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March 7, 2022

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

Michael D. Hurley
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 birth data and statistics for the 2018 calendar year.

Sincerely,

A handwritten signature in black ink that reads "Margret R. Cooke".

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 Births 2018

February 2022

Massachusetts Births 2018



Massachusetts Department of Public Health
Registry of Vital Records and Statistics

February 2022

Massachusetts Births 2018

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

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Registry of Vital Records and Statistics

Massachusetts Department of Public Health

February 2022

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An additional thank you to: Kevin Foster, Office of Data Management and Outcomes Assessment.

Data in this report have been collected through the efforts of the Registry of Vital Records and Statistics staff, including: Tara Andrews, Michael Baker, June Deloney, Alex Forman, Marta Mercado, and Margaret Riley.

To obtain additional copies of this report, contact:

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To obtain more information on births in Massachusetts and other Department of Public Health data please visit the Department's free, Internet-based public health information reports at: <http://www.mass.gov/dph/phit> or email DPH.PHIT@state.ma.us

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Note to Readers

As required by Chapter 111, Section 2 of the General Laws, this report satisfies the requirement of the annual report of statistics on births for calendar year 2018 (Annual Report Vital Statistics of Massachusetts-Births, Public Document #1 2017). The publication of this report was delayed due to both staffing vacancies and the reallocation of available staff in order to provide timely data for COVID-19 mortality reporting. Public Document #1 information on 2018 deaths, marriages, and divorces is covered in separate reports.

- 1. Population Sources.** We have used two population files based upon the 2010 Census for denominators in rate calculations:
 - Population estimates from 2000-2009 were created using straight line interpolation of data from the U.S. Census.
 - Population estimates from 2011-present were created by the UMASS Donahue Institute (UMDI). The same categorizations were applied to the 2010 census data to make a consistent dataset from 2010-present. Data are updated annually with summary census files that incorporate lagging birth data. These more accurate and up-to-date rates may differ somewhat from previously released rates. UMDI estimates were created by a team of expert demographers using novel modifications of an existing and well-accepted methodology. UMDI created estimates by sex, age, race, and ethnicity at the census tract and community levels. These estimates are controlled to the annual county level Census estimates¹ on a yearly basis, so they become more accurate over time. To read the full methodology, please refer to the report created by UMDI: Strate, S., Renski, H., Peake, T., Murphy, J.J., Zaldonis, P. (2016). Small area population estimates for 2011 through 2020. [White Paper]. Population Estimates Program, Economic and Public Policy Research, University of Massachusetts Donahue Institute.
- 2. Resident births.** All data in this publication are resident data unless otherwise stated. Resident data include all events that occur to residents of the Commonwealth, including resident births that occur in other U.S. States and territories.
- 3. Race and Ethnicity.** In the text, the race categories, White, Black, American Indian/Alaska Native, Asian, and Hispanic are mutually exclusive. For example, when we refer to White mothers, this means White Non-Hispanic mothers. See “Technical Notes” for detailed information on the multiple-race reporting area and methods used to bridge responses for those who report more than one race to a single race. Please note that trend data on minority groups such as Native Americans, Hispanics, Blacks, and Asians may not be comparable as these groups will show increases in the number of births solely related to the methods used for re-classification of multiple races into single race categories. **Please use caution in interpreting these numbers.**
- 4. Breastfeeding.** Beginning in 2016, statistics on breastfeeding indicate whether the infant was being breastfed during the hospital stay. In earlier birth reports, statistics on breastfeeding reported on breastfeeding at the time of discharge. **Please use caution when comparing breastfeeding data before and after 2016.**
- 5. Tables/Figures Based on Mothers.** Please note that Tables 18-19 and Figures 7-11 are based on mothers and not births.

Suggested Citation

Massachusetts Births 2018 Boston, MA: Registry of Vital Records and Statistics, Massachusetts Department of Public Health. February 2022.

Selected Takeaways

- In 2018, there were 69,098 births to Massachusetts resident mothers, a decline of 2.3% from 70,704 in 2017 and a decline of 25.3% since 1990 (Table 1). The number of births to mothers age 30 and older increased (for the 8th year in a row) by 10.7% (2010: 39,548; 2018: 43,793). Since 2008, the number of births to mothers under 30 decreased by 30.0% percent (2008: 36,117; 2018: 25,305) (Figure 1).
- Between 2017 and 2018, the number of births to White Non-Hispanic and Black Non-Hispanic mothers decreased by 2.5% and 1.5%, respectively, while the number of births to Asian Non-Hispanic and Hispanic mothers increased by 1.2% and 1.7%, respectively (Table 1).
- In 2018, the Massachusetts teen birth rate decreased for the tenth year in a row. The teen birth rate was 20.1 births per 1,000 women age 15-19 in 2008, while in 2018 the rate was 7.1 births per 1,000 women age 15-19 (Table 1). Between 2017 and 2018, the percentage of births to mothers less than 20 years old decreased for all races/ethnicities. However, disparities persisted between 2017 and 2018, and the percentage of teen births to Hispanic women remained over five times higher than the percentage of teen births to White Non-Hispanic women and the percentage of teen births to American Indian Non-Hispanic was over three times higher than that of White Non-Hispanic (Table 2, Figure 2).
- In 2018, 31.5% of births were cesarean deliveries (Table 1). Among White Non-Hispanic, Black Non-Hispanic, Hispanic, and Asian Non-Hispanic births, Black Non-Hispanics had the highest percentage of cesarean deliveries (36.5%), while Asian Non-Hispanics had the lowest percentage (29.2%) (Table 2).
- In 2018, the percentage of births to mothers affected by gestational diabetes increased to 7.0% from 6.5% in 2017 (Table 1).
- For the first time in 5 years, the percentage of low birthweight infants (less than 2,500 grams or 5.5 pounds) increased (2014: 7.5%; 2015: 7.5%; 2016: 7.5%; 2017: 7.5%; 2018: 7.6%) (Table 1).
- From 2017 to 2018, the percentage of preterm births (births occurring at less than 37 weeks of gestation) remained the same at 8.9% (Table 1). The percentage of White Non-Hispanic preterm births from 2017 to 2018 increased from 8.0% to 8.3%. In contrast, this percentage decreased for Asian Non-Hispanics from 8.3% to 7.8%, for Hispanics from 10.0% to 9.8%, and for Black Non-Hispanic from 11.2% to 11.0% (Table 10).
- From 2017 to 2018, the percentage of births to mothers who received adequate prenatal care continued to increase from 80.5% to 86.1% (Table 1, Figure 3). In 2018, the percentage of births with adequate prenatal care was higher among those with private insurance (87.3%) than public insurance (74.0%) (Table 16p2).
- The percentage of births to mothers whose prenatal care was covered through public insurance decreased slightly from 2017 (39.2%) to 38.5% in 2018 (Table 1).
- The percentage of multiple births decreased slightly from 3.6% in 2017 to 3.5% in 2018. The percentage of multiple births to mothers under 35 years old decreased slightly from 3.2% in 2017 to 3.1% in 2018, and the corresponding percentage for multiple births to mothers 35 and older decreased from 5.1% to 4.8% (Table 4).
- Smoking during pregnancy continued to decline in 2018. The percentage of infants whose mothers reported smoking during pregnancy decreased from 4.9% in 2017 to 4.4% in 2018 (Figure 6).

- In Massachusetts 3,570 women used fertility treatment in 2018. The percentage of mothers who used assisted reproductive technology (ART) among all mothers who used infertility treatment increased from 70.7% in 2017 to 73.6% in 2018. The percentage of mothers who used ART fertility treatment was much higher among White Non-Hispanic mothers at 78.9% than among Black Non-Hispanic, Asian Non-Hispanic, and Hispanic mothers at 3.3%, 11.7%, and 5.7%, respectively (Table 21).

Table 1. Trends in Birth Characteristics, Massachusetts: 1990, 2004-2018

Characteristic	1990	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Births¹	92,461	78,460	76,824	77,670	77,934	76,969	74,966	72,835	73,169	72,457	71,618	71,867	71,484	71,319	70,704	69,098	
	n²	62.1	56.2	55.6	56.9	57.2	56.5	55.1	53.7	54.1	53.3	52.5	52.1	52	52	51.2	49.0
Race of Mother																	
White Non-Hispanic	n	72,483	55,322	53,469	52,975	52,620	51,760	49,759	48,466	45,973	45,032	44,432	44,128	43,255	42,448	40,989	39,956
	%⁴	78.4	70.5	69.6	68.2	67.5	67.2	66.4	66.5	62.8	62.1	62.0	61.4	60.5	59.5	58	57.8
Black Non-Hispanic	n	7,158	6,053	6,077	6,452	6,462	6,652	6,945	6,794	6,999	6,892	7,016	7,071	6,949	7,095	7,251	7,142
	%⁴	7.7	7.7	7.9	8.3	8.3	8.6	9.3	9.3	9.6	9.5	9.8	9.8	9.7	9.9	10.3	10.3
Asian Non-Hispanic	n	3,349	5,454	5,251	5,469	5,758	5,958	5,939	5,817	6,022	6,530	6,220	6,426	6,473	6,647	6,338	6,411
	%⁴	3.6	7.0	6.8	7.0	7.4	7.7	7.9	8.0	8.2	9.0	8.7	8.9	9.1	9.3	9	9.3
Hispanic	n	8,406	9,798	10,061	10,696	10,861	10,895	10,986	10,588	12,777	13,088	12,315	12,670	12,927	13,100	13,516	13,748
	%⁴	9.1	12.5	13.1	13.8	13.9	14.2	14.7	14.5	17.5	18.1	17.2	17.6	18.1	18.4	19.1	19.9
Teen Births (Ages 15-19)	n	7,258	4,559	4,539	4,722	4,944	4,583	4,477	3,907	3,480	3,219	2,732	2,402	2,140	1,931	1,827	1,639
	Rate³	35.4	22.2	21.7	21.3	22.0	20.1	19.5	17.1	15.4	14.0	12.0	10.6	9.4	8.5	8.1	7.1
Births to Unmarried	n	22,837	22,376	23,170	24,977	26,010	26,146	26,029	25,220	25,349	24,900	24,014	23,853	23,913	23,566	23,309	22,467
	%	24.7	28.5	30.2	32.2	33.4	34.0	34.7	34.6	34.8	34.5	33.7	33.3	33.6	33.2	33.1	32.6
Cesarean Deliveries	n	20,615	24,295	24,732	25,901	26,240	26,240	25,067	24,244	23,062	22,900	22,508	22,691	22,431	22,302	22,290	21,710
	%	22.3	31.0	32.3	33.4	33.7	34.3	33.6	33.3	32.5	31.7	31.5	31.6	31.4	31.3	31.6	31.5
Gestational Diabetes⁵	n		2,741	2,666	2,925	3,279	3,086	3,445	3,368	3,698	4,070	3,784	3,867	4,287	4,005	4,575	4,812
	%		3.5	3.5	3.8	4.2	4.0	4.7	4.7	5.1	5.6	5.3	5.4	6	5.6	6.5	7.0
Low Birthweight⁶	n	5,388	6,125	6,073	6,150	6,147	5,955	5,804	5,650	5,458	5,491	5,495	5,394	5,321	5,341	5,261	5,243
	%	5.8	7.8	7.9	7.9	7.9	7.8	7.8	7.8	7.6	7.6	7.7	7.5	7.5	7.5	7.5	7.6
Preterm⁷	n	5,899	7,222	6,925	6,954	6,980	6,750	6,516	6,234	5,992	6,107	6,300	6,161	6,001	6,167	6,272	6,167
	%	6.5	9.2	9.0	9.0	9.0	8.8	8.7	8.6	8.4	8.6	8.8	8.6	8.4	8.7	8.9	8.9
Late Preterm⁸	n	3,977	5,016	4,808	4,918	4,945	4,753	4,602	4,361	4,206	4,422	4,518	4,394	4,305	4,492	4,680	4,489
	%	4.4	6.4	6.3	6.3	6.4	6.2	6.2	6.0	5.9	6.2	6.3	6.1	6	6.3	6.6	6.5
Prenatal Care																	
Public Pay Prenatal Care⁹	%	25.1	29.9	31.9	33.5	34.9	34.5	35.3	35.8	38.8	39.7	38.9	42.9	38.3	38.6	39.2	38.5
APNCU Index¹⁰	%		84.2	84.0	83.1	82.8	82.1	84.3	84.9	82.8	83.4	83.7	82.6	81.8	82.1	80.6	81.6
Adjusted APNCU Index¹⁰	%																

NOTE: All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated. 1. Births presented in all tables are resident live births unless otherwise specified. 2. Differences in numbers of births from previous publications are the result of updated files. 3. Birth rates represent the total number of births to women ages 15-44 years per 1,000 females ages 15-44; teen birth rates refer to number of births per 1,000 females ages 15-19. Population data for computing 2008 birth rates at the state level were provided by the US Census Bureau. See the "Population Denominators" section of the "Technical Notes" for further information. 4. Percentages are calculated based on births, including those to mothers of unknown race. 5. Gestational diabetes is defined as glucose intolerance found during pregnancy for the first time. It excludes cases with pre-existing diabetes. 6. Low birthweight: less than 2,500 grams or 5.5 pounds. 7. Preterm: <37 weeks gestation. 8. Late preterm: 34-36 weeks gestation. 9. Government programs including Commonwealth, Healthy Start, Medicaid/MassHealth, and Medicare (may also be HMO or managed care), or free care; other: Worker's Compensation and other sources. 10. Beginning with Births 2001, the APNCU Index has replaced the Kessner Index as the standard measurement of adequacy of prenatal care (see Technical Notes for more information).

Table 2. Birth Characteristics by Maternal Race/Hispanic Ethnicity and Birthplace, Massachusetts: 2018

Race and Hispanic Ethnicity (by mother's birthplace)	Births		Teen Births				Birthweight				Prenatal Care				Cesarean Deliveries		Breastfeeding ⁵	
			<18 Years		<20 Years		Very Low ²		Low ³		Adequate ⁴		1 st Trimester					
	n	% ¹	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
State Total	69,098	100.0	388	0.6	1,661	2.4	829	1.2	5,243	7.6	55,160	81.6	54,297	79.7	21,710	31.5	59,173	85.9
US inc. DC	45,835	66.3	256	0.6	1,086	2.4	519	1.1	3,395	7.4	37,688	84.2	37,534	83.1	14,037	30.7	38,163	83.6
US Territories ⁷	1,757	2.5	37	2.1	157	8.9	35	2.0	162	9.2	1,330	76.8	1,269	72.6	580	33.0	1,427	81.6
Non-US-born ⁸	21,473	31.1	94	0.4	417	1.9	269	1.3	1,673	7.8	16,133	76.5	15,481	73.1	7,083	33.0	19,577	91.4
White Non-Hispanic	39,956	57.8	73	0.2	463	1.2	362	0.9	2,599	6.5	33,432	85.4	33,303	84.4	12,408	31.1	34,008	85.3
US inc. DC	35,331	88.4	68	0.2	439	1.2	317	0.9	2,301	6.5	29,797	86.2	29,749	85.2	10,958	31.0	29,692	84.2
US Territories ⁷	11	0.0	0	0.0	0	0.0	0	0.0	0	0.0	9	81.8	8	72.7	--6	--6	8	72.7
Non-US-born ⁸	4,604	11.5	5	0.1	24	0.5	44	1.0	296	6.4	3,619	80.0	3,539	77.7	1,446	31.4	4,307	93.8
Black Non-Hispanic	7,142	10.3	47	0.7	192	2.7	169	2.4	767	10.8	4,861	69.9	4,673	66.6	2,607	36.5	6,263	88.2
US inc. DC	2,967	41.5	33	1.1	132	4.4	77	2.6	368	12.4	2,149	74.4	2,099	71.8	1,006	33.9	2,425	82.2
US Territories ⁷	--6	--6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	--6	--6	--6	--6
Non-US-born ⁸	4,170	58.4	14	0.3	60	1.4	91	2.2	397	9.5	2,712	66.8	2,573	62.9	1,599	38.4	3,836	92.4
Hispanic	13,748	19.9	253	1.8	941	6.8	214	1.6	1,181	8.6	10,277	76.2	9,862	72.6	4,269	31.1	11,633	84.9
US inc. DC	5,279	38.4	144	2.7	472	8.9	99	1.9	521	9.9	3,970	77.1	3,946	75.7	1,485	28.1	4,203	79.9
US Territories ⁷	1,733	12.6	36	2.1	156	9.0	35	2.0	162	9.3	1,310	76.7	1,251	72.5	570	32.9	1,408	81.6
Non-US-born ⁸	6,734	49.0	73	1.1	313	4.6	80	1.2	497	7.4	4,997	75.3	4,665	70.1	2,213	32.9	6,021	89.7
Asian Non-Hispanic	6,411	9.3	9	0.1	29	0.5	45	0.7	504	7.9	5,252	83.1	5,191	81.6	1,868	29.2	5,830	91.0
US inc. DC	1,259	19.6	8	0.6	22	1.7	10	0.8	109	8.7	1,025	82.9	1,041	83.5	316	25.1	1,095	87.2
US Territories ⁷	--6	--6	0	0.0	0	0.0	0	0.0	0	0.0	--6	--6	--6	--6	--6	--6	--6	--6
Non-US-born ⁸	5,148	80.3	--6	--6	7	0.1	35	0.7	395	7.7	4,224	83.1	4,147	81.2	1,549	30.1	4,731	92.0
American Indian Non-Hispanic⁹	224	0.3	--6	--6	9	4.0	--6	--6	16	7.2	186	85.7	168	76.4	63	28.1	193	86.2
US inc. DC	217	96.9	--6	--6	9	4.1	--6	--6	16	7.4	181	86.2	164	77.0	62	28.6	186	85.7
US Territories ⁷	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-US-born ⁸	7	3.1	0	0.0	0	0.0	0	0.0	0	0.0	5	71.4	--6	--6	--6	7	100.0	
Other Non-Hispanic¹⁰	497	0.7	--6	--6	13	2.6	8	1.6	51	10.3	341	71.6	338	70.0	178	35.8	413	83.4
US inc. DC	92	18.5	0	0.0	5	5.4	--6	--6	6	6.5	66	76.7	65	73.9	28	30.4	57	62.0
US Territories ⁷	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	--6	--6
Non-US-born ⁸	405	81.5	--6	--6	8	2.0	7	1.7	45	11.1	275	70.5	273	69.1	150	37.0	356	88.3
Unknown	1,120	1.6	--6	--6	14	1.3	30	2.8	125	11.8	811	82.5	762	77.1	317	30.2	833	80.2

NOTE: All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated.

