235,808		
16. North Suburban Health Alliance (Medford/Malden/Melrose)	300,280	**STATE**	**6,976,701**
17. Greater Cambridge/Somerville Community Health Network	296,543		
18. West Suburban Health Network (Newton/Waltham)	276,374		
19. Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	874,850		
20. Blue Hills Community Health Alliance (Greater Quincy)	401,842		
21. Community Health Network of Chicopee, Holyoke, Ludlow, Westfield	164,802		
22. Greater Brockton Community Health Network	249,664		
23. South Shore Community Health Network (Plymouth)	201,421		
24. Greater Attleboro-Taunton Health & Education Response	272,211		
25. Partners for Healthier Communities (Fall River)	140,914		
26. Greater New Bedford Community Health Network	212,393		
27. Cape Cod and Islands Health Network	245,503		

1. State, County, and Small Area Population Estimates 2011-2020, version 2018, Massachusetts Department of Public Health, Bureau of Environmental Health. Population estimates used for years following the decennial census were developed by the University of Massachusetts Donahue Institute (UMDI) in partnership with the Massachusetts Department of Public Health, Bureau of Environmental Health. Detailed population estimates at fine levels of geography are prone to estimation error. Estimated error was best described by age and population size and was used to adjust final population numbers, however a margin of error exists for all estimates.

Table A8. Population Estimates[1] for Massachusetts Communities, 2019

TOWN NAME	COUNTY	CHNA	POPULATION	TOWN NAME	COUNTY	CHNA	POPULATION
Abington	Plymouth	22	17,956	Concord	Middlesex	15	18,718
Acton	Middlesex	15	23,762	Conway	Franklin	2	1,934
Acushnet	Bristol	26	10,451	Cummington	Hampshire	3	796
Adams	Berkshire	1	8,277	Dalton	Berkshire	1	6,515
Agawam	Hampden	4	28,643	Danvers	Essex	14	28,598
Alford	Berkshire	1	466	Dartmouth	Bristol	26	36,850
Amesbury	Essex	12	16,654	Dedham	Norfolk	18	27,168
Amherst	Hampshire	3	40,493	Deerfield	Franklin	2	5,319
Andover	Essex	11	36,068	Dennis	Barnstable	27	13,220
Aquinnah (Gay Head)	Dukes	27	265	Dighton	Bristol	24	7,842
Arlington	Middlesex	17	46,009	Douglas	Worcester	6	9,395
Ashburnham	Worcester	9	6,273	Dover	Norfolk	18	5,203
Ashby	Middlesex	9	3,449	Dracut	Middlesex	10	32,358
Ashfield	Franklin	2	1,713	Dudley	Worcester	5	12,379
Ashland	Middlesex	7	19,533	Dunstable	Middlesex	10	3,326
Athol	Worcester	2	11,959	Duxbury	Plymouth	23	15,127
Attleboro	Bristol	24	46,472	East Bridgewater	Plymouth	22	14,749
Auburn	Worcester	8	16,485	East Brookfield	Worcester	5	2,236
Avon	Norfolk	22	4,367	East Longmeadow	Hampden	4	16,907
Ayer	Middlesex	9	8,077	Eastham	Barnstable	27	4,641
Barnstable	Barnstable	27	44,999	Easthampton	Hampshire	3	16,206
Barre	Worcester	9	5,551	Easton	Bristol	22	23,724
Becket	Berkshire	1	1,796	Edgartown	Dukes	27	4,091
Bedford	Middlesex	15	14,888	Egremont	Berkshire	1	1,096
Belchertown	Hampshire	3	15,917	Erving	Franklin	2	2,088
Bellingham	Norfolk	6	17,904	Essex	Essex	13	3,713
Belmont	Middlesex	17	27,356	Everett	Middlesex	16	48,778
Berkley	Bristol	24	6,773	Fairhaven	Bristol	26	16,024
Berlin	Worcester	9	3,186	Fall River	Bristol	25	89,811
Bernardston	Franklin	2	2,087	Falmouth	Barnstable	27	31,287
Beverly	Essex	13	41,331	Fitchburg	Worcester	9	42,351
Billerica	Middlesex	10	43,749	Florida	Berkshire	1	783
Blackstone	Worcester	6	9,041	Foxborough	Norfolk	7	18,108
Blandford	Hampden	4	1,212	Framingham	Middlesex	7	74,880
Bolton	Worcester	9	5,046	Franklin	Norfolk	6	33,915
Boston	Suffolk	19	692,314	Freetown	Bristol	26	9,043
Bourne	Barnstable	27	20,914	Gardner	Worcester	9	20,025
Boxborough	Middlesex	15	5,098	Georgetown	Essex	12	8,930
Boxford	Essex	12	7,710	Gill	Franklin	2	1,664
Boylston	Worcester	8	4,479	Gloucester	Essex	13	28,660
Braintree	Norfolk	20	39,531	Goshen	Hampshire	3	1,144
Brewster	Barnstable	27	9,907	Gosnold	Dukes	27	48
Bridgewater	Plymouth	22	28,477	Grafton	Worcester	8	19,980
Brimfield	Hampden	5	3,718	Granby	Hampshire	3	6,133
Brockton	Plymouth	22	98,742	Granville	Hampden	4	1,553
Brookfield	Worcester	5	3,653	Great Barrington	Berkshire	1	6,789
Brookline	Norfolk	19	64,638	Greenfield	Franklin	2	17,376
Buckland	Franklin	2	1,857	Groton	Middlesex	9	11,641
Burlington	Middlesex	15	27,689	Groveland	Essex	12	6,826
Cambridge	Middlesex	17	113,175	Hadley	Hampshire	3	5,742
Canton	Norfolk	20	23,102	Halifax	Plymouth	23	7,635
Carlisle	Middlesex	15	4,761	Hamilton	Essex	13	7,471
Carver	Plymouth	23	12,171	Hampden	Hampden	4	4,930
Charlemont	Franklin	2	1,190	Hancock	Berkshire	1	650
Charlton	Worcester	5	14,066	Hanover	Plymouth	23	14,320
Chatham	Barnstable	27	5,849	Hanson	Plymouth	23	10,702