1. In the column "Births %," the percentages of the race/Hispanic groups (bolded) are based on the state total (including births of unknown race/ethnicity), and the birthplace percentage for the race/ethnicities are based on the total number in race/Hispanic ethnicity category. For all other categories, percentages are based on row totals. 2. Very low birthweight: less than 1,500 grams or 3.3 pounds. 3. Low birthweight: less than 2,500 grams or 5.5 pounds. 4. Based on Adequacy of Prenatal Care Utilization (APNCU) Index. 5. Infant was being breastfed during the hospital stay. 6. Calculations based on 1-4 events are excluded. 7. The category "US Territories" includes women born in Puerto Rico, the US Virgin Islands, and Guam. Approximately 95% of the births in this category were to women born in Puerto Rico. 8. The category "Non-US-born" includes women born outside of the 50 US states, District of Columbia, and the US territories. 9. Mothers who selected American Indian/Alaska Native as their race. 10. Mothers who indicated "Other" as their race.

Table 3. Birth Characteristics by Maternal Ancestry, Massachusetts: 2018

Maternal Ancestry	Births ¹		Teen Births				Low Birthweight ²		Prenatal Care				Late Preterm ⁴		Cesarean Section		Breast-feeding ⁵		Gestational Diabetes ⁶	
			<18 years		<20 Years				Adequate ³		1 st Trimester									
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
State Total	69,098	100.0	388	0.6	1,661	2.4	5,243	7.6	55,160	81.6	54,297	79.7	4,489	6.5	21,710	31.5	59,173	85.9	4,812	7.0
American	31,798	46.0	100	0.3	551	1.7	2,125	6.7	26,701	85.5	26,511	84.3	2,046	6.4	9,786	30.8	27,218	85.8	1,990	6.3
European	8,930	12.9	8	0.1	51	0.6	501	5.6	7,583	86.5	7,619	86.3	523	5.9	2,665	29.8	8,246	92.4	540	6.0
Puerto Rican	4,837	7.0	134	2.8	467	9.7	491	10.2	3,606	76.2	3,527	73.5	368	7.6	1,478	30.6	3,737	77.6	357	7.4
African American	3,201	4.6	38	1.2	139	4.3	396	12.4	2,321	74.2	2,250	71.1	254	7.9	1,068	33.4	2,611	82.1	164	5.1
Dominican	3,089	4.5	42	1.4	167	5.4	271	8.8	2,348	77.7	2,204	72.5	181	5.9	1,155	37.4	2,665	86.8	193	6.3
Asian Indian	2,097	3.0	0	0.0	--7	--7	217	10.3	1,725	83.1	1,730	83.0	152	7.2	740	35.3	1,970	94.0	307	14.6
Brazilian	2,007	2.9	18	0.9	45	2.2	132	6.6	1,489	75.1	1,444	72.6	103	5.1	827	41.2	1,869	93.3	132	6.6
African	1,986	2.9	--7	--7	9	0.5	167	8.4	1,356	69.6	1,296	66.1	115	5.8	771	38.8	1,845	93.5	157	7.9
Portuguese	1,986	2.9	12	0.6	64	3.2	150	7.6	1,642	83.9	1,584	80.5	116	5.8	713	35.9	1,462	73.7	142	7.2
Chinese	1,916	2.8	--7	--7	--7	--7	116	6.1	1,614	85.1	1,637	86.0	115	6.0	445	23.2	1,757	91.7	216	11.3
Haitian	1,569	2.3	--7	--7	17	1.1	184	11.7	1,022	67.1	972	63.4	115	7.3	618	39.4	1,401	89.8	106	6.8
Cape Verdean	1,448	2.1	20	1.4	87	6.0	136	9.4	992	70.7	972	68.6	81	5.6	487	33.6	1,263	87.3	92	6.4
Salvadoran	1,313	1.9	20	1.5	85	6.5	126	9.6	999	76.6	926	70.9	90	6.9	329	25.1	1,176	89.8	74	5.6
Middle Eastern	1,166	1.7	0	0.0	6	0.5	86	7.4	857	74.8	854	73.9	79	6.8	396	34.0	1,086	93.3	93	8.0
Guatemalan	1,142	1.7	29	2.5	101	8.8	70	6.1	813	72.8	729	65.2	75	6.6	258	22.6	967	84.8	86	7.5
Other	1,833	2.7	5	0.3	20	1.1	174	9.5	1,423	83.6	1,423	80.2	145	7.9	626	34.2	942	51.4	137	7.5
Russian	707	1.0	0	0.0	6	0.8	40	5.7	578	83.3	563	80.1	38	5.4	181	25.6	671	94.9	45	6.4
Vietnamese	685	1.0	0	0.0	--7	--7	42	6.1	550	81.8	536	79.2	35	5.1	195	28.5	609	89.0	71	10.4
Cambodian	575	0.8	8	1.4	17	3.0	60	10.5	447	80.0	422	74.2	47	8.2	133	23.1	396	69.0	61	10.6
West Indian Caribbean	549	0.8	--7	--7	21	3.8	59	10.8	396	73.7	367	67.8	45	8.2	191	34.8	513	93.4	39	7.1
Other South American	545	0.8	--7	--7	18	3.3	25	4.6	407	75.8	394	73.0	33	6.1	146	26.8	525	96.5	24	4.4
Mexican	513	0.7	10	1.9	25	4.9	26	5.1	388	77.0	383	75.2	24	4.7	130	25.3	465	90.6	33	6.4
Honduran	453	0.7	8	1.8	31	6.8	46	10.2	318	70.5	312	69.2	44	9.7	104	23.0	393	87.1	20	4.4
Colombian	449	0.6	0	0.0	7	1.6	33	7.3	363	82.3	341	77.0	36	8.0	142	31.6	416	92.7	23	5.1
Native American	380	0.5	--7	--7	15	3.9	32	8.4	295	78.9	266	70.6	24	6.3	114	30.1	312	82.5	27	7.1
Korean	375	0.5	0	0.0	0	0.0	20	5.3	302	81.8	306	82.7	18	4.8	106	28.4	355	94.9	40	10.7

NOTE: All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated. Women may select more than one ancestry groups, therefore totals of all ancestries is greater than the number of births. Since 2009, certain ancestry groups were combined: Lebanese, Iranian, Israeli, and Other Middle Eastern ancestries were combined into "Middle Eastern"; and Nigerian and Other African were combined into "African." 1. In the column "Births," percentages are based on column total (state total of births, including births for which maternal ethnicity is unknown and other). For all other categories, percentages are based on row totals. 2. Low birthweight: less than 2,500 grams or 5.5 pounds. 3. Based on Adequacy of Prenatal Care Utilization (APNCU) Index. 4. Late preterm: 34-36 weeks gestation. 5. Infant was being breastfed during the hospital stay. 6. Gestational diabetes is defined as glucose intolerance found during pregnancy for the first time. It excludes cases with pre-existing diabetes. 7. Calculations based on 1-4 events are excluded.

Figure 1. Trends in the Number of Births by Mother's Age Group, Massachusetts: 1981-2018

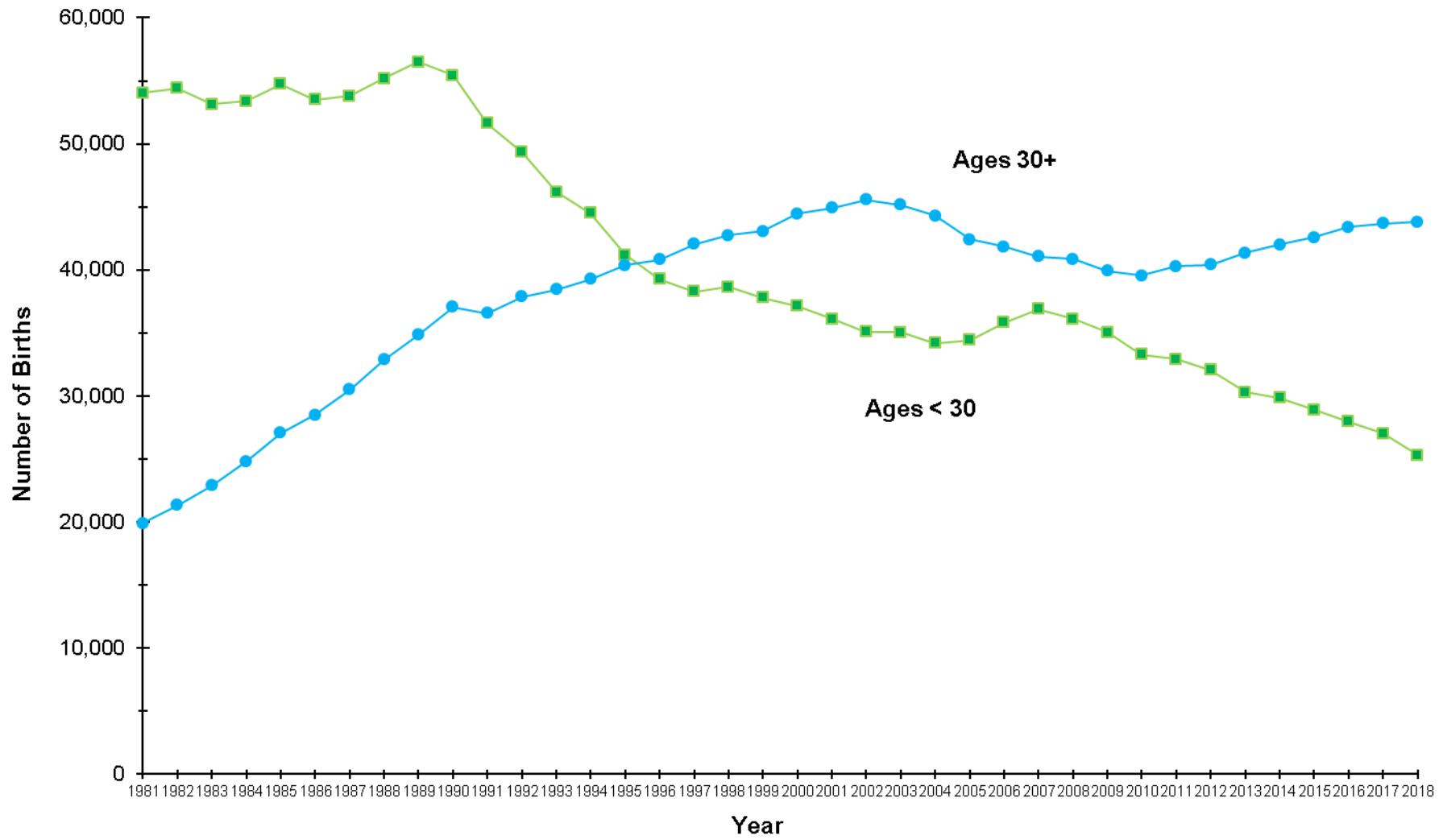


Table 4. Trends in Number and Percent Distribution of Births by Plurality and Maternal Age, Massachusetts: 2004-2018

Age Group	Year	Singletons		Multiples ¹				Total births ²	
		n	%	Twins		Triplets or more		Total Multiples	
				n	%	n	%	n	%
All Ages									
2004	74,677	95.2	3,538	4.5	245	0.3	3,783	4.8	78,460 100.0
2005	73,258	95.4	3,375	4.4	190	0.2	3,565	4.6	76,824 100.0
2006	74,146	95.5	3,375	4.3	149	0.2	3,524	4.5	77,670 100.0
2007	74,498	95.6	3,310	4.2	126	0.2	3,436	4.4	77,934 100.0
2008	73,475	95.5	3,365	4.4	129	0.2	3,494	4.5	76,969 100.0
2009	71,423	95.3	3,386	4.5	157	0.2	3,543	4.7	74,966 100.0
2010	69,508	95.4	3,220	4.4	107	0.1	3,327	4.6	72,835 100.0
2011	69,933	95.6	3,135	4.3	100	0.1	3,235	4.4	73,169 100.0
2012	69,272	95.6	3,093	4.3	90	0.1	3,183	4.4	72,457 100.0
2013	68,363	95.5	3,164	4.4	91	0.1	3,255	4.5	71,618 100.0
2014	68,800	95.7	2,984	4.2	83	0.1	3,067	4.3	71,867 100.0
2015	68,756	96.2	2,671	3.7	57	0.1	2,728	3.8	71,484 100.0
2016	68,660	96.3	2,569	3.6	90	0.1	2,659	3.7	71,319 100.0
2017	68,134	96.4	2,523	3.6	47	0.1	2,570	3.6	70,704 100.0
2018	66,658	96.5	2,368	3.4	72	0.1	2,440	3.5	69,098 100.0
Ages <35									
2004	57,618	96.0	2,229	3.7	142	0.2	2,371	4.0	59,989 100.0
2005	56,380	96.3	2,086	3.6	102	0.2	2,188	3.7	58,569 100.0
2006	57,237	96.3	2,116	3.6	89	0.1	2,205	3.7	59,442 100.0
2007	57,977	96.3	2,144	3.6	87	0.1	2,231	3.7	60,208 100.0
2008	57,080	96.3	2,111	3.6	78	0.1	2,189	3.7	59,269 100.0
2009	55,906	96.1	2,202	3.8	80	0.1	2,282	3.9	58,188 100.0
2010	54,369	96.3	2,018	3.6	58	0.1	2,076	3.7	56,445 100.0
2011	54,837	96.4	2,014	3.5	59	0.1	2,073	3.6	56,910 100.0
2012	54,069	96.4	1,961	3.5	57	0.1	2,018	3.6	56,089 100.0
2013	52,995	96.2	2,025	3.7	54	0.1	2,079	3.8	55,074 100.0
2014	53,166	96.5	1,890	3.4	50	0.1	1,940	3.5	55,106 100.0
2015	52,640	96.9	1,665	3.1	45	0.1	1,710	3.1	54,350 100.0
2016	52,043	96.9	1,601	3.0	47	0.1	1,648	3.1	53,691 100.0
2017	51,258	96.8	1,653	3.1	18	0.0	1,671	3.2	52,929 100.0
2018	49,340	96.9	1,523	3.0	36	0.1	1,559	3.1	50,899 100.0
Ages 35+									
2004	17,055	92.4	1,309	7.1	103	0.6	1,412	7.6	18,467 100.0
2005	16,874	92.5	1,289	7.1	88	0.5	1,377	7.5	18,251 100.0
2006	16,901	92.8	1,257	6.9	60	0.3	1,317	7.2	18,218 100.0
2007	16,519	93.2	1,166	6.6	39	0.2	1,205	6.8	17,724 100.0
2008	16,392	92.6	1,254	7.1	51	0.3	1,305	7.4	17,697 100.0
2009	15,513	92.5	1,184	7.1	77	0.5	1,261	7.5	16,774 100.0
2010	15,136	92.4	1,200	7.3	49	0.3	1,249	7.6	16,385 100.0
2011	15,092	92.8	1,121	6.9	41	0.3	1,162	7.1	16,255 100.0
2012	15,202	92.9	1,132	6.9	33	0.2	1,165	7.1	16,367 100.0
2013	15,367	92.9	1,139	6.9	37	0.2	1,176	7.1	16,543 100.0
2014	15,634	93.3	1,094	6.5	33	0.2	1,127	6.7	16,761 100.0
2015	16,115	94.1	1,005	5.9	12	0.1	1,017	5.9	17,132 100.0
2016	16,617	94.3	968	5.5	43	0.2	1,011	5.7	17,628 100.0
2017	16,875	94.9	870	4.9	29	0.2	899	5.1	17,774 100.0
2018	17,315	95.2	843	4.6	36	0.2	879	4.8	18,194 100.0

1. Numbers of multiples (n) represent individual infants rather than sets of infants. 2. Differences in the number of births from previous publications are the result of updated files.

Table 5. Summary of Selected Teen Birth Characteristics, Massachusetts: 2018

	Ages 15-17		Ages 18-19		Combined Ages 15-19	
	N	% ^{1,2}	N	% ^{1,2}	N	% ^{1,2}
State Total	366	22.3%	1273	77.7%	1639	100.0%
White Non-Hispanic	69	19.0%	390	30.9%	459	28.2%
Black Non-Hispanic	46	12.7%	145	11.5%	191	11.7%
Asian Non-Hispanic	8	2.2%	20	1.6%	28	1.7%
Hispanic	238	65.6%	688	54.5%	926	56.9%
American Indian or Other	--6	--6	20	1.6%	22	1.4%
Birthplace						
US States / D.C.	240	65.6%	830	65.2%	1070	65.3%
Puerto Rico / US Terr.	35	9.6%	120	9.4%	155	9.5%
Non-US-born	91	24.9%	323	25.4%	414	25.3%
Prenatal Care Funding						
Public	307	85.3%	1032	82.0%	1339	82.7%
Private, other	53	14.7%	227	18.0%	280	17.3%
Pregnancy-Related Factors						
Adequacy of Prenatal Care³						
Adequate Total ⁴	208	56.8%	844	66.3%	1052	64.2%
Adequate Intensive	102	27.9%	400	31.4%	502	30.6%
Adequate Basic	106	29.0%	444	34.9%	550	33.6%
Intermediate	35	9.6%	114	9.0%	149	9.1%
Inadequate/None	114	31.1%	284	22.3%	398	24.3%
Unknown	9	2.5%	31	2.4%	40	2.4%
Parity⁵						
1	348	95.1%	1094	86.0%	1442	88.0%
2	17	4.6%	161	12.7%	178	10.9%
3+	--6	--6	17	1.3%	18	1.1%
Smoking during Pregnancy						
Yes	13	3.7%	71	5.8%	84	5.3%
No	341	96.3%	1158	94.2%	1499	94.7%
Birth Outcomes						
Birthweight						
< 500 g	0	0.0%	--6	--6	--6	--6
500-1,499 g	--6	--6	16	1.3%	20	1.2%
1,500-2,499 g	28	7.7%	108	8.5%	136	8.3%
LBW (<2,499 g)	32	8.7%	125	9.8%	157	9.6%
2,500-3,999 g	319	87.2%	1080	84.8%	1399	85.4%
4000+ g	15	4.1%	68	5.3%	83	5.1%
Gestational Age						
< 28 weeks	0	0.0%	10	0.8%	10	0.6%
Preterm (< 37 weeks)	36	9.8%	110	8.6%	146	8.9%
37-42 weeks	330	90.2%	1162	91.4%	1492	91.1%
Plurality						
Singleton	363	99.2%	1257	98.7%	1620	98.8%
Multiple birth	--6	--6	16	1.3%	19	1.2%

NOTE: All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated.

1. For state total row, percentages are based on total births to females ages 15-19. For the rest of the table, percentages are based on births for a given age group and characteristic. 2. Percentages are based on state total of the age group. 3. Based on Adequacy of Prenatal Care Utilization (APNCU) Index. 4. Adequate Total = Adequate Basic + Adequate Intensive. 5. Number of live births including the current birth. 6. Calculations based on 1-4 events are excluded.

Table 6. Number and Teen Birth Rates by Race/Hispanic Ethnicity for Selected Communities, Massachusetts: 2018

Municipality ¹	Teen Births		White Non-Hispanic		Black Non-Hispanic		Hispanic	
	N	Rate (95%CI) ^{2,3}	N	Rate (95%CI) ^{2,3}	N	Rate (95%CI) ^{2,3}	N	Rate (95%CI) ^{2,3}
State Total	1,639	7.1 (6.7, 7.4)	459	3 (2.8, 3.3)	191	10.4 (8.9, 11.9)	926	25.7 (24, 27.3)
Chelsea	44	40.1 (28.6, 53.4)	--4	--4	--4	--4	36	40.3 (28.8, 53.6)
Holyoke	45	32.9 (22.7, 45.1)	--4	--4	--4	--4	39	39.1 (27.8, 52.2)
Lawrence	106	32.4 (26.2, 38.5)	--4	--4	--4	--4	100	34 (27.3, 40.7)
New Bedford	88	29.1 (19.5, 40.6)	18	12.4 (6.5, 20.2)	10	29.1 (19.5, 40.6)	56	53.8 (40.4, 69)
Springfield	174	28 (23.8, 32.1)	7	6.4 (2.4, 12.2)	18	15.5 (8.8, 24.1)	147	41.1 (34.4, 47.7)
Fall River	63	25.3 (16.4, 36)	20	12.9 (6.8, 20.8)	6	34 (23.6, 46.4)	36	67 (52, 84)
Pittsfield	29	23.7 (15.2, 34.2)	19	25.6 (16.6, 36.4)	7	45.8 (33.5, 59.9)	--4	--4
Lynn	62	19.5 (11.8, 29.1)	--4	--4	--4	--4	52	30.7 (20.8, 42.5)
Brockton	57	18.2 (10.8, 27.4)	8	12.1 (6.3, 19.9)	34	19 (11.5, 28.5)	11	25.5 (16.6, 36.3)
Lowell	63	16.1 (9.2, 24.8)	9	6.3 (2.4, 12)	--4	--4	41	38.7 (27.5, 51.8)
Fitchburg	25	15.9 (9, 24.6)	6	6.9 (2.7, 12.9)	--4	--4	19	36.4 (25.5, 49.1)
Haverhill	26	14.8 (8.2, 23.2)	13	12.2 (6.4, 20)	--4	--4	12	23.1 (14.7, 33.4)
Marlboro	15	14 (7.7, 22.2)	--4	--4	--4	--4	12	46.3 (34, 60.6)
Chicopee	22	13.2 (7.1, 21.2)	6	6.3 (2.4, 12.1)	--4	--4	13	24 (15.4, 34.5)
Worcester	94	12.6 (6.6, 20.5)	24	7.5 (3.1, 13.7)	10	8.6 (3.8, 15.2)	58	24.7 (15.9, 35.4)
Barnstable	13	12.3 (6.4, 20.1)	5	6.3 (2.4, 12.1)	--4	--4	5	49.6 (36.7, 64.3)
Leominster	13	11.2 (5.7, 18.7)	5	7.2 (3, 13.4)	--4	--4	8	24.8 (16, 35.4)
Taunton	17	10.4 (5.1, 17.6)	9	8 (3.4, 14.4)	--4	--4	5	21.9 (13.7, 32)
Attleboro	13	10.4 (5.1, 17.6)	11	12.7 (6.7, 20.6)	--4	--4	--4	--4
Methuen	17	9.6 (4.5, 16.6)	--4	--4	--4	--4	14	18.8 (11.3, 28.3)
Everett	14	9.5 (4.4, 16.4)	--4	--4	--4	--4	8	14.8 (8.2, 23.2)
Waltham	18	7.5 (3.1, 13.7)	--4	--4	--4	--4	13	27 (17.8, 38.1)
Westfield	13	7.3 (3, 13.4)	8	5.4 (1.9, 10.8)	--4	--4	5	21.6 (13.5, 31.6)
Framingham	17	6.8 (2.7, 12.7)	--4	--4	--4	--4	15	31.2 (21.2, 43)
Boston	162	6.5 (5.5, 7.5)	8	0.8 (0, 3.2)	60	10.9 (5.5, 18.3)	92	17.1 (10, 26.1)

NOTE: The total number of Asian Non-Hispanic teen births in MA in 2018 was 28 for a rate of 1.6/1,000 significantly lower than the state rate of 7.1. Lowell had the largest number of Asian Non-Hispanic teen births at 12 births. The Asian Non-Hispanic teen birth rate in this community was slightly higher than the state.

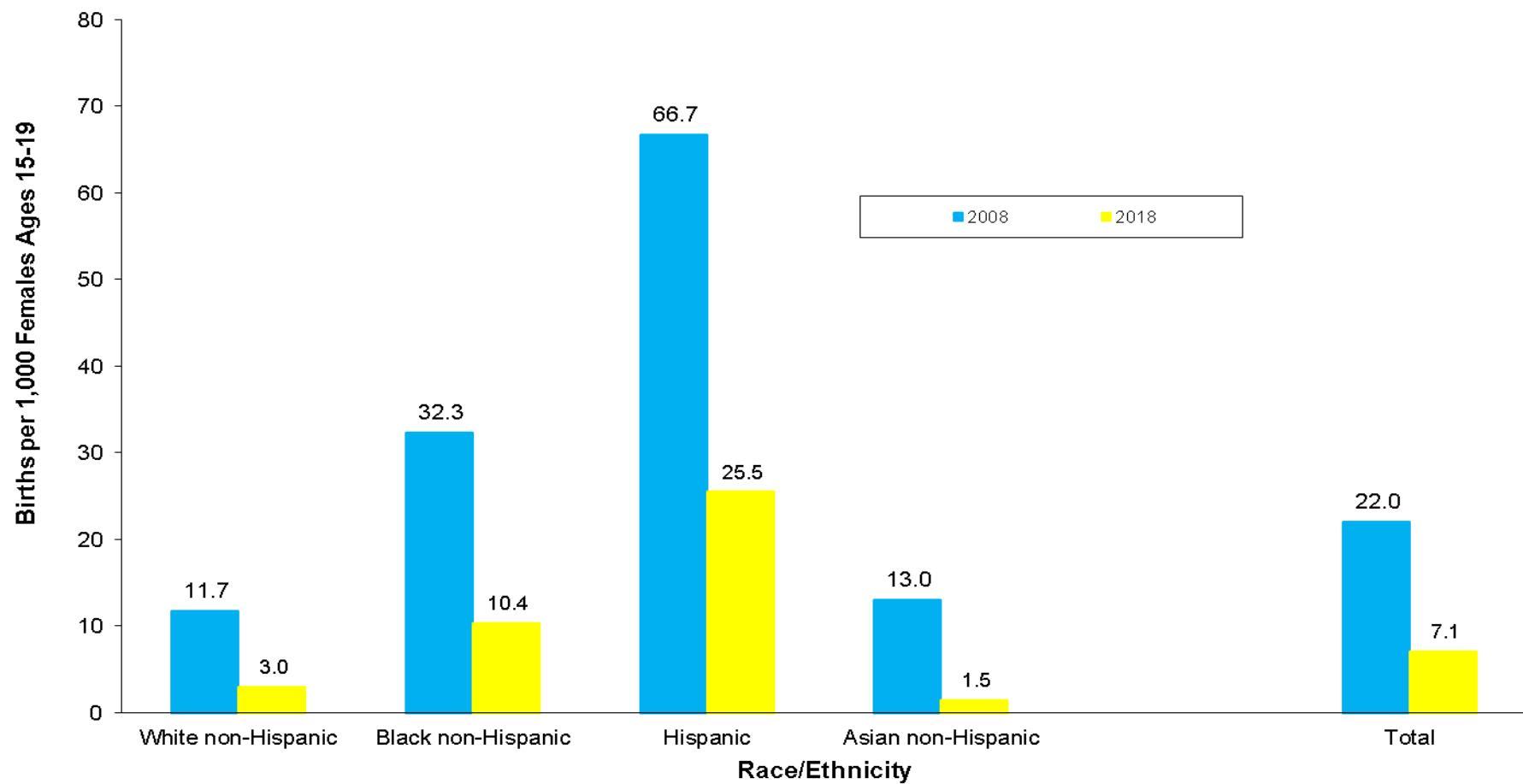
1. Selected communities include the 25 Massachusetts cities and towns with the greatest number of teen births. 2. Rates are per 1,000 females ages 15-19 per city/town. 3. Birth rates for cities and towns were calculated using the Massachusetts Department of Public Health Race Allocated Census 2010 Estimates file (MRACE 2010), which is the most up-to-date information available on the number of persons by age, race, and sex at the sub-state level. **If the population in your community increased from 2010 to 2018, the rates listed may overestimate the actual rate. If the population in your community declined from 2010 to 2018, the rates given in the publication may underestimate the actual rate.** 4. Counts and rates based on counts of 1-4 births are excluded.

**Table 7. Trends in Teen Birth Rates for Selected Communities, Ranked by 2018 Teen Birth Rate,
Massachusetts: 2008, 2017-2018**

2018 Rank	Municipality ¹	2008		2017		2018	
		# Births 15-19	Birth Rate ²	# Births 15-19	Birth Rate ^{2,3}	# Births 15-19	Birth Rate ^{2,3}
	State Total	4,583	20.1	1,827	8.1	1,639	7.1
1	Chelsea	97	97.0	44	36.8	44	40.1
2	Holyoke	174	115.3	40	26.5	45	32.9
3	Lawrence	245	80.9	117	34.5	106	32.4
4	New Bedford	186	62.9	92	30.3	88	29.1
5	Springfield	373	61.4	195	28.5	174	28.0
6	Fall River	159	56.2	67	24.1	63	25.3
7	Pittsfield	60	47.2	21	15.7	29	23.7
8	Lynn	164	53.2	91	28.2	62	19.5
9	Brockton	155	42.6	60	17.9	57	18.2
10	Lowell	193	48.7	65	15.8	63	16.1
11	Fitchburg	60	38.4	35	19.7	25	15.9
12	Haverhill	61	32.0	28	15.6	26	14.8
13	Marlborough	27	27.3	13	12.6	15	14.0
14	Leominster	29	23.1	12	10.2	13	11.2
15	Chicopee	59	33.9	31	16.5	22	13.2
16	Taunton	40	24.5	18	10.3	17	10.4
17	Worcester	256	36.4	110	14.2	94	12.6
18	Attleboro	30	26.4	7	5.2	13	10.4
19	Barnstable	31	24.2	14	11.0	13	12.3
20	Methuen	30	22.6	14	8.6	17	9.6
21	Everett	43	40.6	18	13.7	14	9.5
22	Waltham	35	15.0	14	5.9	18	7.5
23	Westfield	38	22.0	8	4.4	13	7.3
24	Framingham	53	27.1	19	8.1	17	6.8
25	Boston	565	28.6	202	7.8	162	6.5

1. Selected communities include the 25 Massachusetts cities and towns with the greatest number of teen births in 2018. Ranking is by 2018 teen birth rate. 2. Rates are per 1,000 females ages 15-19 per city/town. 3. Birth rates for cities and towns were calculated using the Massachusetts Department of Public Health Race Allocated Census 2010 Estimates file (MRACE 2010), which is the most up-to-date information available on the number of persons by age, race, and sex at the sub-state level. 4. Counts and rates based on counts of 1-4 births are excluded. **If the population in your community increased from 2010 to 2018, the rates listed may overestimate the actual rate. If the population in your community declined from 2010 to 2018, the rates given in the publication may underestimate the actual rate.** 4. Birth rates for select cities and towns were calculated using the Massachusetts Department of Public Health Race Allocated Census 2004 Estimates file (MRACE 2004), which is the most up-to-date information available prior to 2010 on the number of persons by age, race, and sex at the sub-state level.

Figure 2. Teen Birth Rates among Females Ages 15-19 Years by Mother's Race/Hispanic Ethnicity, Massachusetts: 2008 and 2018



NOTE: Teen birth rate is number of births to females ages 15-19 per 1,000 females ages 15-19. 2008 birth rates are based upon the 2008 population estimates from the National Center for Health Statistics. 2018 birth rates are based upon UMass Donahue Institute population estimates for 2018.

Table 8. Births by Birthweight, Race/Hispanic Ethnicity, Massachusetts: 2018

Birthweight (in grams)	Total		White Non-Hispanic		Black Non-Hispanic		Hispanic		Asian Non-Hispanic		Other Non-Hispanic		Unknown Race/Ethnicity	
	n	% ¹	n	% ¹	n	% ¹	n	% ¹	n	% ¹	n	% ¹	n	% ¹
State Total	69,098	100.0	40,989	100.0	7,142	100.0	13,748	100.0	6,411	100.0	721	100.0	1,120	100.0
<500	92	0.1	31	0.1	22	0.3	26	0.2	--2	--2	--2	--2	9	0.8
500-999	252	0.4	94	0.2	65	0.9	64	0.5	15	0.2	--2	--2	11	1.0
1,000-1,499	485	0.7	237	0.6	82	1.2	124	0.9	28	0.4	--2	--2	10	0.9
1,500-1,999	1,037	1.5	524	1.3	151	2.1	230	1.7	92	1.4	13	1.8	27	2.5
2,000-2,499	3,377	4.9	1,713	4.3	447	6.3	737	5.4	367	5.7	45	6.3	68	6.4
2,500-2,999	11,950	17.3	5,999	15.1	1,424	20.0	2,708	19.7	1,512	23.6	126	17.5	181	17.0
3,000-3,499	26,425	38.3	14,791	37.1	2,731	38.3	5,482	39.9	2,730	42.6	268	37.2	423	39.8
3,500-3,999	19,291	28.0	12,262	30.8	1,732	24.3	3,448	25.1	1,391	21.7	200	27.8	258	24.3
4,000-4,499	5,222	7.6	3,654	9.2	415	5.8	796	5.8	241	3.8	54	7.5	62	5.8
4,500-4,999	754	1.1	550	1.4	51	0.7	107	0.8	28	0.4	--2	--2	14	1.3
>=5,000	56	0.1	38	0.1	6	0.1	11	0.1	0	0.0	--2	--2	0	0.0
Unknown birthweight	157	0.2	63	0.2	16	0.2	15	0.1	5	0.1	--2	--2	57	5.1
VLBW³ (0-1,499 g)	829	1.2	362	0.9	169	2.4	214	1.6	45	0.7	9	1.3	30	2.8
LBW⁴ (0-2,499 g)	5,243	7.6	2,599	6.4	767	10.8	1,181	8.6	504	7.9	67	9.3	125	11.8
<p>NOTE: Percentages for detailed birthweight rows ("<500" through "Unknown birthweight") are calculated based on births including those with unknown birthweight. Percentages for VLBW and LBW rows are calculated based on births with known birthweight only.</p>														
<p>1. Percentages are based on column totals. 2. Calculations based on values of 1-4 are excluded. 3. Very Low Birthweight (VLBW): less than 1,500 grams (3.3 lbs.). 4. Low Birthweight (LBW): less than 2,500 grams (5.5 lbs.).</p>														

Table 9. Low Birthweight by Plurality and Maternal Age, Massachusetts: 2008-2018

Maternal Age Group (years)	Year	Singleton				Multiples								Total Births							
		Twin		Triplets or more		Total Multiples		VLBW ¹		LBW ²		VLBW ¹		LBW ²		VLBW ¹		LBW ²			
		VLBW ¹	LBW ²	VLBW ¹	LBW ²	VLBW ¹	LBW ²	n	%	n	%	n	%	n	%	n	%	n	%		
All Ages	2008	627	0.9	4,039	5.5	324	9.7	1,803	53.8	55	42.6	113	87.6	379	10.9	1,916	55.1	1,006	1.3	5,955	7.8
	2009	677	1.0	3,886	5.5	276	8.2	1,771	52.7	61	38.9	147	93.6	337	9.6	1,918	54.5	1,014	1.4	5,804	7.8
	2010	643	0.9	3,882	5.6	288	8.9	1,668	51.8	30	28.8	100	96.2	318	9.6	1,768	53.2	961	1.3	5,650	7.8
	2011	629	0.9	3,824	5.6	286	9.2	1,541	49.8	41	41.0	93	93.0	327	10.2	1,634	51.2	956	1.3	5,458	7.6
	2012	585	0.8	3,810	5.5	252	8.2	1,592	51.6	41	45.6	89	98.9	300	7.5	1,731	43.5	878	1.2	5,491	7.6
	2013	596	0.9	3,727	5.5	318	10.1	1,686	53.5	23	25.8	82	92.1	351	8.6	1,825	45.0	937	1.3	5,495	7.7
	2014	605	0.9	3,690	5.4	270	9.1	1,624	54.5	19	22.9	80	96.4	297	7.6	1,763	45.2	894	1.2	5,394	7.5
	2015	627	0.9	3,849	5.6	219	8.2	1,419	53.4	19	34.5	53	96.4	241	6.8	1,528	43.2	865	1.2	5,321	7.5
	2016	596	0.9	3,904	5.7	208	8.1	1,351	52.7	38	42.2	86	95.6	258	6.8	1,514	39.7	842	1.2	5,341	7.5
	2017	575	0.8	3,878	5.7	183	7.3	1,342	53.4	16	34	41	87.2	206	5.9	1,443	41.2	774	1.1	5,261	7.5
	2018	583	0.9	3,860	5.8	210	8.9	1,318	56	36	53	65	96	258	7.5	1,468	43	829	1.2	5,243	7.6
Ages < 35	2008	492	0.9	3,134	5.5	218	10.4	1,181	56.2	34	43.6	70	89.7	252	11.6	1,251	57.4	744	1.3	4,385	7.4
	2009	525	0.9	3,093	5.6	174	7.9	1,187	54.2	36	45.0	76	95.0	210	9.2	1,263	55.6	735	1.3	4,356	7.5
	2010	489	0.9	3,071	5.7	206	10.2	1,059	52.5	22	40.0	51	92.7	228	11.0	1,110	53.5	717	1.3	4,181	7.4
	2011	475	0.9	2,964	5.5	189	9.5	1,034	52.0	31	52.5	54	91.5	220	10.8	1,088	53.2	695	1.2	4,052	7.2
	2012	437	0.8	2,964	5.5	185	9.5	1,066	54.6	34	59.6	57	100	226	8.4	1,168	43.5	656	1.2	4,087	7.3
	2013	433	0.8	2,852	5.4	225	11.2	1,101	54.6	17	32.7	48	92.3	250	9.1	1,202	43.7	675	1.2	4,001	7.3
	2014	460	0.9	2,828	5.3	186	9.8	1,076	57.0	14	28.0	48	96.0	207	7.9	1,173	44.7	660	1.2	3,952	7.2
	2015	476	0.9	2,922	5.6	142	8.6	902	54.5	16	36.4	43	97.7	160	6.7	990	41.8	634	1.2	3,867	7.1
	2016	443	0.9	2,952	5.7	145	9.1	865	54.1	22	46.8	47	100.0	178	6.9	977	37.8	610	1.1	3,864	7.2
	2017	446	0.9	2,920	5.7	122	7.4	924	56.1	3	16.7	14	77.8	132	5.4	992	40.9	571	1.1	3,858	7.3
	2018	396	0.8	2,798	5.7	157	10.3	859	56.6	20	57.1	35	100	188	8	967	40.9	573	1.1	3,692	7.3
Ages 35+	2008	135	0.8	905	5.6	106	8.5	622	49.8	21	41.2	43	84.3	127	9.8	665	51.2	262	1.5	1,570	8.9
	2009	152	1.0	792	5.1	102	8.7	584	49.9	25	32.5	71	92.2	127	10.2	655	52.5	279	1.7	1,447	8.7
	2010	154	1.0	810	5.4	82	6.8	609	50.8	8	16.3	49	100	90	7.2	658	52.8	244	1.5	1,468	9.0
	2011	154	1.0	860	5.8	97	8.8	507	45.9	10	24.4	39	95.1	107	9.3	546	47.6	261	1.6	1,406	8.8
	2012	148	1.0	846	5.6	67	5.9	526	46.5	7	21.2	32	97.0	74	5.7	563	43.5	222	1.4	1,404	8.6
	2013	163	1.1	875	5.7	93	8.2	585	51.6	6	16.2	34	91.9	101	7.7	623	47.6	262	1.6	1,494	9.1
	2014	145	0.9	862	5.5	84	7.7	548	50.2	5	15.2	32	97.0	90	7.1	590	46.3	234	1.4	1,442	8.6
	2015	151	0.9	927	5.8	77	7.7	517	51.7	3	27.3	10	90.9	81	7.0	538	46.3	231	1.4	1,454	8.5
	2016	153	0.9	952	5.7	63	6.5	486	50.3	16	37.2	39	90.7	80	6.5	537	43.8	232	1.3	1,477	8.4
	2017	129	0.8	958	5.7	61	7	418	48.3	13	44.8	27	93.1	74	6.9	451	41.8	203	1.1	1,403	7.9
	2018	187	1.1	1,061	6.1	53	6.3	457	54.5	16	48.5	30	90.9	70	6.4	499	45.7	256	1.4	1,548	8.5

NOTE: Very Low Birthweight (VLBW) births are a subset of Low Birthweight (LBW) births. All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated. 1. Very Low Birthweight (VLBW): less than 1,500 grams (3.3 lbs.). 2. Low Birthweight (LBW): less than 2,500 grams (5.5 lbs.).