Chelmsford	Middlesex	10	36,034	Hardwick	Worcester	9	3,302
Chelsea	Suffolk	19	37,881	Harvard	Worcester	9	6,917
Cheshire	Berkshire	1	2,976	Harwich	Barnstable	27	12,560
Chester	Hampden	21	1,354	Hatfield	Hampshire	3	3,242
Chesterfield	Hampshire	3	1,224	Haverhill	Essex	12	66,231
Chicopee	Hampden	21	57,239	Hawley	Franklin	2	293
Chilmark	Dukes	27	774	Heath	Franklin	2	603
Clarksburg	Berkshire	1	1,680	Hingham	Plymouth	20	23,827
Clinton	Worcester	9	14,069	Hinsdale	Berkshire	1	2,123
Cohasset	Norfolk	20	7,395	Holbrook	Norfolk	22	11,289
Colrain	Franklin	2	1,603	Holden	Worcester	8	18,860

Table A8 (continued). Population Estimates[1] for Massachusetts Communities, 2019

TOWN NAME	COUNTY	CHNA	POPULATION	TOWN NAME	COUNTY	CHNA	POPULATION
Holland	Hampden	5	2,555	New Marlborough	Berkshire	1	1,527
Holliston	Middlesex	7	13,777	New Salem	Franklin	2	987
Holyoke	Hampden	21	41,412	Newbury	Essex	12	6,643
Hopedale	Worcester	6	5,673	Newburyport	Essex	12	17,799
Hopkinton	Middlesex	7	16,312	Newton	Middlesex	18	92,127
Hubbardston	Worcester	9	4,650	Norfolk	Norfolk	7	12,341
Hudson	Middlesex	7	20,980	North Adams	Berkshire	1	13,050
Hull	Plymouth	20	9,874	North Andover	Essex	11	30,298
Huntington	Hampshire	21	2,206	North Attleboro	Bristol	24	30,263
Ipswich	Essex	13	13,442	North Brookfield	Worcester	5	4,639
Kingston	Plymouth	23	13,557	North Reading	Middlesex	16	16,527
Lakeville	Plymouth	24	11,286	Northampton	Hampshire	3	29,261
Lancaster	Worcester	9	8,562	Northborough	Worcester	7	13,685
Lanesborough	Berkshire	1	3,041	Northbridge	Worcester	6	18,011
Lawrence	Essex	11	88,678	Northfield	Franklin	2	2,972
Lee	Berkshire	1	5,870	Norton	Bristol	24	19,870
Leicester	Worcester	8	11,260	Norwell	Plymouth	20	10,700
Lenox	Berkshire	1	4,871	Norwood	Norfolk	20	30,167
Leominster	Worcester	9	40,755	Oak Bluffs	Dukes	27	5,160
Leverett	Franklin	2	2,016	Oakham	Worcester	9	2,108
Lexington	Middlesex	15	34,091	Orange	Franklin	2	8,159
Leyden	Franklin	2	627	Orleans	Barnstable	27	5,641
Lincoln	Middlesex	15	8,646	Otis	Berkshire	1	1,854
Littleton	Middlesex	15	9,714	Oxford	Worcester	5	13,776
Longmeadow	Hampden	4	15,505	Palmer	Hampden	4	11,890
Lowell	Middlesex	10	117,417	Paxton	Worcester	8	4,942
Ludlow	Hampden	21	20,858	Peabody	Essex	14	55,961
Lunenburg	Worcester	9	10,403	Pelham	Hampshire	3	1,246