Table 10. Births by Gestational Age, Race/Hispanic Ethnicity, Massachusetts: 2018

Gestational Age ¹ (weeks completed)	Total		White Non-Hispanic		Black Non-Hispanic		Hispanic		Asian Non-Hispanic		Other Non-Hispanic ³		Unknown
	n	% ²	n	% ²	n	% ²	n	% ²	n	% ²	n	% ²	n
State Total	69,098	100.0	39,956	100.0	7,142	100.0	13,748	100.0	6,411	100.0	721	100.0	1,120
<20	13	0.02	—4	—4	—4	—4	6	0.04	0	0.0	0	0.0	—4
20-23	96	0.14	37	0.1	26	0.4	21	0.2	—4	—4	—4	—4	6
24-27	257	0.34	94	0.2	72	1.0	64	0.5	16	0.2	—4	—4	8
28-31	552	0.73	287	0.7	84	1.2	124	0.9	35	0.5	7	1.0	15
32-33	760	1.00	388	1.0	109	1.5	193	1.4	37	0.6	11	1.5	22
34-36	4,489	5.64	2,522	6.3	497	7.0	939	6.8	410	6.4	47	6.5	74
37-38	16,162	21.50	8,730	21.9	1,811	25.4	3,492	25.4	1,713	26.7	167	23.2	249
39	23,679	19.44	13,626	34.1	2,292	32.1	4,811	35.0	2,318	36.2	282	39.1	350
40	15,994	13.99	9,710	24.3	1,544	21.6	2,974	21.6	1,391	21.7	143	19.8	232
41	6,763	4.67	4,372	10.9	678	9.5	1,100	8.0	477	7.4	56	7.8	80
42	219	0.16	152	0.4	26	0.4	22	0.2	9	0.1	—4	—4	7
43	5	0.00	—4	—4	—4	—4	—4	—4	0	0.0	0	0.0	0
44+	—4	—4	—4	—4	0	0.0	0	0.0	0	0.0	0	0.0	0
Preterm⁵ (<37)	6,167	8.9	3,331	8.3	789	11.0	1,347	9.8	502	7.8	70	9.7	128
Very Early ⁶ (<28)	366	0.5	134	0.3	99	1.4	91	0.7	20	0.3	5	0.7	17
(28-33)	1,312	1.9	675	1.7	193	2.7	317	2.3	72	1.1	18	2.5	37
Late (34-36)	4,489	6.5	2,522	6.3	497	7.0	939	6.8	410	6.4	47	6.5	74
Term (>=37)	62,825	91.1	36,596	91.7	6,352	89.0	12,400	90.2	5,908	92.2	651	90.3	918
Early Term (37-38)	16,162	23.4	8,730	21.9	1,811	25.4	3,492	25.4	1,713	26.7	167	23.2	249
(39-41)	46,436	67.2	27,708	69.4	4,514	63.2	8,885	64.6	4,186	65.3	481	66.7	662
(>=42)	227	0.3	158	0.4	27	0.4	23	0.2	9	0.1	—4	—4	7
Unknown⁷	106		29		—4	—4	—4	—4	—4	—4	0	0.0	74

NOTE: Percentages are calculated based on births with known gestational age only.

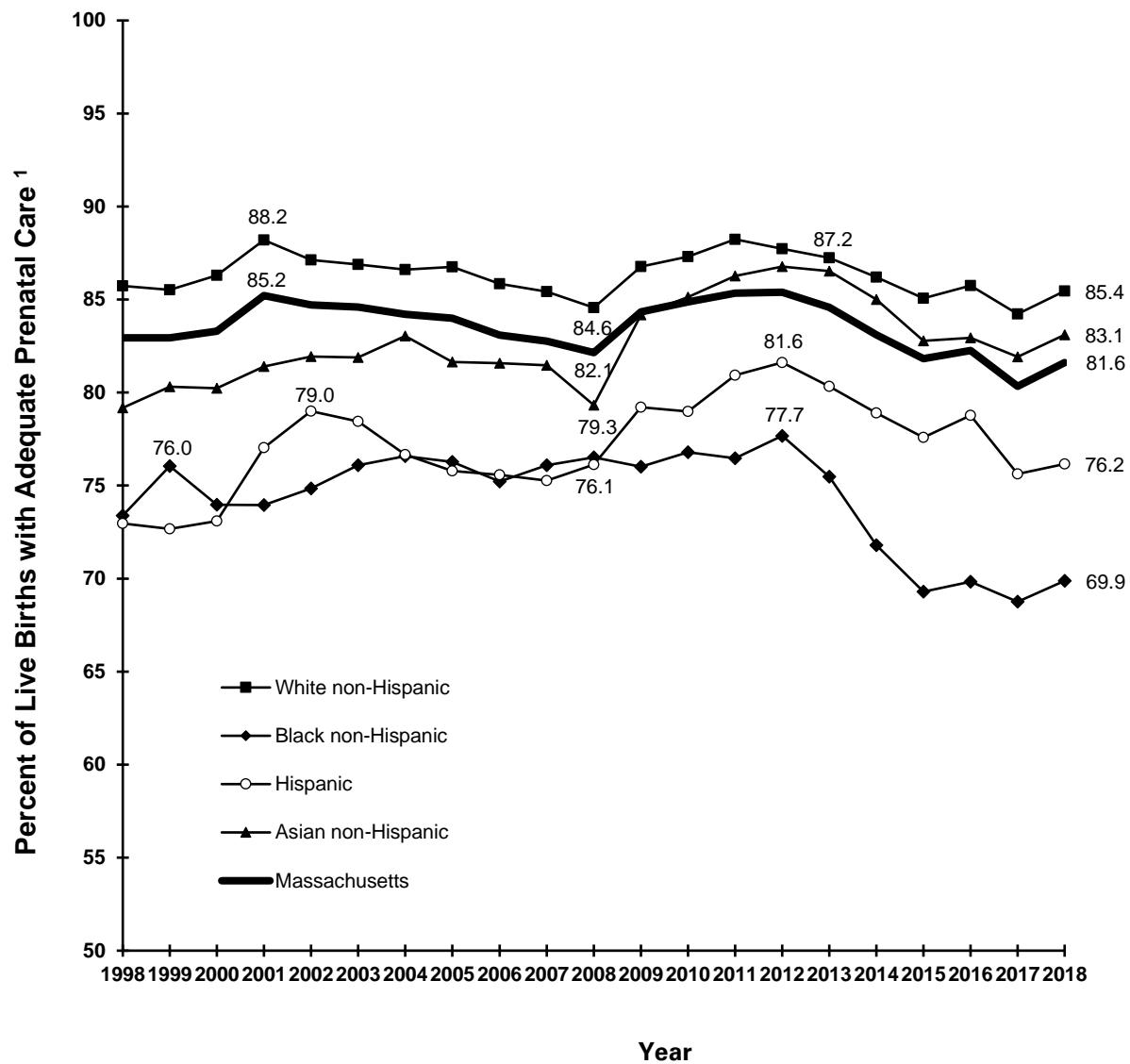
1. A clinical estimate of the number of weeks of pregnancy completed; as estimated by the attendant at birth or the postnatal physician. 2. Percentages are based on column total. 3. Other races include American Indian and others not specified. 4. Calculations based on values of 1-4 are excluded. 5. Also known as early gestational age, premature delivery, or preterm delivery. 6. Also known as extremely premature delivery or extremely preterm delivery. 7. Estimate of gestational age not provided and excluded from percentage calculations.

**Table 11. Percent Preterm and Term Births by Gestational Age Category,
Massachusetts: 2002-2018**

Year	Preterm ¹			Term ²	
	Very Early Preterm (<28 wks)	Moderate Preterm (28-33 wks)	Late Preterm (34-36 wks)	Early Term (37-38 wks)	Full Term (37+ wks)
2002	0.6	1.9	5.9	20.0	91.5
2003	0.7	2.1	6.0	20.8	91.3
2004	0.6	2.2	6.4	22.3	90.8
2005	0.6	2.1	6.3	22.3	91.0
2006	0.6	2.0	6.3	22.7	91.0
2007	0.6	2.0	6.4	22.6	91.0
2008	0.6	2.0	6.2	22.6	91.2
2009	0.7	1.9	6.2	20.8	91.3
2010	0.6	2.0	6.0	21.1	91.4
2011	0.6	1.9	5.9	21.8	91.6
2012	0.6	1.7	6.2	21.5	91.4
2013	0.6	1.9	6.3	21.0	91.2
2014	0.6	1.9	6.1	21.7	91.4
2015	0.6	1.8	6.0	22.5	91.6
2016	0.6	1.8	6.3	22.8	91.3
2017	0.5	1.8	6.6	23.2	91.1
2018	0.5	1.9	6.5	23.4	91.0

1. Also known as early gestational age, premature delivery, or preterm delivery. Preterm: <37 weeks gestation. 2. Full term and early term are not mutually exclusive.

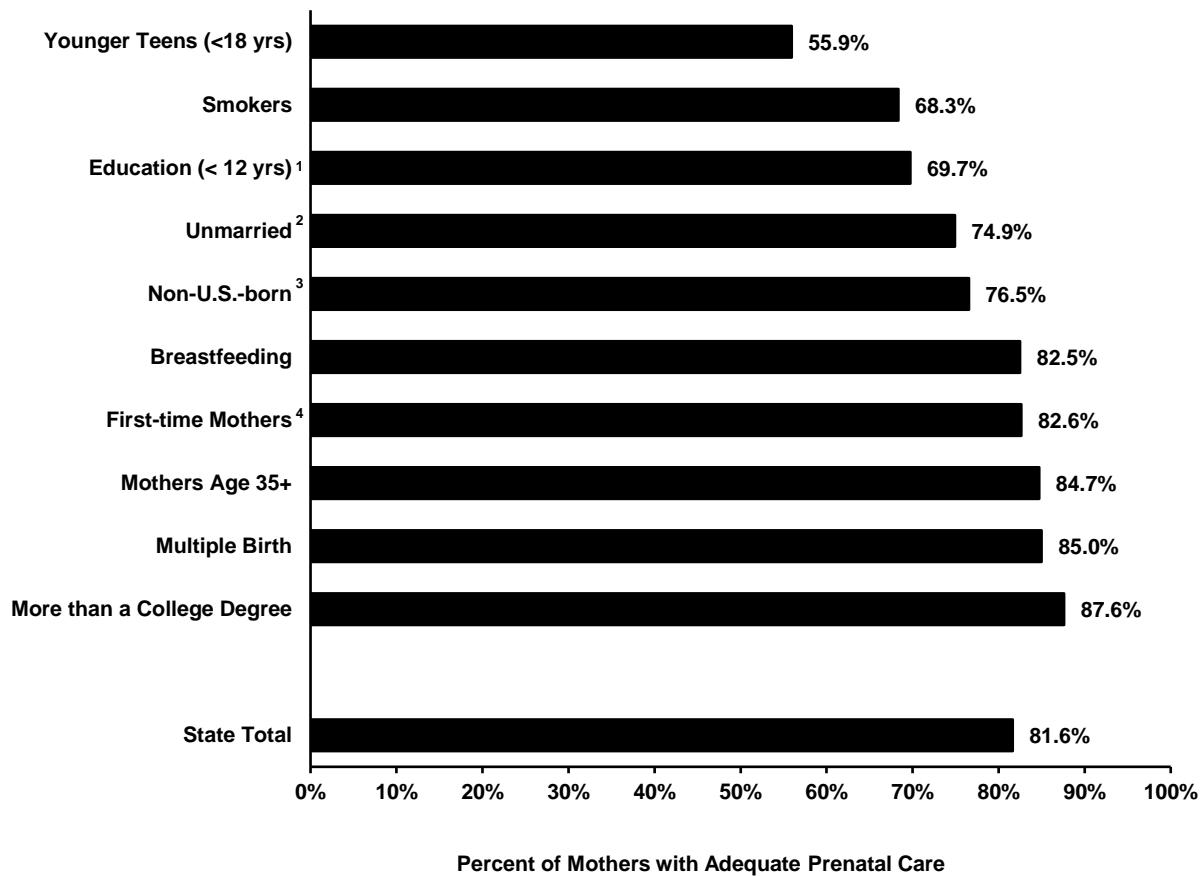
Figure 3. Trends in Adequacy of Prenatal Care^{2,3} by Race/Hispanic Ethnicity, Massachusetts: 1998-2018



NOTE: FOR PURPOSES OF VISUAL REPRESENTATION THE VERTICAL SCALE OF GRAPH REPRESENTS A SMALL INTERVAL (from 50% to 100%).

1. All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated.
2. Adequacy of Prenatal Care Utilization (APNCU) Index is an assessment of the timing and number of prenatal care visits and not an evaluation of the quality of care delivered. Data from Metro West hospital are not included in years 2011 and 2012 because of reporting problems. Data from Newton Wellesley, Saint Vincent, and Winchester hospitals are not included in years 2011-2017 because of reporting problems.
3. Please use caution in interpreting this figure. The birth facility is responsible for collecting prenatal care data reported on the birth certificate. If prenatal care was obtained at a different location, the birth facility may be unable to obtain complete prenatal care data. Missing prenatal care data will impact the APNCU Index.

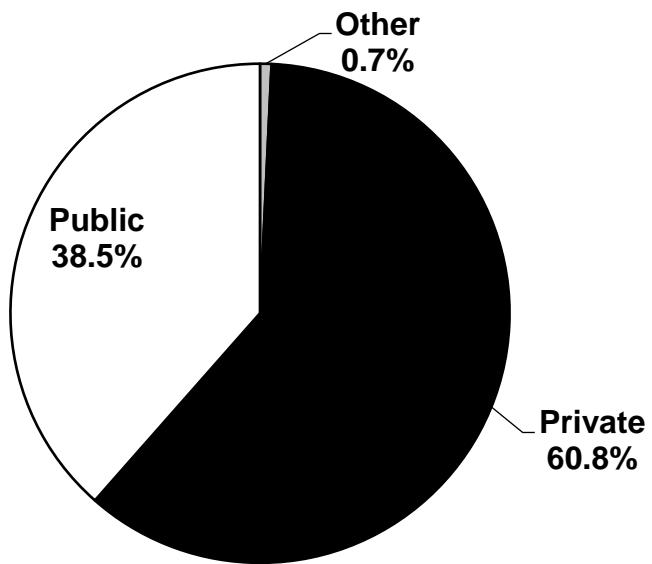
Figure 4. Adequacy of Prenatal Care by Selected Maternal Characteristics, Massachusetts: 2018



NOTE: All percentages are calculated based on the Adequacy of Prenatal Care Utilization (APNCU) Index. Characteristics of interest are not mutually exclusive, except as noted.

1. Women 20 years of age and older. 2. Marital status at time of birth. 3. Non-US-born includes women born outside of the 50 U.S. states, District of Columbia, and U.S. territories (Puerto Rico, U.S. Virgin Islands, Guam). 4. Infant was being breastfed during the hospital stay.

Figure 5. Distribution of Prenatal Care Payment Source, Massachusetts: 2018



NOTE: Sources of Prenatal Care Payment include private: Commercial indemnity plan, commercial managed care (HMO, PPO, IPP, IPA, and other), or other private insurance; public: Government programs including CommonHealth, Healthy Start, Medicaid/MassHealth, and Medicare (may also be HMO or managed care), or free care; and other: self-pay.

Table 12. Resident Birth Characteristics, 30 Largest Municipalities, Massachusetts: 2018

Mother's Race and Ethnicity ⁴									
Municipality ¹	Rank ³	Population	Crude ²	White	Black	Hispanic	Asian ⁵	Very Low Birthweight (<1500 gms.)	Low Birthweight (<2500 gms.)
			Birth rate	Non-Hispanic	Non-Hispanic		or Other	(<1500 gms.)	(<2500 gms.)
					%	%	%	%	%
STATE TOTAL		6,947,185	9.9	57.8	10.3	19.9	10.3	1.2	7.6
Arlington	29	45,680	11.2	62.4	3.3	3.7	28.2	1.2	8.8
Attleboro	28	46,245	10.5	75.8	7.6	9.7	6.8	0.6	6.6
Boston	1	691,548	10.8	40.7	22.8	24.7	9.6	1.4	8.6
Brockton	9	98,454	14.7	17.0	63.3	14.6	4.4	1.9	9.8
Brookline	18	64,077	8.9	59.5	3.2	7.7	27.7	0.5	6.3
Cambridge	5	112,028	10.0	50.8	11.6	8.9	26.0	0.7	6.5
Chicopee	23	56,825	9.3	55.6	7.8	32.3	3.6	1.1	7.6
Everett	27	48,215	12.5	24.6	17.6	45.7	10.8	2.2	8.5
Fall River	11	89,458	12.2	61.0	9.8	22.7	6.2	2.7	8.8
Framingham	14	74,148	12.2	47.2	7.8	30.0	13.0	1.0	8.9
Haverhill	17	65,703	11.6	56.1	4.2	34.9	3.6	1.5	8.3
Lawrence	12	87,151	16.6	6.8	2.2	89.1	1.7	1.5	8.5
Lowell	4	115,969	13.0	28.8	12.4	28.3	30.0	0.8	9.0
Lynn	7	100,315	14.4	22.2	10.6	54.9	7.5	1.6	9.3
Malden	15	67,268	13.0	31.1	18.3	16.2	31.5	0.8	6.8
Medford	21	60,570	11.2	63.5	9.3	9.1	16.1	0.7	5.0
Methuen	26	53,379	10.1	45.9	5.2	42.6	5.9	2.2	7.4
New Bedford	8	99,570	12.8	44.7	14.0	34.2	6.4	1.4	10.1
Newton	10	91,408	7.3	65.5	3.8	5.3	23.7	1.2	7.1
Peabody	25	55,688	9.9	64.5	5.3	18.4	4.0	1.1	10.4
Plymouth	19	62,040	7.5	87.7	3.7	6.0	2.4	0.6	6.1
Quincy	6	100,562	10.8	46.1	8.0	6.1	37.7	0.8	5.8
Revere	20	60,597	12.7	33.9	8.0	45.8	9.7	1.3	8.5
Salem	30	44,879	9.4	55.8	7.1	28.1	4.0	0.9	9.5
Somerville	13	76,133	10.6	62.2	6.3	16.8	13.5	0.9	6.6
Springfield	3	157,276	13.5	17.5	19.4	58.7	4.0	2.1	8.6
Taunton	22	57,381	10.6	64.3	18.7	13.6	2.6	1.3	9.5
Waltham	16	66,267	11.6	47.9	8.2	25.0	17.8	2.1	9.5
Weymouth	24	55,949	11.4	69.9	7.8	5.8	15.2	0.6	6.6
Worcester	2	191,093	12.1	40.0	21.1	29.9	8.4	1.4	8.7

Table 12 (cont'd). Resident Birth Characteristics, 30 Largest Municipalities, Massachusetts: 2018

Births						
Municipality ¹	Gestational Diabetes	Adequate Prenatal Care ⁷	Public Payment for Prenatal Care ⁸	Unmarried	Teen Mothers 15 to 19 years ⁹	
	%	%	%	%	N	Rate
STATE TOTAL	7.0	81.6	38.5	32.6	1,639	8.1
Arlington	5.1	87.7	7.7	4.5	–6	–6
Attleboro	8.0	79.4	18.8	33.1	13	10.4
Boston	4.9	81.1	42.6	35.7	162	6.5
Brockton	7.7	70.8	72.9	54.2	57	18.2
Brookline	5.6	89.4	10.2	7.4	–6	–6
Cambridge	5.7	84.0	17.4	12.8	5	1.4
Chicopee	11.7	78.3	64.3	58.8	22	13.2
Everett	5.5	80.1	69.8	39.6	14	9.5
Fall River	8.4	80.1	71.1	63.1	63	25.3
Framingham	9.4	70.8	47.6	26.5	17	6.8
Haverhill	5.4	79.1	49.3	50.3	26	14.8
Lawrence	7.1	74.0	82.0	62.5	106	32.4
Lowell	8.8	76.0	64.0	53.4	63	16.1
Lynn	5.6	76.9	65.2	45.6	62	19.5
Malden	6.2	80.5	41.4	23.5	11	6.7
Medford	5.4	83.7	21.1	16.9	5	3.0
Methuen	7.1	78.0	49.5	39.4	17	9.6
New Bedford	9.5	77.1	73.0	65.8	88	29.1
Newton	4.5	86.9	10.3	8.7	–6	–6
Peabody	3.6	84.0	28.2	32.2	9	6.8
Plymouth	5.4	89.6	22.7	28.7	5	2.9
Quincy	7.4	85.7	30.0	22.4	–6	–6
Revere	3.0	79.1	63.1	35.5	12	7.1
Salem	3.5	81.3	38.7	35.5	9	5.7
Somerville	5.3	86.0	24.0	21.5	5	3.3
Springfield	9.0	76.9	80.5	71.2	174	28.0
Taunton	8.0	73.8	48.8	49.4	17	10.4
Waltham	4.8	82.9	33.8	25.5	18	7.5
Weymouth	9.4	88.2	21.0	25.4	–6	–6
Worcester	7.5	74.9	60.1	48.2	94	12.6

1. The 30 largest municipalities are the cities/ towns in Massachusetts with the largest populations. 2. Crude birth rates represent the number of births per 1,000 residents (male and female). 3. Rank is by population size. 4. For the category of Mother's Race/Ethnicity, percentages are calculated based on the state total of resident births, including births for which mother's race/Hispanic ethnicity is unknown. 5. Mothers who designated themselves as Non-Hispanic Asian, American Indian, or Other. 6. Counts and calculations based on 1-4 events are excluded. 7. Based on the Adequacy of Prenatal Care Utilization (APNCU) Index. 8. Public payment sources include CommonHealth, Healthy Start, Medicaid/MassHealth, and Medicare (may be HMO or managed care), or free care. 9. Births per 1,000 female residents ages 15-19; rates for cities and towns were calculated using UMass Donahue Institute (UMDI) estimates for 2018.

Table 13. Birth Characteristics by Facility/Location, Massachusetts: 2018

Hospital ⁽¹⁾	Location	(2) Occurrence Births (n)	(3) Low Birthweight (%)	(4) Public Pay for PNC (%)	(5) Adequate Prenatal Care (%)	(6) Early Term (%)	(7) Late Preterm (%)
State Total		69,804	7.5	38.2	81.6	23.4	6.5
Anna Jaques Hospital	Newburyport	704	4.0	20.2	86.5	25.4	5.0
Baystate Franklin Medical Center	Greenfield	404	3.0	41.3	84.4	22.3	3.2
Baystate Medical Center	Springfield	3,964	11.2	58.8	79.9	25.8	8.3
Berkshire Medical Center	Pittsfield	728	6.5	46.9	80.9	19.8	4.7
Beth Israel Deaconess Hospital - Plymouth	Plymouth	827	3.5	26.3	86.4	19.5	4.5
Beth Israel Deaconess Medical Center	Boston	5,350	10.8	22.5	92.9	26.1	7.9
Beverly Hospital	Beverly	2,129	5.7	26.9	83.1	21.1	6.1
Boston Medical Center	Boston	2,820	9.8	83.6	59.0	24.7	7.3
Brigham And Women's Hospital	Boston	6,286	10.1	26.6	87.1	27.2	8.7
Brockton Hospital	Brockton	894	5.6	63.7	86.2	25.4	5.1
Cambridge Birth Center	Cambridge	80	0.0	31.3	81.3	20.0	0.0
Cambridge Hospital	Cambridge	1,068	4.5	68.9	79.8	23.6	3.6
Cape Cod Hospital	Barnstable	793	-8	57.1	71.3	21.4	-8
Charlton Memorial Hospital	Fall River	1,409	6.5	60.3	85.0	17.4	5.9
Cooley Dickinson Hospital	Northampton	513	2.5	43.1	92.8	15.6	2.3
Emerson Hospital	Concord	1,251	4.4	10.0	85.6	20.4	4.6
Fairview Hospital	Great Barrington	138	2.9	43.8	88.3	18.1	3.6
Falmouth Hospital	Falmouth	310	3.2	43.4	75.5	23.2	3.5
Good Samaritan Medical Center	Brockton	1,215	-8	72.4	58.6	22.3	4.8
HealthAlliance Hospital	Leominster	634	4.3	59.4	85.2	20.5	3.2
Heywood Hospital	Gardner	424	3.3	69.8	81.3	21.9	1.4
Holyoke Medical Center	Holyoke	414	4.6	54.4	69.8	27.5	3.1
Lawrence General Hospital	Lawrence	1,420	6.1	74.2	76.9	21.2	5.7
Lowell General Hospital	Lowell	2,186	6.9	53.2	79.3	26.1	6.9
Martha's Vineyard Hospital	Oak Bluffs	136	0.7	60.3	93.8	11.0	1.5
Massachusetts General Hospital	Boston	3,780	9.4	24.2	83.3	22.0	7.9
Melrose-Wakefield Hospital	Melrose	834	-8	28.6	88.5	24.0	-8
Mercy Medical Center	Springfield	1,185	3.1	68.1	84.0	20.3	2.8
Metro West Medical Center-Framingham Union Hospital	Framingham	1,086	6.7	58.0	63.2	26.9	8.1
Milford Regional Medical Center	Milford	842	3.6	36.9	94.4	22.6	4.5
Mt. Auburn Hospital	Cambridge	2,645	3.7	17.3	85.9	18.1	4.7
Nantucket Cottage Hospital	Nantucket	137	2.9	51.5	88.8	16.8	2.9
Newton-Wellesley Hospital	Newton	3,730	4.8	3.0	83.7	22.8	5.4
North Shore Birth Center	Beverly	51	-8	33.3	90.2	29.4	-8
North Shore Medical Center - Salem Hospital	Salem	1,165	5.9	57.1	82.1	25.1	4.5
Norwood Hospital	Norwood	463	-8	26.7	78.1	23.8	-8
Saint Vincent Hospital	Worcester	1,881	4.4	34.7	86.7	23.6	5.9
South Shore Hospital	Weymouth	3,055	6.6	16.4	89.1	22.2	6.7
St. Elizabeth's Medical Center	Boston	915	15.1	41.3	77.1	23.7	10.1
St. Luke's Hospital	New Bedford	1,507	8.2	66.1	79.1	24.8	6.8
Steward Holy Family Hospital	Methuen	1,100	4.3	50.6	76.4	17.5	3.6
Sturdy Memorial Hospital	Attleboro	626	4.8	12.2	77.0	18.5	2.7
Tobey Hospital	Wareham	372	2.7	53.2	88.2	17.2	2.4

Table 13 (cont'd). Birth Characteristics by Facility/Location, Massachusetts: 2018

Hospital ⁽¹⁾	Location	(2) Occurrence Births (n)	(3) Low Birthweight (%)	(4) Public Pay for PNC (%)	(5) Adequate Prenatal Care (%)	(6) Early Term (%)	(7) Late Preterm (%)
Tufts Medical Center	Boston	1,267	21.8	43.3	82.6	25.8	11.6
UMass Memorial Medical Center	Worcester	4,296	10.5	42.0	74.0	26.0	8.1
Winchester Hospital	Winchester	2,321	5.9	10.6	76.3	23.1	6.0
Other Hospitals		9	12.5	75.0	25.0	33.3	0.0
Home, Enroute & Dr. Off.		440	7.0	25.6	62.2	20.2	5.2

NOTE: All percentages are calculated based on only those occurrence births with known values for the characteristic(s) of interest.

1. A licensed maternity facility is a medical unit licensed by the Commonwealth for the care of women during pregnancy and childbirth.
2. Occurrence births are births that occurred at the facility, regardless of where the mother was a resident.
3. Less than 2,500 grams (5.5 lbs.)
4. Public payment for prenatal care (PNC) includes Medicaid/MassHealth, CommonHealth, Medicare, Healthy Start, other government programs, and free care.
5. Based on the APNCU Index.
6. Birth at 37 or 38 weeks of gestation.
7. Birth at 34 to 36 weeks of gestation.
8. Calculations based on 1-4 events are excluded.

Table 14. Resident Teen Birth Characteristics, 30 Largest Municipalities, Massachusetts: 2018

Municipality ¹	Total Population Rank	Female Population, ages 15-19	Number of Teen Births (Ages 15-19)	Teen Birth Rate ²	Mother's Race/Hispanic Ethnicity (% of teen births)			
					White Non-Hispanic	Black Non-Hispanic	Hispanic	Asian or Other Non-Hispanic ³
State Total		231,245	1,639	7.1	28.2	11.7	56.9	3.1
Arlington	29	1,203	--4	--4	0.0	0.0	0.0	0.0
Attleboro	28	1,248	13	10.4	84.6	--4	0.0	0.0
Boston	1	25,003	162	6.5	5.0	37.3	57.1	--4
Brockton	9	3,138	57	18.2	14.0	59.6	19.3	--4
Brookline	18	1,770	--4	--4	0.0	0.0	0.0	0.0
Cambridge	5	3,496	5	1.4	0.0	--4	--4	0.0
Chicopee	23	1,664	22	13.2	27.3	--4	59.1	--4
Everett	27	1,476	14	9.5	--4	--4	57.1	--4
Fall River	11	2,493	63	25.3	31.7	9.5	57.1	--4
Framingham	14	2,512	17	6.8	0.0	--4	88.2	--4
Haverhill	17	1,760	26	14.8	50.0	0.0	46.2	--4
Lawrence	12	3,275	106	32.4	--4	--4	95.2	0.0
Lowell	4	3,922	63	16.1	14.3	0.0	65.1	20.6
Lynn	7	3,181	62	19.5	--4	--4	86.7	0.0
Malden	15	1,641	11	6.7	45.5	--4	45.5	0.0
Medford	21	1,649	5	3.0	--4	--4	--4	0.0
Methuen	26	1,763	17	9.6	--4	0.0	82.4	0.0
New Bedford	8	3,022	88	29.1	20.5	11.4	63.6	--4
Newton	10	4,887	--4	--4	--4	0.0	0.0	0.0
Peabody	25	1,317	9	6.8	--4	0.0	--4	0.0
Plymouth	19	1,736	5	2.9	--4	--4	0.0	0.0
Quincy	6	1,989	--4	--4	--4	0.0	--4	--4
Revere	20	1,697	12	7.1	--4	0.0	75.0	0.0
Salem	30	1,573	9	5.7	0.0	--4	88.9	0.0
Somerville	13	1,528	5	3.3	--4	0.0	--4	0.0
Springfield	3	6,223	174	28.0	4.0	10.4	85.0	--4
Taunton	22	1,639	17	10.4	52.9	--4	29.4	0.0
Waltham	16	2,401	18	7.5	--4	0.0	72.2	--4
Weymouth	24	1,459	--4	--4	--4	0.0	0.0	0.0
Worcester	2	7,452	94	12.6	25.5	10.6	61.7	--4

Table 14 (cont'd). Resident Teen Birth Characteristics, 30 Largest Municipalities, Massachusetts: 2018

Municipality ¹	Public Payment for Prenatal Care ⁵ (%)	Unmarried (%)	Low Birthweight ⁶ (%)	Preterm ⁷ (%)	Adequacy of Prenatal Care ⁸ (% of teen births)			
					Adequate Intensive	Adequate Basic	Intermediate	Inadequate ⁹
State Total	82.7	93.1	9.6	8.9	31.4	34.4	9.3	24.9
Arlington	--4	--4	0.0	0.0	0.0	0.0	0.0	--4
Attleboro	--4	92.3	0.0	0.0	46.2	--4	--4	--4
Boston	87.4	92.6	9.3	8.7	21.3	31.9	14.4	32.5
Brockton	86.0	96.5	17.5	10.5	27.8	31.5	--4	37.0
Brookline	--4	--4	0.0	0.0	--4	0.0	0.0	0.0
Cambridge	100.0	100.0	0.0	0.0	--4	--4	0.0	--4
Chicopee	95.5	95.5	--4	--4	22.7	50.0	--4	22.7
Everett	71.4	85.7	--4	--4	35.7	42.9	0.0	--4
Fall River	88.9	98.4	15.9	11.1	51.6	25.8	--4	17.7
Framingham	87.5	82.4	--4	--4	--4	35.3	--4	29.4
Haverhill	80.8	96.2	--4	--4	--4	36.0	28.0	20.0
Lawrence	89.6	96.2	9.4	7.5	17.3	37.5	15.4	29.8
Lowell	87.3	93.7	11.1	14.3	29.0	21.0	14.5	35.5
Lynn	86.7	88.7	9.7	9.7	28.8	39.0	--4	27.1
Malden	63.6	81.8	--4	0.0	--4	45.5	0.0	--4
Medford	100.0	100.0	0.0	0.0	--4	--4	0.0	--4
Methuen	82.4	100.0	0.0	--4	--4	35.3	--4	29.4
New Bedford	80.5	90.7	5.7	--4	43.0	32.6	--4	20.9
Newton	--4	--4	0.0	0.0	--4	--4	0.0	0.0
Peabody	87.5	100.0	--4	--4	--4	--4	0.0	--4
Plymouth	--4	--4	0.0	0.0	--4	--4	0.0	0.0
Quincy	--4	--4	0.0	0.0	--4	0.0	--4	--4
Revere	100.0	91.7	0.0	0.0	--4	50.0	--4	--4
Salem	100.0	100.0	--4	--4	--4	--4	0.0	--4
Somerville	--4	--4	0.0	0.0	--4	0.0	--4	--4
Springfield	96.5	94.2	8.6	10.3	28.4	44.4	9.5	17.8
Taunton	58.8	94.1	--4	0.0	--4	33.3	0.0	40.0
Waltham	72.2	88.9	0.0	0.0	--4	50.0	--4	--4
Weymouth	--4	--4	--4	--4	--4	--4	0.0	0.0
Worcester	87.0	94.7	11.7	8.5	31.9	28.7	12.8	26.6

NOTE: All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated.

1. The 30 largest municipalities are the cities and towns in Massachusetts with the largest populations according to the 2010 Census. 2. Birth rates represent the number of births per 1,000 females ages 15-19. Birth rates for cities and towns were calculated using UMASS Donahue Institute (UMDI) population estimates for 2018. 3. Mothers who designated themselves as Non-Hispanic Asian, American Indian, or Other. 4. Counts and calculations based on values of 1-4 are excluded. 5. Government programs including CommonHealth, Healthy Start, Medicaid/MassHealth, and Medicare (may also be HMO or managed care), or free care; other: Worker's Compensation and other sources. 6. Less than 2,500 grams or 5.5 pounds. 7. Less than 37 weeks of gestational age. 8. Based on Adequacy of Prenatal Care Utilization (APNCU) Index. 9. Inadequate includes those mothers with no prenatal care.

Table 15. Adequacy of Prenatal Care Utilization: Summary and Component Indices, Massachusetts: 2018

	Adequate Total ¹		Adequate Intensive		Adequate Basic		Intermediate		Inadequate		Unknown
	n	%	n	%	n	%	n	%	n	%	n
Summary Index											
Adequacy of Prenatal Care Utilization	54,290	81.6	26,630	40.0	27,660	41.6	4,276	6.4	7,937	11.9	1,333
Component Indices											
Adequacy of Initiation	59,085	88.8	20,505	30.8	38,580	58.0	4,031	6.1	3,387	5.1	1,333
Adequacy of Received Services (Visits)	60,687	91.3	31,693	47.7	28,994	43.6	4,840	7.3	976	1.5	1,333

NOTE: All percentages are calculated based on the Adequacy of Prenatal Care Utilization (APNCU) Index.