Lynn	Essex	14	101,420	Pembroke	Plymouth	23	18,695
Lynnfield	Essex	14	11,645	Pepperell	Middlesex	9	12,275
Malden	Middlesex	16	68,048	Peru	Berkshire	1	841
Manchester	Essex	13	4,938	Petersham	Worcester	2	1,264
Mansfield	Bristol	24	23,674	Phillipston	Worcester	2	1,710
Marblehead	Essex	14	19,228	Pittsfield	Berkshire	1	44,450
Marion	Plymouth	26	4,629	Plainfield	Hampshire	3	631
Marlborough	Middlesex	7	43,645	Plainville	Norfolk	7	9,120
Marshfield	Plymouth	23	25,899	Plymouth	Plymouth	23	62,264
Mashpee	Barnstable	27	15,372	Plympton	Plymouth	23	2,983
Mattapoisett	Plymouth	26	5,775	Princeton	Worcester	9	3,256
Maynard	Middlesex	7	10,428	Provincetown	Barnstable	27	2,622
Medfield	Norfolk	7	11,395	Quincy	Norfolk	20	101,564
Medford	Middlesex	16	61,038	Randolph	Norfolk	20	34,277
Medway	Norfolk	6	13,073	Raynham	Bristol	24	14,930
Melrose	Middlesex	16	28,973	Reading	Middlesex	16	27,535
Mendon	Worcester	6	5,789	Rehoboth	Bristol	24	12,611
Merrimac	Essex	12	6,381	Revere	Suffolk	19	61,179
Methuen	Essex	11	53,787	Richmond	Berkshire	1	1,328
Middleborough	Plymouth	24	26,964	Rochester	Plymouth	26	5,628
Middlefield	Hampshire	3	454	Rockland	Plymouth	23	18,068
Middleton	Essex	11	10,313	Rockport	Essex	13	6,547
Milford	Worcester	6	29,358	Rowe	Franklin	2	342
Millbury	Worcester	8	13,651	Rowley	Essex	12	6,168
Millis	Norfolk	7	7,893	Royalston	Worcester	2	1,273
Millville	Worcester	6	3,542	Russell	Hampden	4	1,882

Milton	Norfolk	20	28,677	Rutland	Worcester	9	9,005
Monroe	Franklin	2	99	Salem	Essex	14	45,206
Monson	Hampden	4	8,430	Salisbury	Essex	12	8,835
Montague	Franklin	2	8,546	Sandisfield	Berkshire	1	934
Monterey	Berkshire	1	932	Sandwich	Barnstable	27	21,030
Montgomery	Hampden	4	886	Saugus	Essex	14	28,461
Mt. Washington	Berkshire	1	136	Savoy	Berkshire	1	632
Nahant	Essex	14	3,267	Scituate	Plymouth	20	18,122
Nantucket	Nantucket	27	11,332	Seekonk	Bristol	24	13,998
Natick	Middlesex	7	36,083	Sharon	Norfolk	20	18,306
Needham	Norfolk	18	29,357	Sheffield	Berkshire	1	3,082
New Ashford	Berkshire	1	182	Shelburne	Franklin	2	1,845
New Bedford	Bristol	26	100,006	Sherborn	Middlesex	7	3,831
New Braintree	Worcester	9	1,057	Shirley	Middlesex	9	8,423

Table A8 (continued). Population Estimates[1] for Massachusetts Communities, 2019