1. Adequate Total is the sum of Adequate Intensive and Adequate Basic categories.

Table 16. Birth Characteristics by Race/Hispanic Ethnicity and Source of Prenatal Care Payment, Massachusetts: 2018

Race/Ethnicity and Payment Source	Births ¹		Teen Births ²				Birthweight			
			<18 Years		<20 Years		Very Low ³		Low ⁴	
	n	%	n	%	n	%	n	%	n	%
STATE TOTAL⁵	69,098	100.0	388	0.6	1,661	2.4	829	1.2	5,243	7.6
Public	26,313	38.3	321	1.2	1,353	5.1	384	1.5	2,340	8.9
Medicaid ⁶	23,378	34.0	298	1.3	1,252	5.4	339	1.5	2,085	8.9
Other Public ⁷	2,935	4.3	23	0.8	101	3.4	45	1.5	255	8.7
Private⁸	41,538	60.5	52	0.1	269	0.6	401	1.0	2,747	6.6
White Non-Hispanic	39,956	100.0	73	0.2	463	1.2	362	0.9	2,599	6.5
Public	9,275	23.4	48	0.5	300	3.2	96	1.0	732	7.9
Medicaid ⁶	7,824	19.7	44	0.6	276	3.5	77	1.0	613	7.8
Other Public ⁷	1,451	3.7	-- ⁹	-- ⁹	24	1.7	19	1.3	119	8.2
Private⁸	30,077	75.7	23	0.1	156	0.5	250	0.8	1,806	6.0
Black Non-Hispanic	7,142	100.0	47	0.7	192	2.7	169	2.4	767	10.7
Public	4,546	63.9	38	0.8	156	3.4	110	2.4	483	10.6
Medicaid ⁶	4,087	57.5	36	0.9	144	3.5	98	2.4	439	10.7
Other Public ⁷	459	6.5	-- ⁹	-- ⁹	12	2.6	12	2.6	44	9.6
Private⁸	2,374	33.4	6	0.3	31	1.3	49	2.1	244	10.3
Hispanic	13,748	100.0	253	1.8	941	6.8	214	1.6	1,181	8.6
Public	10,093	73.6	222	2.2	842	8.3	153	1.5	889	8.8
Medicaid ⁶	9,325	68.0	205	2.2	781	8.4	140	1.5	816	8.8
Other Public ⁷	768	5.6	17	2.2	61	7.9	13	1.7	73	9.5
Private⁸	3,458	25.2	21	0.6	73	2.1	52	1.5	263	7.6
Asian Non-Hispanic	6,411	100.0	9	0.1	29	0.5	45	0.7	504	7.9
Public	1,592	24.9	7	0.4	21	1.3	11	0.7	132	8.3
Medicaid ⁶	1,435	22.4	7	0.5	20	1.4	11	0.8	125	8.7
Other Public ⁷	157	2.5	0	0.0	-- ⁹	-- ⁹	0	0.0	7	4.5
Private⁸	4,735	73.9	-- ⁹	-- ⁹	8	0.2	33	0.7	361	7.6
Other Non-Hispanic⁹	721	100.0	--⁹	--⁹	22	3.1	9	1.2	67	9.3
Public	425	60.0	-- ⁹	-- ⁹	21	4.9	-- ⁹	-- ⁹	41	9.6
Medicaid ⁶	364	51.4	-- ⁹	-- ⁹	18	4.9	-- ⁹	-- ⁹	34	9.3
Other Public ⁷	61	8.6	0	0.0	-- ⁹	-- ⁹	0	0.0	7	11.5
Private⁸	273	38.6	0	0.0	-- ⁹	-- ⁹	-- ⁹	-- ⁹	23	8.4

Table 16 (cont'd). Birth Characteristics by Race/Hispanic Ethnicity and Source of Prenatal Care Payment, Massachusetts: 2018

Race/Ethnicity and Payment Source	Prenatal Care											
	Adequate ¹¹		Began 1st Trimester		Cesarean Delivery		Breastfeeding ¹²		Smoking ¹³			
	n	%	n	%	n	%	n	%	n	%		
STATE TOTAL⁵	55,160	81.6	54,297	79.7	21,710	31.5	59,173	85.9	2,937	4.4		
Public	19,063	74.0	18,170	70.0	8,335	31.7	21,310	81.2	2,135	8.4		
Medicaid ⁶	16,888	73.8	16,056	69.6	7,365	31.5	18,970	81.4	1,899	8.4		
Other Public ⁷	2,175	75.6	2,114	72.8	970	33.0	2,340	79.9	236	8.2		
Private⁸	35,634	87.3	35,653	86.7	13,056	31.4	37,197	89.7	699	1.7		
White Non-Hispanic	33,432	85.4	33,303	84.4	12,408	31.1	34,008	85.3	2,206	5.6		
Public	7,029	77.6	6,728	73.6	2,907	31.3	6,997	75.6	1,554	17.2		
Medicaid ⁶	5,900	77.3	5,618	72.9	2,465	31.5	5,878	75.3	1,367	17.9		
Other Public ⁷	1,129	79.3	1,110	77.3	442	30.5	1,119	77.4	187	13.1		
Private⁸	26,110	88.4	26,279	88.2	9,355	31.1	26,726	89.0	578	2.0		
Black Non-Hispanic	4,861	69.9	4,673	66.6	2,607	36.5	6,263	88.2	217	3.1		
Public	2,913	65.7	2,768	61.9	1,635	36.0	3,920	86.7	169	3.8		
Medicaid ⁶	2,633	66.1	2,473	61.5	1,458	35.7	3,539	87.1	153	3.8		
Other Public ⁷	280	62.1	295	65.1	177	38.6	381	83.6	16	3.5		
Private⁸	1,903	81.5	1,859	78.9	901	38.0	2,179	92.2	36	1.6		
Hispanic	10,277	76.2	9,862	72.6	4,269	31.1	11,633	84.9	409	3.1		
Public	7,351	74.0	7,001	70.0	3,093	30.7	8,410	83.6	342	3.5		
Medicaid ⁶	6,783	73.9	6,477	70.1	2,813	30.2	7,795	83.9	314	3.5		
Other Public ⁷	568	75.4	524	68.9	280	36.5	615	80.1	28	3.7		
Private⁸	2,860	84.4	2,788	81.6	1,118	32.3	3,096	89.8	56	1.7		
Asian Non-Hispanic	5,252	83.1	5,191	81.6	1,868	29.2	5,830	91.0	51	0.8		
Public	1,218	77.9	1,155	73.2	437	27.4	1,327	83.4	30	1.9		
Medicaid ⁶	1,100	78.1	1,041	73.3	394	27.5	1,185	82.6	29	2.1		
Other Public ⁷	118	76.1	114	72.6	43	27.4	142	90.4	-- ⁹	-- ⁹		
Private⁸	4,005	85.6	4,006	85.1	1,411	29.8	4,438	93.8	18	0.4		
Other Non-Hispanic¹⁰	527	76.0	506	72.0	241	33.4	606	84.3	47	6.8		
Public	294	70.7	277	65.8	137	32.2	367	86.6	35	8.7		
Medicaid ⁶	247	69.0	237	65.7	116	31.9	320	88.2	31	9.0		
Other Public ⁷	47	81.0	40	66.7	21	34.4	47	77.0	-- ⁹	-- ⁹		
Private⁸	227	85.3	224	83.0	94	34.4	228	83.8	10	3.7		

NOTE: All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated.

1. In the "Births" column, percentages are based on race/ethnicity category totals (in column). For all other characteristics, percentages are based on the total number of births for the race/ethnicity by payment source for the row. 2. Teen births include births to female ages less than 20, not just those ages 15-19. 3. Very low birthweight: less than 1,500 grams or 3.3 pounds. 4. Low Birthweight: less than 2,500 grams or 5.5 pounds. 5. Total births do not equal Public + Private because Workers' Compensation, self-paid, and other are in the state total but not shown in the table. 6. Medicaid/MassHealth. 7. Other Public: CommonHealth, Healthy Start, Medicare, other government programs, and free care. 8. Private: commercial indemnity plans or commercial managed care organizations (HMO, PPO, IPP, or IPA). It does not include Self-Paid/Other. 9. Calculations based on values of 1-4 are excluded. 10. Other: Mothers who designated their race as American Indian or "Other." 11. Based on the Adequacy of Prenatal Care Utilization (APNCU) Index. 12. Infant was being breastfed during the hospital stay. 13. Mother reported smoking during pregnancy.

**Table 17. Birth Characteristics: Occurrence and Resident Births,
Massachusetts Municipalities: 2018**

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
STATE TOTAL	69,804	69,098	5,243	6,167	1,639
Abington	0	194	14	19	--
Acton	1	190	8	7	0
Acushnet	0	74	6	7	--
Adams	1	72	8	5	--
Agawam	0	249	18	24	--
Alford	0	0	0	0	0
Amesbury	1	155	10	10	--
Amherst	1	120	11	13	--
Andover	2	264	13	17	0
Aquinnah (Formerly Gay Head)	0	3	0	0	--
Arlington	3	510	45	43	--
Ashburnham	0	46	--	0	--
Ashby	0	30	--	--	0
Ashfield	0	10	0	--	0
Ashland	2	204	14	11	--
Athol	2	124	10	12	5
Attleboro	627	487	32	40	13
Auburn	1	153	5	11	0
Avon	0	41	--	--	0
Ayer	2	88	7	12	--
Barnstable	797	409	31	44	13
Barre	0	55	--	--	--
Becket	0	11	--	--	0
Bedford	0	111	12	11	0
Belchertown	1	122	10	15	0
Bellingham	1	175	12	17	5
Belmont	0	258	13	16	0
Berkley	0	53	6	5	--
Berlin	0	19	--	--	0
Bernardston	0	11	--	--	0
Beverly	2,180	383	20	38	5
Billerica	1	435	45	46	--
Blackstone	1	66	--	--	0
Blandford	0	12	0	--	0
Bolton	0	46	--	--	0
Boston	20,471	7,483	639	753	162
Bourne	2	131	8	12	0
Boxborough	0	41	--	--	0
Boxford	1	78	--	--	0
Boylston	1	43	--	--	0
Braintree	4	380	26	28	--
Brewster	0	49	0	--	--
Bridgewater	0	231	15	18	--
Brimfield	0	24	--	--	0
Brockton	2,117	1,443	141	140	57
Brookfield	0	24	--	--	--
Brookline	4	571	36	30	--

**Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births,
Massachusetts Municipalities: 2018**

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Buckland	1	15	0	0	0
Burlington	0	275	28	29	--
Cambridge	3,806	1,121	73	81	5
Canton	1	262	21	22	--
Carlisle	0	40	--	--	0
Carver	0	103	8	12	--
Charlemont	1	7	0	--	--
Charlton	3	125	6	11	0
Chatham	1	27	--	--	--
Chelmsford	1	343	32	46	--
Chelsea	1	630	48	63	44
Cheshire	1	30	--	--	--
Chester	1	7	0	0	0
Chesterfield	0	14	--	--	--
Chicopee	2	529	40	54	22
Chilmark	0	5	0	0	0
Clarksburg	0	12	--	--	0
Clinton	3	167	12	16	--
Cohasset	0	88	--	--	0
Colrain	1	10	--	--	0
Concord	1,253	89	--	6	0
Conway	2	11	--	--	0
Cummington	1	8	--	0	0
Dalton	1	37	--	--	--
Danvers	1	242	15	25	--
Dartmouth	0	193	17	17	--
Dedham	0	293	16	22	--
Deerfield	0	23	--	--	0
Dennis	1	93	7	10	0
Dighton	1	71	--	--	--
Douglas	0	73	--	--	--
Dover	1	24	--	--	0
Dracut	0	316	18	25	--
Dudley	3	101	--	8	5
Dunstable	0	25	--	--	0
Duxbury	1	121	--	6	--
East Bridgewater	1	149	12	15	--
East Brookfield	0	14	0	--	0
East Longmeadow	3	136	--	6	0
Eastham	0	23	--	--	0
Easthampton	2	108	8	8	--
Easton	1	181	7	11	--
Edgartown	0	56	--	--	0
Egremont	0	3	0	0	0
Erving	0	12	--	0	--
Essex	0	20	0	0	0
Everett	4	602	51	55	14
Fairhaven	1	112	9	10	--
Fall River	1,413	1,091	96	112	63
Falmouth	312	187	9	18	5

**Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births,
Massachusetts Municipalities: 2018**

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Fitchburg	1	454	41	40	25
Florida	0	3	--	0	0
Foxborough	2	176	12	16	--
Framingham	1,090	906	81	86	17
Franklin	2	252	28	27	--
Freetown	1	84	6	10	--
Gardner	426	237	9	10	9
Georgetown	1	71	5	5	--
Gill	0	11	0	0	0
Gloucester	3	248	25	22	6
Goshen	0	4	0	0	0
Gosnold	0	0	0	0	0
Grafton	5	201	12	18	0
Granby	0	32	0	0	0
Granville	0	6	--	0	0
Great Barrington	140	48	5	6	0
Greenfield	408	130	6	5	--
Groton	0	85	7	7	0
Groveland	0	49	--	--	0
Hadley	0	31	--	--	0
Halifax	0	67	6	10	0
Hamilton	2	81	--	--	0
Hampden	0	29	0	--	0
Hancock	0	7	0	0	0
Hanover	2	133	5	10	0
Hanson	0	95	8	14	0
Hardwick	1	19	--	--	--
Harvard	0	30	--	--	0
Harwich	1	79	6	9	--
Hatfield	1	24	--	--	0
Haverhill	2	759	63	76	26
Hawley	0	0	0	0	0
Heath	0	6	0	0	0
Hingham	0	199	7	16	--
Hinsdale	0	15	0	--	0
Holbrook	0	117	12	16	--
Holden	6	165	11	11	--
Holland	0	18	--	--	--
Holliston	0	124	6	6	0
Holyoke	417	516	52	54	45
Hopedale	1	47	--	--	0
Hopkinton	0	146	15	21	0
Hubbardston	1	26	--	--	--
Hudson	3	193	16	16	5
Hull	1	42	--	6	0
Huntington	1	18	--	--	--
Ipswich	0	82	5	6	--
Kingston	1	129	7	5	--
Lakeville	1	74	--	7	--
Lancaster	1	58	--	0	--

**Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births,
Massachusetts Municipalities: 2018**

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Lanesborough	1	24	--	--	0
Lawrence	1,424	1,443	123	134	106
Lee	0	40	--	--	--
Leicester	1	87	10	8	--
Lenox	1	17	--	--	0
Leominster	636	463	37	38	13
Leverett	0	4	--	--	0
Lexington	1	152	8	12	--
Leyden	0	3	0	0	0
Lincoln	2	86	--	6	--
Littleton	1	90	7	5	0
Longmeadow	0	103	--	--	--
Lowell	2,190	1,502	135	135	63
Ludlow	1	147	14	16	--
Lunenburg	0	109	7	11	--
Lynn	2	1,442	134	146	62
Lynnfield	1	115	7	9	0
Malden	4	874	59	57	11
Manchester	0	27	--	--	0
Mansfield	1	215	13	15	--
Marblehead	2	135	7	12	--
Marion	1	23	--	--	0
Marlborough	1	481	23	37	15
Marshfield	1	214	6	10	0
Mashpee	0	116	9	7	--
Mattapoisett	1	35	--	6	0
Maynard	1	125	7	8	0
Medfield	1	118	6	6	0
Medford	6	679	34	34	5
Medway	0	106	--	6	0
Melrose	836	382	22	34	5
Mendon	3	56	6	5	0
Merrimac	0	53	0	--	--
Methuen	1,102	538	40	51	17
Middleborough	1	199	18	19	5
Middlefield	0	0	0	0	0
Middleton	0	69	--	6	0
Milford	845	341	27	35	9
Millbury	1	121	10	12	--
Millis	1	86	5	7	0
Millville	1	25	0	0	--
Milton	0	255	13	21	--
Monroe	0	1	0	0	0
Monson	1	52	--	--	--
Montague	1	61	--	--	--
Monterey	0	3	0	0	0
Montgomery	0	5	0	0	--
Mount Washington	0	1	0	--	0
Nahant	0	18	0	--	0
Nantucket	138	157	6	11	6

Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births, Massachusetts Municipalities: 2018

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Natick	4	394	35	46	--
Needham	2	255	16	25	0
New Ashford	0	1	0	0	0
New Bedford	1,511	1,272	129	128	88
New Braintree	0	10	--	0	0
New Marlborough	2	9	0	0	0
New Salem	0	3	0	0	0
Newbury	1	52	--	--	0
Newburyport	705	128	--	12	--
Newton	3,734	663	47	60	--
Norfolk	0	113	7	7	0
North Adams	1	98	12	9	5
North Andover	0	274	23	27	--
North Attleborough	0	232	17	16	--
North Brookfield	0	42	--	8	0
North Reading	1	152	10	11	--
Northampton	519	166	12	11	6
Northborough	1	131	5	9	--
Northbridge	1	141	16	20	--
Northfield	1	17	--	--	--
Norton	0	140	6	12	--
Norwell	0	111	8	10	0
Norwood	466	385	26	32	--
Oak Bluffs	136	38	0	--	0
Oakham	0	14	0	--	0
Orange	2	74	--	--	--
Orleans	0	28	--	--	--
Otis	1	10	0	--	0
Oxford	3	103	8	10	--
Palmer	0	116	7	5	8
Paxton	0	41	5	5	0
Peabody	1	550	57	50	9
Pelham	0	3	--	--	0
Pembroke	2	149	11	11	0
Pepperell	0	98	--	7	--
Peru	0	7	0	0	--
Petersham	0	4	0	0	0
Phillipston	0	14	0	--	0
Pittsfield	732	449	37	44	29
Plainfield	0	3	0	0	0
Plainville	1	96	6	7	0
Plymouth	830	464	28	45	5
Plympton	0	20	0	--	0
Princeton	1	24	--	--	0
Provincetown	1	15	--	--	0
Quincy	1	1,090	63	92	--
Randolph	1	362	34	39	--
Raynham	1	132	8	16	0
Reading	0	275	14	23	0
Rehoboth	0	89	5	7	0

Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births, Massachusetts Municipalities: 2018

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Revere	1	771	65	86	12
Richmond	1	10	--	--	0
Rochester	0	47	7	7	0
Rockland	2	191	13	14	--
Rockport	0	32	8	7	0
Rowe	0	4	--	--	0
Rowley	0	49	--	--	--
Royalston	0	9	--	--	--
Russell	2	18	--	--	--
Rutland	1	92	6	8	--
Salem	1,168	423	40	37	9
Salisbury	0	56	--	5	--
Sandisfield	0	9	0	0	0
Sandwich	2	128	--	6	--
Saugus	0	277	23	31	--
Savoy	0	2	0	0	0
Scituate	1	149	8	12	0
Seekonk	0	110	9	13	--
Sharon	1	136	--	6	0
Sheffield	1	25	--	--	0
Shelburne	0	6	0	0	0
Sherborn	0	20	--	--	0
Shirley	1	43	--	--	0
Shrewsbury	0	328	34	35	--
Shutesbury	0	11	--	0	0
Somerset	0	123	16	15	--
Somerville	3	810	53	69	5
South Hadley	0	120	14	14	--
Southampton	0	41	--	--	0
Southborough	0	86	5	--	0
Southbridge	2	235	28	25	12
Southwick	1	68	7	6	--
Spencer	2	115	8	11	--
Springfield	5,166	2,119	182	211	174
Sterling	0	54	--	--	0
Stockbridge	1	7	0	0	0
Stoneham	0	255	18	22	--
Stoughton	2	337	20	25	5
Stow	0	61	--	--	0
Sturbridge	1	78	--	6	--
Sudbury	0	135	7	7	--
Sunderland	0	27	--	--	0
Sutton	2	83	5	6	--
Swampscott	0	144	--	6	0
Swansea	1	136	6	12	--
Taunton	8	611	58	56	17
Templeton	0	68	--	--	--
Tewksbury	0	300	28	28	--
Tisbury	0	41	--	--	0
Tolland	0	2	0	0	0

Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births, Massachusetts Municipalities: 2018

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Topsfield	0	47	--	--	--
Townsend	0	92	8	8	--
Truro	0	8	0	--	0
Tyngsborough	0	105	7	9	--
Tyngsborough	0	1	0	0	0
Upton	2	65	--	--	0
Uxbridge	2	120	7	11	--
Wakefield	0	310	21	29	--
Wales	0	18	0	--	0
Walpole	1	258	12	21	0
Waltham	2	768	73	89	18
Ware	2	105	10	16	--
Wareham	372	213	26	18	--
Warren	1	41	--	--	--
Warwick	0	4	0	0	0
Washington	0	6	0	0	0
Watertown	1	401	29	27	--
Wayland	0	121	6	10	0
Webster	1	164	16	18	7
Wellesley	1	198	15	16	0
Wellfleet	1	16	--	--	0
Wendell	3	5	--	--	0
Wenham	0	34	0	0	0
West Boylston	1	61	--	--	--
West Bridgewater	1	84	5	6	0
West Brookfield	2	28	--	0	--
West Newbury	0	38	0	0	0
West Springfield	0	312	24	26	6
West Stockbridge	0	6	--	--	0
West Tisbury	0	27	--	--	0
Westborough	0	198	13	16	--
Westfield	1	336	22	30	13
Westford	1	155	13	19	0
Westhampton	1	7	0	0	0
Westminster	5	72	5	7	0
Weston	0	65	--	5	0
Westport	0	82	6	8	--
Westwood	2	115	7	16	0
Weymouth	3,058	637	42	56	--
Whately	0	10	0	0	0
Whitman	0	150	14	22	--
Wilbraham	1	106	7	9	0
Williamsburg	0	17	--	--	0
Williamstown	2	31	--	--	0
Wilmington	3	219	21	28	--
Winchendon	1	98	8	5	6
Winchester	2,322	187	10	16	0
Windsor	0	5	0	0	0
Winthrop	0	186	21	16	--
Woburn	4	454	32	38	--

Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births, Massachusetts Municipalities: 2018

Community	Occurrence Births¹	Resident Births²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Worcester	6,195	2,321	202	223	94
Worthington	0	7	0	0	0
Wrentham	2	109	7	7	0
Yarmouth	0	189	10	13	5

1. Births occurring in a geographical place (state, city/town) regardless of the residency of the mother. 2. Births to mothers who report their usual place of residence as a particular geographical place (state, or city/town). See "Note to Readers" for more details.
-- Due to small numbers (n=1-4), exact count not provided.

Table 18. Birth Characteristics: Occurrence and Resident Births by County, Massachusetts: 2018

County	Occurrence Births ¹	Number of Births	Resident Births ²		
			Low Birthweight ³	Preterm ⁴	Teen Births (15-19 Years)
STATE TOTAL	69,804	69,098	5,243	6,167	1,639
BARNSTABLE	1,118	1,498	93	130	34
BERKSHIRE	886	999	84	88	44
BRISTOL	3,566	5,488	454	512	209
DUKES	136	170	7	7	--
ESSEX	6,599	8,376	651	756	261
FRANKLIN	420	476	25	27	10
HAMPDEN	5,596	4,928	392	456	280
HAMPSHIRE	529	950	80	95	17
MIDDLESEX	15,284	16,586	1,224	1,414	199
NANTUCKET	138	157	6	11	6
NORFOLK	3,555	7,035	456	576	36
PLYMOUTH	3,336	5,029	380	462	92
SUFFOLK	20,473	9,070	773	918	219
WORCESTER	8,167	8,335	618	715	231
UNKNOWN	1	1	0	0	0

1. Births occurring in a geographical place (state, city/town) regardless of the residency of the mother. 2. Births to mothers who report their usual place of residence as a particular geographical place (state, or city/town). See "Note to Readers" for more details. 3. Less than 2,500 grams (5.5 lbs.). 4. Less than 37 weeks gestation 5. Due to small numbers (n=1-4), exact count not provided.

Table 19. Birth Characteristics: Occurrence and Resident Births, Massachusetts Community Health Network Areas (CHNAs), Massachusetts: 2018

Community Health Network Area	Occurrence Births ¹	Number of Births	LBW ³	Resident Births ²	
				Preterm ⁴	Teen Births (15-19 Years)
STATE TOTAL	69,804	69,098	5,243	6,167	1,639
1. Community Health Network of Berkshire County	-5	0	0	0	0
2. Upper Valley Health Web (Franklin County)	886	999	84	88	44
3. Partnership for Health in Hampshire County (Northampton)	422	627	36	41	16
4. The Community Health Connection (Springfield)	528	932	79	94	16
5. Community Health Network of Southern Worcester County	5,174	3,333	260	297	198
6. Community Partners for Health (Milford)	18	1,130	84	105	36
7. Community Health Network of Greater Metro West (Framingham)	861	1,550	113	140	27
8. Community Wellness Coalition (Worcester)	1,110	4,281	292	350	44
9. Fitchburg/Gardner Community Health Network	6,211	3,521	292	329	102
10. Greater Lowell Community Health Network	1,080	2,597	172	192	75
11. Greater Lawrence Community Health Network	2,193	3,181	279	309	73
12. Greater Haverhill Community Health Network	2,528	2,588	203	235	126
13. Community Health Network North (Beverly/Gloucester)	711	1,488	97	120	38
14. North Shore Community Health Network	2,185	954	64	84	13
15. Greater Woburn/Concord/Littleton Community Health Network	1,175	3,346	287	317	84
16. North Suburban Health Alliance (Medford/Malden/Melrose)	3,587	1,934	136	161	7
17. Greater Cambridge/Somerville Community Health Network	851	3,529	229	265	39
18. West Suburban Health Network (Newton/Waltham)	3,813	3,100	213	236	12
19. Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	3,742	2,381	179	235	22
20. Blue Hills Community Health Alliance (Greater Quincy)	20,477	9,641	809	948	220
21. Four (For) Communities (Holyoke, Chicopee, Ludlow, Westfield)	3,534	4,096	258	344	19
22. Greater Brockton Community Health Network	423	1,553	129	155	82
23. South Shore Community Partners in Prevention (Plymouth)	2,122	2,927	242	275	72
24. Greater Attleboro-Taunton Health & Education Response	839	1,686	95	138	14
25. Partners for a Healthier Community (Fall River)	640	2,413	177	208	48
26. Greater New Bedford Health & Human Services Coalition	1,414	1,432	124	147	70
27. Cape and Islands Community Health Network	1,887	2,053	204	206	101

1. Births occurring in a geographical place (state, city/town) regardless of the residency of the mother. 2. Births to mothers who report their usual place of residence as a particular geographical place (state, city/town). See "Note to Readers" for more details. 3. Less than 2,500 grams (5.5 lbs.). 4. Less than 37 weeks gestation. 5. Due to small numbers (n=1-4), exact count not provided.

Figure 6. Percent of Infants whose Mother Smoked During Pregnancy, Massachusetts: 1990 - 2018



Table 20. Cesarean Deliveries and Vaginal Births after Cesarean (VBACs) by Licensed Maternity Facility¹, All Mothers, Massachusetts: 2018

Facility ²	Occurrence Deliveries ³	Total Cesareans		Primary Cesareans ³		Repeat Cesareans ³		VBACs ³	
		N	% ⁴	N	%	N	%	N	%
State Total	66,631	20,431	30.7	11,437	20.4	8,994	85.2	1,562	14.8
Anna Jaques Hospital	565	184	32.6	103	22.2	81	80.2	20	19.8
Baystate Franklin Medical Center	376	101	26.9	59	18.0	42	85.7	7	14.3
Baystate Medical Center	3,695	1,195	32.3	610	20.5	585	81.7	131	18.3
Berkshire Medical Center	701	181	25.8	96	16.2	85	77.3	25	22.7
Beth Israel Deaconess Hospital - Plymouth	816	281	34.4	152	22.8	129	87.2	19	12.8
Beth Israel Deaconess Medical Center	5,148	1,594	31.0	1,001	22.6	593	81.9	131	18.1
Beverly Hospital	2,070	558	27.0	308	17.2	250	90.9	25	9.1
Boston Medical Center	2,753	979	35.6	599	26.2	380	82.1	83	17.9
Brigham And Women's Hospital	5,880	1,943	33.1	1,212	24.0	731	88.1	99	11.9
Brockton Hospital	881	224	25.4	106	14.3	118	84.9	21	15.1
Cambridge Hospital	1,049	297	28.3	161	18.4	136	79.1	36	20.9
Cape Cod Hospital	781	248	31.8	122	19.3	126	84.6	23	15.4
Charlton Memorial Hospital	1,274	368	28.9	180	16.6	188	98.9	--5	--5
Cooley Dickinson Hospital	502	146	29.1	79	18.7	67	83.8	13	16.3
Emerson Hospital	1,202	406	33.8	234	23.3	172	86.4	27	13.6
Fairview Hospital	121	36	29.8	22	20.6	14	100.0	0	0.0
Falmouth Hospital	310	123	39.7	63	25.2	60	100.0	0	0.0
Good Samaritan Medical Center	1,194	389	32.6	184	19.2	205	86.1	33	13.9
HealthAlliance Hospital	622	171	27.5	80	15.1	91	98.9	--5	--5
Heywood Hospital	412	77	18.7	32	8.9	45	83.3	9	16.7
Holyoke Medical Center	409	108	26.4	68	18.9	40	80.0	10	20.0
Lawrence General Hospital	1,330	477	35.9	183	17.8	294	98.0	6	2.0
Lowell General Hospital	2,011	700	34.8	368	22.4	332	91.0	33	9.0
Martha's Vineyard Hospital	134	59	44.0	33	30.6	26	100.0	0	0.0
Massachusetts General Hospital	3,613	992	27.5	623	19.9	369	75.5	120	24.5
Melrose-Wakefield Hospital	810	249	30.7	121	17.7	128	100.0	0	0.0
Mercy Medical Center	1,149	303	26.4	154	15.7	149	88.7	19	11.3
Metro West Medical Center-Framingham Union Hospital	1,073	372	34.7	165	19.5	207	92.0	18	8.0
Milford Regional Medical Center	808	268	33.2	157	23.0	111	89.5	13	10.5
Mt. Auburn Hospital	2,596	646	24.9	417	18.4	229	69.4	101	30.6
Nantucket Cottage Hospital	136	37	27.2	22	18.2	15	100.0	0	0.0
Newton-Wellesley Hospital	3,635	1,019	28.0	590	18.9	429	84.8	77	15.2
North Shore Medical Center - Salem Hospital	1,148	332	28.9	153	16.1	179	91.3	17	8.7

Table 20. Cesarean Deliveries and Vaginal Births after Cesarean (VBACs) by Licensed Maternity Facility¹, All Mothers, Massachusetts: 2018

Hospital	Total	Live Births	Cesarean	VBAC	Percentage Cesarean	Percentage VBAC	Live Births	Percentage Cesarean	Live Births	Percentage Cesarean
Saint Vincent Hospital	1,806	555	30.7	322	21.3	233	78.7	63	21.3	
South Shore Hospital	2,990	1,046	46	551	35.5	22.2	450	87.9	62	12.1
St. Elizabeth's Medical Center	868	304	35.0	183	25.5	121	80.1	30	19.9	
St. Luke's Hospital	1,482	487	32.9	238	19.6	249	93.3	18	6.7	
Steward Holy Family Hospital	881	327	37.1	154	21.8	173	98.9	-5	-5	
Sturdy Memorial Hospital	562	178	31.7	105	22.0	73	86.9	11	13.1	
Tobey Hospital	361	64	17.7	31	9.5	33	100.0	0	0.0	
Tufts Medical Center	1,195	407	34.1	255	25.9	152	72.0	59	28.0	
UMass Memorial Medical Center-Memorial Campus	4,085	1,236	30.3	658	19.6	578	79.5	149	20.5	
Winchester Hospital	2,189	680	31.1	418	22.0	262	90.3	28	9.7	

NOTE: This table is based on mothers and not births. All percentages are calculated based on only those mothers with known values for the characteristic(s) of interest

1. Birth centers are not included in this table. 2. A licensed maternity facility is a medical unit licensed by the Commonwealth for the care of women during pregnancy and childbirth. 3. The percentages provided in this table are based on occurrence births, and may differ from data that are based on resident births presented elsewhere in this book. 4. The percentage of Cesarean births reported is not adjusted for risk factors such as mother's age, birthweight, or complications of labor and delivery, which would influence the number of procedures in a particular facility. Caution should be used when comparing unadjusted percentages. 5. Calculations based on values of 1-4 are excluded.

Figure 7. Maternal Body Mass Index (BMI) Prior to Pregnancy, All Mothers, Massachusetts: 2018

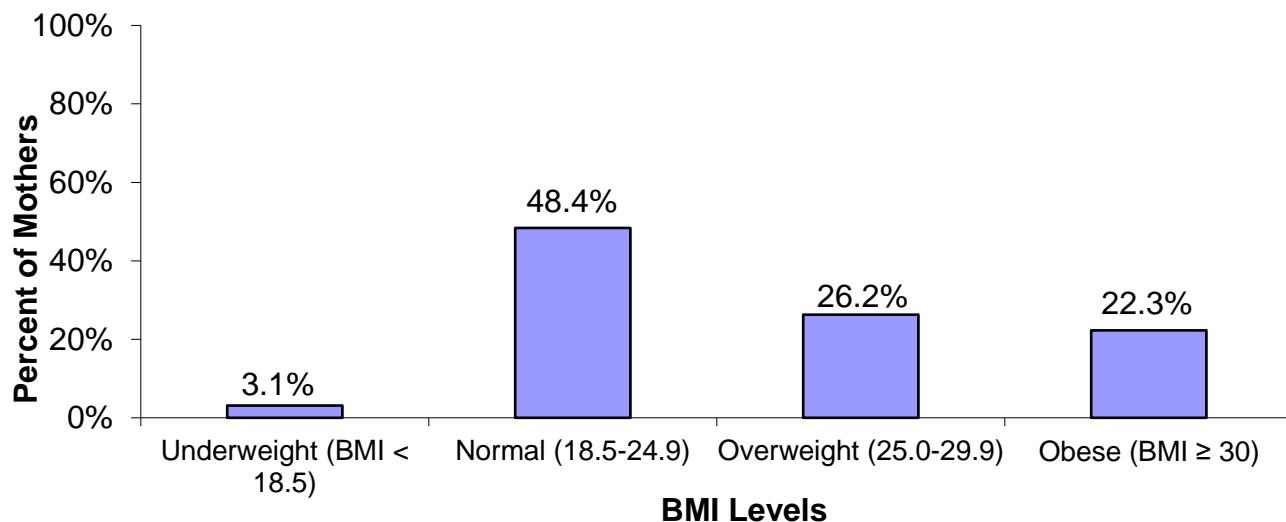
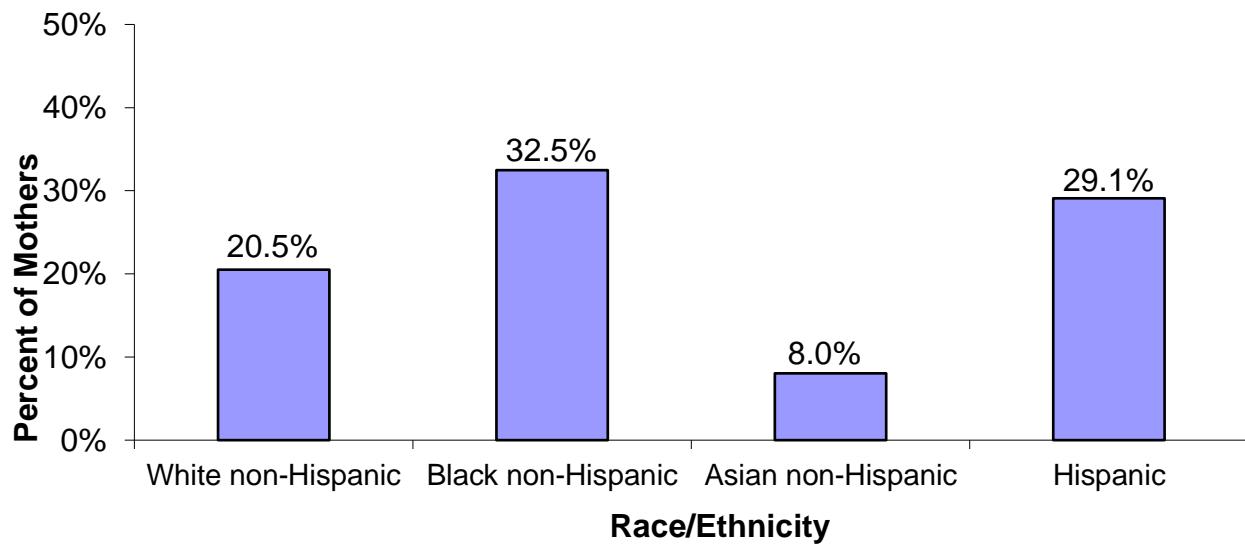


Figure 8. Obesity Prior to Pregnancy by Race/Hispanic Ethnicity, All Mothers, Massachusetts: 2018



NOTE: These figures are based on mothers and not births.