TOWN NAME	COUNTY	CHNA	POPULATION
Shrewsbury	Worcester	8	39,565
Shutesbury	Franklin	2	1,752
Somerset	Bristol	25	18,502
Somerville	Middlesex	17	76,785
South Hadley	Hampshire	3	18,093
Southampton	Hampshire	3	5,995
Southborough	Worcester	7	9,719
Southbridge	Worcester	5	16,858
Southwick	Hampden	4	9,789
Spencer	Worcester	5	11,515
Springfield	Hampden	4	158,503
Sterling	Worcester	9	7,869
Stockbridge	Berkshire	1	1,742
Stoneham	Middlesex	16	22,333
Stoughton	Norfolk	22	27,700
Stow	Middlesex	7	7,208
Sturbridge	Worcester	5	10,436
Sudbury	Middlesex	7	17,915
Sunderland	Franklin	2	3,794
Sutton	Worcester	6	8,982
Swampscott	Essex	14	13,700
Swansea	Bristol	25	15,963
Taunton	Bristol	24	57,527
Templeton	Worcester	9	8,928
Tewksbury	Middlesex	10	30,837
Tisbury	Dukes	27	4,150
Tolland	Hampden	4	422
Topsfield	Essex	13	5,837
Townsend	Middlesex	9	9,146
Truro	Barnstable	27	1,972
Tyngsborough	Middlesex	10	11,986
Tyringham	Berkshire	1	251
Upton	Worcester	6	9,036
Uxbridge	Worcester	6	15,408
Wakefield	Middlesex	16	27,048
Wales	Hampden	5	1,901
Walpole	Norfolk	7	25,944
Waltham	Middlesex	18	66,908
Ware	Hampshire	3	10,134
Wareham	Plymouth	26	23,987
Warren	Worcester	5	5,415
Warwick	Franklin	2	750
Washington	Berkshire	1	457
Watertown	Middlesex	17	33,218
Wayland	Middlesex	7	13,276
Webster	Worcester	5	17,212
Wellesley	Norfolk	18	29,787
Wellfleet	Barnstable	27	2,755
Wendell	Franklin	2	730
Wenham	Essex	13	5,199
West Boylston	Worcester	8	7,843
West Bridgewater	Plymouth	22	7,242
West Brookfield	Worcester	5	3,702
West Newbury	Essex	12	4,072
West Springfield	Hampden	4	29,508
West Stockbridge	Berkshire	1	1,196
West Tisbury	Dukes	27	2,878
Westborough	Worcester	7	18,870
Westfield	Hampden	21	41,731
Westford	Middlesex	10	23,164
Westhampton	Hampshire	3	1,697
Westminster	Worcester	9	7,327
Weston	Middlesex	18	11,090
Westport	Bristol	25	16,638
Westwood	Norfolk	18	14,734
Weymouth	Norfolk	20	56,297
Whately	Franklin	2	1,466
Whitman	Plymouth	22	15,419
Wilbraham	Hampden	4	14,537
Williamsburg	Hampshire	3	2,462
Williamstown	Berkshire	1	7,359
Wilmington	Middlesex	15	24,416
Winchendon	Worcester	9	10,742
Winchester	Middlesex	15	22,360
Windsor	Berkshire	1	854
Winthrop	Suffolk	19	18,838
Woburn	Middlesex	15	41,664
Worcester	Worcester	8	192,064
Worthington	Hampshire	3	1,060
Wrentham	Norfolk	7	11,270
Yarmouth	Barnstable	27	24,035

1. State, County, and Small Area Population Estimates 2011-2020, version 2018, Massachusetts Department of Public Health, Bureau of Environmental Health. Population estimates used for years following the decennial census were developed by the University of Massachusetts Donahue Institute (UMDI) in partnership with the Massachusetts Department of Public Health, Bureau of Environmental Health. Detailed population estimates at fine levels of geography are prone to estimation error. Estimated error was best described by age and population size and was used to adjust final population numbers, however a margin of error exists for all estimates.

Table A9. 2019 Massachusetts Population Estimates[1] By Age Group, Gender, Race and Hispanic Ethnicity (mutually exclusive)

AGE	GENDER	TOTAL	WHITE Non-Hispanic[1]	BLACK Non-Hispanic[1]	ASIAN Non-Hispanic[1]	HISPANIC[1]
Under 1	Male	36,936	21,178	3,227	2,679	8,082
	Female	35,022	20,247	3,150	2,406	7,679
	Total	71,958	41,425	6,376	5,085	15,761
1 TO 4	Male	152,305	89,781	13,423	10,868	32,157
	Female	145,375	85,147	13,119	10,130	31,003
	Total	297,680	174,928	26,542	20,997	63,160
5 TO 14	Male	391,768	232,673	34,485	27,477	73,113
	Female	376,113	222,274	33,801	26,463	70,518
	Total	767,881	454,947	68,286	53,940	143,631
15 TO 24	Male	486,351	316,365	39,588	37,499	78,995
	Female	487,292	316,275	40,139	41,843	74,886
	Total	973,643	632,640	79,727	79,343	153,881
25 TO 34	Male	497,884	327,465	44,566	48,200	78,510
	Female	491,007	324,106	42,894	52,115	72,773
	Total	988,891	651,571	87,460	100,315	151,283
35 TO 44	Male	418,025	276,016	33,638	38,450	61,227
	Female	430,987	281,798	34,781	43,700	61,097
	Total	849,012	557,814	68,419	82,150	122,324
45 TO 54	Male	436,292	322,840	30,449	29,987	44,546
	Female	463,994	339,458	33,077	32,966	49,350
	Total	900,286	662,298	63,526	62,954	93,896
55 TO 64	Male	456,643	373,792	26,422	20,906	29,239
	Female	493,431	398,630	29,851	23,706	34,461
	Total	950,074	772,422	56,273	44,613	63,699
65 TO 74	Male	315,648	270,513	14,293	12,470	14,920
	Female	367,159	310,401	18,283	15,235	19,452
	Total	682,806	580,915	32,575	27,704	34,371
75 TO 84	Male	140,988	122,939	5,525	5,804	5,534
	Female	190,865	164,165	9,289	7,285	8,850
	Total	331,853	287,103	14,814	13,089	14,384
85 +	Male	54,438	48,112	1,909	2,084	1,854
	Female	106,970	95,871	3969	2,911	3,538
	Total	161,407	143,983	5,878	4,995	5,392
ALL AGES	**Male**	**3,387,278**	**2,401,674**	**247,525**	**236,425**	**428,177**
	Female	**3,588,212**	**2,558,373**	**262,352**	**258,761**	**433,606**
	Total	**6,975,490**	**4,960,047**	**509,877**	**495,185**	**861,783**

1. State, County, and Small Area Population Estimates 2011-2020, version 2018, Massachusetts Department of Public Health, Bureau of Environmental Health. Population estimates used for years following the decennial census were developed by the University of Massachusetts Donahue Institute (UMDI) in partnership with the Massachusetts Department of Public Health, Bureau of Environmental Health. Detailed population estimates at fine levels of geography are prone to estimation error. Estimated error was best described by age and population size and was used to adjust final population numbers, however a margin of error exists for all estimates.

Massachusetts Death Certificate: 2019

Commonwealth of Massachusetts
Registry of Vital Records and Statistics
CERTIFICATE OF DEATH

State File #
Registered #

Form R-301 08012015

DECEDENT

Place of Death

Date of Death | *Age* | *Sex*

Current Name
Surname at Birth or Adoption | *SSN*
AKA

Date of Birth | *Birthplace*

Residence

Race | *Education*

Marital Status | *Occupation/Industry*

Last Spouse – Last, First, Middle (Surname at Birth or Adoption) | *Decedent: U.S. Veteran (Most Recent)*

Mother/Parent Name – Last, First Middle (Surname at Birth or Adoption) | *Birthplace*

Father/Parent Name – Last, First Middle (Surname at Birth or Adoption) | *Birthplace*

MEDICAL CERTIFIER

Part I. Cause of Death – Sequentially list immediate cause then antecedent causes then underlying cause | *Interval between onset and death*

a. Immediate Cause (Final condition resulting in death)

b. Due to or as a consequence of:.

c. Due to or as a consequence of:

d. Due to or as a consequence of:

Part II. Other significant conditions contributing to death but not resulting in underlying cause

Manner of Death:

Time of Death:

Result of Injury:

Certifier | *Lic #*
Addr.

DISPOSITION

Funeral Licensee/ Designee | *Lic #*
Facility/Addr.
Immediate Disposition
Date of Immediate Disposition
Place/Address

Date of Record
Date of Amendment

If U.S. war veteran, specify war/conflict(s) *Branch of military (most recent)* *Rank/organization/outfit(most recent)* *Date entered(most recent)* *Date Discharged (most recent)* *Service Number(most recent)*

Place of Death Type		*Date of Pronouncement*	*Time of Pronouncement*
RN/NP/PA Pronouncement?	*Name of RN/NP/PA Pronouncing Death*		*Lic #*
RN/NP/PA Employing Agency or Institution		*Name of Physician or Medical Examiner notified*	
Was M.E. Notified?	*Provider in charge of patient's care, if not certifier*		
Autopsy Performed?	*Findings available for Cause?*	*Tobacco contribute to death?*	*Pregnancy Status, if female*
Date of Injury	*Time of Injury*	*Injury at Work?*	*If Transportation Injury, specify:*
Place of Injury		*Location/Address of Injury:*	
Describe How Injury Occurred			
Expanded Race: *Ethnicity:*			
Informant Name *Addr.*			*Relationship*

Date Disposition Permit Issued: *State Tracking No.*	*Board of Health Agent* *Local Permit No.*

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: 2019 Evaluation Form

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

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

Please return your comments to:

Massachusetts Department of Public Health
Registry of Vital Records and Statistics
150 Mt. Vernon Street 1st Floor
Dorchester, MA 02125