Figure 9. Mothers Who Reported Having Their Teeth Cleaned During Pregnancy by Race/Hispanic Ethnicity, All Mothers, Massachusetts: 2018

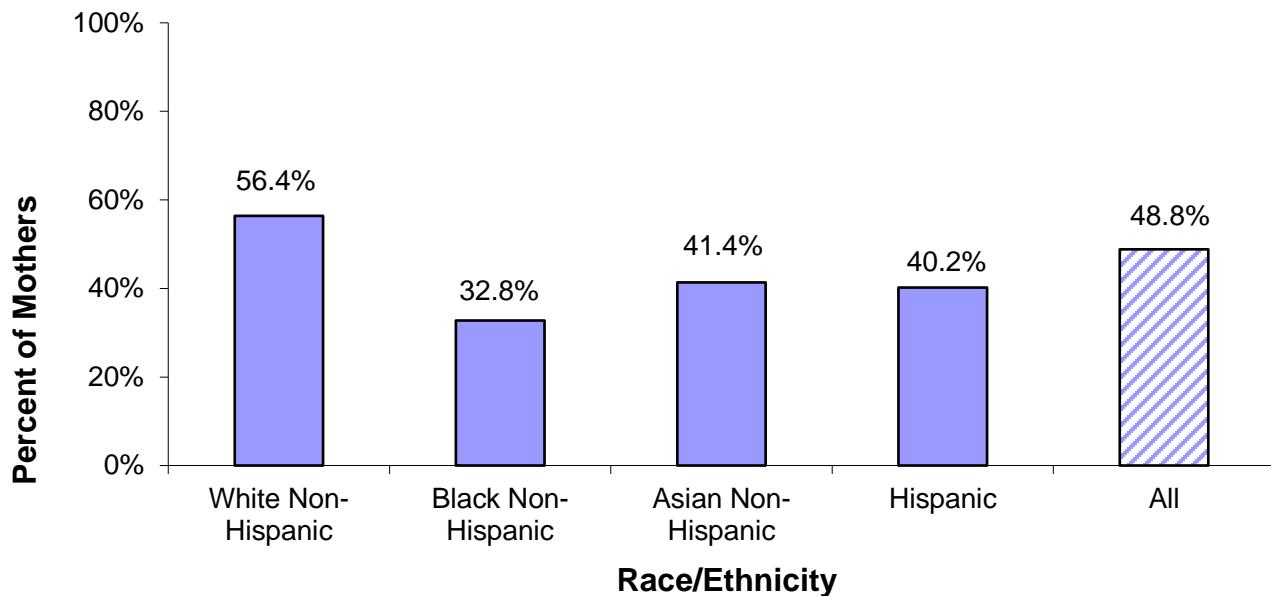
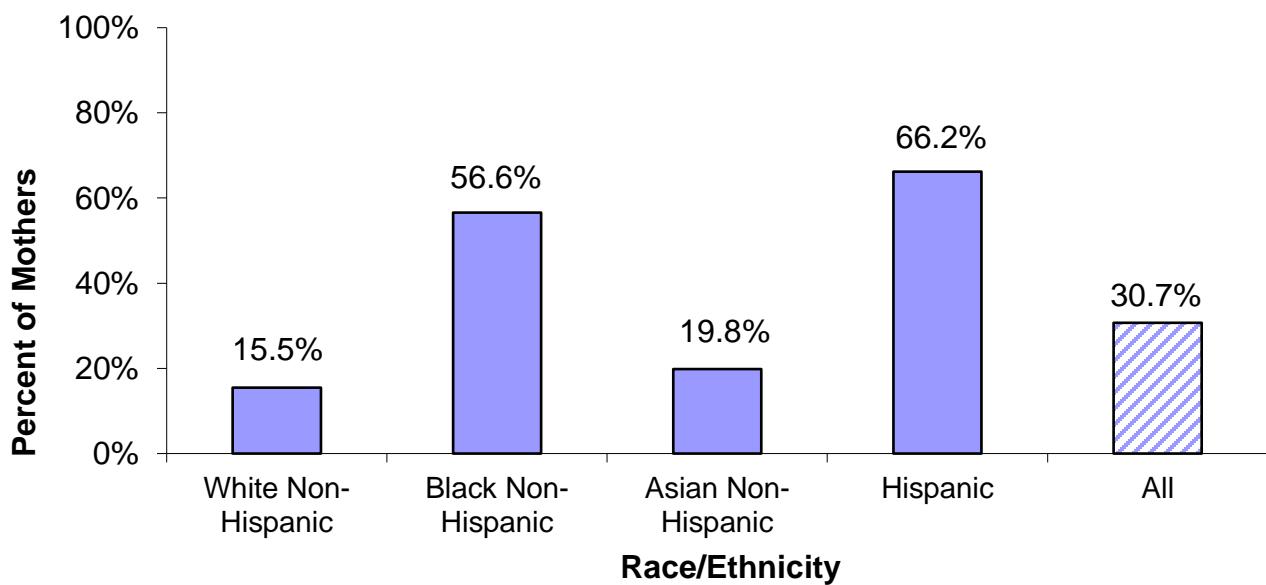
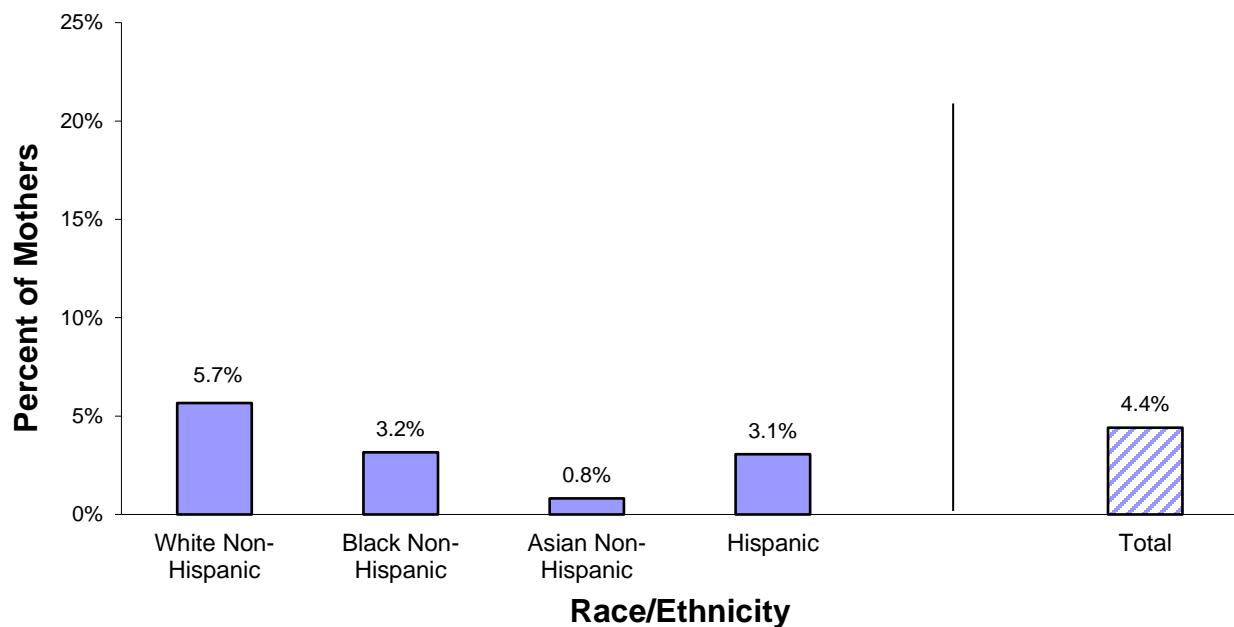


Figure 10. Mothers Who Reported Having Received WIC Food During Pregnancy by Race/Hispanic Ethnicity, All Mothers, Massachusetts: 2018



NOTE: These figures are based on mothers and not births.

Figure 11. Mothers Who Reported Smoking During Pregnancy by Race/Hispanic Ethnicity, All Mothers, Massachusetts: 2018



NOTE: This figure is based on mothers and not births.

Table 21. Mothers Who Used Infertility Treatments, Massachusetts: 2018

	Assisted Reproductive Technology (ART) with or without Artificial Insemination and/or Fertility Drugs ¹		Artificial Insemination with or without Fertility Drugs ²		Fertility Enhancing Drugs Only ³	
	N	% ⁴	N	% ⁴	N	% ⁴
State total	2,627	73.6%	468	13.1%	475	13.3%
Maternal Demographics						
Race/Hispanic Ethnicity	N	%⁵	N	%⁵	N	%⁵
White Non-Hispanic	2,044	78.9%	364	78.8%	356	76.6%
Black Non-Hispanic	86	3.3%	14	3.0%	28	6.0%
Asian Non-Hispanic	303	11.7%	47	10.2%	44	9.5%
Hispanic	148	5.7%	32	6.9%	32	6.9%
American Indian and Other	10	0.4%	5	1.1%	5	1.1%
Birthplace						
US States / D.C. / US Terr.	2,025	77.1%	378	80.8%	354	74.5%
Non-US-born	602	22.9%	90	19.2%	121	25.5%
Prenatal care funding						
Public	129	4.9%	39	8.4%	62	13.2%
Private, other	2,491	95.1%	428	91.6%	408	86.8%
Age						
20-29	151	5.8%	61	13.0%	106	22.4%
30-34	906	34.5%	190	40.6%	216	45.6%
35-39	1,030	39.2%	179	38.2%	125	26.4%
40+	539	20.5%	38	8.1%	27	5.7%
Pregnancy-Related Factors						
Adequacy of Prenatal Care⁶						
Adequate Total ⁷	949	87.3%	162	91.5%	150	83.3%
Adequate Intensive	554	51.0%	90	50.8%	85	47.2%
Adequate Basic	395	36.3%	72	40.7%	65	36.1%
Intermediate	33	3.0%	--9	--9	9	5.0%
Inadequate/None	105	9.7%	12	6.8%	21	11.7%
Parity⁸						
1	1,543	58.8%	311	66.5%	297	62.7%
2	872	33.2%	135	28.8%	149	31.4%
3+	211	8.0%	22	4.7%	28	5.9%
Birth Outcomes						
Gestational age						
<28 weeks (extremely preterm) ¹⁰	24	0.9%	--9	--9	6	1.3%
<37 weeks (preterm) ¹⁰	373	14.2%	63	13.5%	77	16.2%
37+	2,254	85.8%	405	86.5%	398	83.8%
Plurality						
Singleton	2,374	90.4%	435	92.9%	435	91.6%
Multiple birth	253	9.6%	33	7.1%	40	8.4%

NOTE: Beginning in 2014, questions about fertility assistance were asked on both the hospital and mother's worksheets. This table shows combined data from both sources. While asking mothers has increased reporting, it is known that these treatments are still underreported. As such, these numbers should be interpreted with caution. All percentages are calculated based only on mothers with known values for the characteristic(s) of interest, unless otherwise stated. Often women use more than one method of treatment, and the categories presented are mutually exclusive.

NOTE: This table is based on unique mothers and not births.

1. This category includes all women who used ART (typically IVF) and those who used any additional treatments. 2. This category includes women who used artificial insemination (including intrauterine insemination) and those who used fertility drugs in addition. 3. This category includes women who only used fertility drugs. 4. For state total row, percentages are based on total births where infertility treatment was present. 5. Percent is based on state total of the treatment methods. 6. Based on Adequacy of Prenatal Care Utilization (APNCU) Index. 7. Adequate Total = Adequate Basic + Adequate Intensive. 8. Number of live births including the current birth. 9. Numbers and calculations based on 1-4 events are excluded. 10. Categories are not mutually exclusive so percent will add to more than 100%.

Technical Notes

Data Cautions

Limitations of small numbers:

Cells in some tables in this publication, and particularly those tables specific to individual cities and towns, contain small numbers. Rates and proportions based on fewer than five observations are suppressed, and trends based upon small numbers should be interpreted cautiously.

Differences with previously published data:

Numbers and rates in this publication may differ from those in previous reports because of updated birth data, or release of the most up-to-date population estimates for a given year (see Population Denominators for details on population files).

Self-reported data:

Many statistics reported in this publication, such as maternal smoking, education, and race/ethnicity are *self-reported*, and are subject to the usual limitations of this type of information.

Changes in the Collection of Race/Ethnicity Information

The 2003 revision of the Standard Certificate of Live Birth allows the reporting of more than one race (multiple races) for each parent in accordance with the revised standards issued by the Office of Management and Budget (OMB) in 1997.

The revised standards incorporated two major changes designed to reflect the changing racial and ethnic profile of the United States. First, the revision increased from five to twelve - the minimum set of categories to be used for identification of race. The twelve categories for race specified in the 1997 standards are: American Indian or Alaska Native, Asian, Black, Guamanian or Chamorro, Hispanic/Latino/Black, Hispanic/Latino/White, Hispanic/Latino/Other, Native Hawaiian, Samoan, White, Other Pacific Islander and Other. The revised standards called for reporting of Asians separately from Native Hawaiians, Samoan or Other Pacific Islanders.

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.

The revised standards also require federal data collection programs to allow respondents to select *one or more ancestry categories*. The method used to bridge responses for those who report more than one ancestry is based on a procedure whereby multiple ancestries are assigned to each of the ancestries listed.

The following table is from the Parent Worksheet for the birth certificate, which is the self-reported information we use to report on mother's race and ancestry.

2003 Revision

Mother/Parent Race

Please indicate your race(s). *You may choose more than one.*

<input type="checkbox"/> American Indian/Alaska Native (specify tribal nation): _____	<input type="checkbox"/> Hispanic/Latina/Other (specify): _____
<input type="checkbox"/> Asian	<input type="checkbox"/> Native Hawaiian
<input type="checkbox"/> Black	<input type="checkbox"/> Samoan
<input type="checkbox"/> Guamanian or Chamorro	<input type="checkbox"/> White
<input type="checkbox"/> Hispanic/Latina/Black	<input type="checkbox"/> Other Pacific Islander (specify): _____
<input type="checkbox"/> Hispanic/Latina/White	<input type="checkbox"/> Other race not listed (specify): _____

Mother/Parent Ethnicity

Please indicate your ethnic background(s). *You may choose more than one.*

<input type="checkbox"/> African (specify): _____	<input type="checkbox"/> Japanese
<input type="checkbox"/> African-American	<input type="checkbox"/> Korean
<input type="checkbox"/> American	<input type="checkbox"/> Laotian
<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Mexican, Mexican American, Chicano
<input type="checkbox"/> Brazilian	<input type="checkbox"/> Middle Eastern (specify): _____
<input type="checkbox"/> Cambodian	<input type="checkbox"/> Native American (specify tribal nation(s)): _____
<input type="checkbox"/> Cape Verdean	<input type="checkbox"/> Portuguese
<input type="checkbox"/> Caribbean Islander (specify): _____	<input type="checkbox"/> Puerto Rican
<input type="checkbox"/> Chinese	<input type="checkbox"/> Russian
<input type="checkbox"/> Colombian	<input type="checkbox"/> Salvadoran
<input type="checkbox"/> Cuban	<input type="checkbox"/> Vietnamese
<input type="checkbox"/> Dominican	<input type="checkbox"/> Other Asian (specify): _____
<input type="checkbox"/> European (specify): _____	<input type="checkbox"/> Other Central American (specify): _____
<input type="checkbox"/> Filipino	<input type="checkbox"/> Other Pacific Islander (specify): _____
<input type="checkbox"/> Guatemalan	<input type="checkbox"/> Other Portuguese (specify): _____
<input type="checkbox"/> Haitian	<input type="checkbox"/> Other South American (specify): _____
<input type="checkbox"/> Honduran	<input type="checkbox"/> Other ethnicity (ies) not listed (specify): _____

1989 Revision

MOTHER'S RACE Please mark the *one* category that *best describes* the mother's race:

White Black Asian/Pacific Islander American Indian Other (specify) _____

MOTHER's ANCESTRY Please mark the *one* category that *best describes* the mother's ancestry of ethnic heritage:

HISPANIC/LATINA		AFRICAN/AFRICAN AMERICAN
1 <input type="checkbox"/> Puerto Rican	7 <input type="checkbox"/> Other Central American (specify): _____	29 <input type="checkbox"/> African-American/ Afro-American
2 <input type="checkbox"/> Dominican	8 <input type="checkbox"/> Other South American (specify): _____	30 <input type="checkbox"/> Nigerian
3 <input type="checkbox"/> Mexican	9 <input type="checkbox"/> Other Hispanic/Latina (specify): _____	31 <input type="checkbox"/> Other African (specify): _____
4 <input type="checkbox"/> Cuban		
5 <input type="checkbox"/> Colombian		
6 <input type="checkbox"/> Salvadoran		
ASIAN/PACIFIC ISLANDER		MIDDLE EASTERN
10 <input type="checkbox"/> Chinese	17 <input type="checkbox"/> Laotian	32 <input type="checkbox"/> Lebanese
11 <input type="checkbox"/> Vietnamese	18 <input type="checkbox"/> Pakistani	33 <input type="checkbox"/> Iranian
12 <input type="checkbox"/> Cambodian	19 <input type="checkbox"/> Thai	34 <input type="checkbox"/> Israeli
13 <input type="checkbox"/> Asian Indian	20 <input type="checkbox"/> Hawaiian	35 <input type="checkbox"/> Other Middle Eastern (specify): _____
14 <input type="checkbox"/> Korean	21 <input type="checkbox"/> Other Asian/Pacific Islander (specify): _____	
15 <input type="checkbox"/> Filipino		
16 <input type="checkbox"/> Japanese		
PORtUGUESE SPEAKING		AMERICAN ANCESTRY
22 <input type="checkbox"/> Cape Verdean	24 <input type="checkbox"/> Other Portuguese (specify): _____	36 <input type="checkbox"/> Native American/ American Indian (specify tribe/affiliation): _____
23 <input type="checkbox"/> Brazilian		37 <input type="checkbox"/> American
WEST INDIAN/CARIBBEAN ISLANDER		EUROPEAN and OTHER ancestries
25 <input type="checkbox"/> Haitian	28 <input type="checkbox"/> Other West Indian/Caribbean Islander (specify): _____	38 <input type="checkbox"/> European (specify): _____
26 <input type="checkbox"/> Jamaican		39 <input type="checkbox"/> Other (specify): _____
27 <input type="checkbox"/> Barbadian		

Table A1. 2018 Massachusetts Population Estimates by Age Group, Gender, Race/Hispanic Ethnicity (mutually exclusive)

Age Group	Total ¹	White Non-Hispanic	Black Non-Hispanic	Native American Non-Hispanic	Asian Non-Hispanic	Hispanic ²
Female						
<1	35,213	20,418	3,243	59	2,384	7,527
1 to 4	141,228	83,823	13,264	249	10,201	29,234
5 to 9	181,316	104,393	16,492	364	12,673	35,035
10 to 14	197,483	122,926	16,720	316	13,497	34,789
15 to 19	231,245	151,500	18,359	369	17,902	36,070
20 to 24	257,768	167,967	21,824	449	23,130	38,237
25 to 29	253,592	165,936	22,535	614	25,814	39,027
30 to 34	235,427	158,230	19,227	384	25,408	32,315
35 to 39	220,073	143,830	17,684	314	22,646	31,713
40 to 44	206,644	137,126	16,485	277	19,333	28,637
45 to 49	230,236	165,303	16,410	340	17,601	25,714
50+	1,384,909	1,146,607	76,385	2,119	60,717	85,641
All Females	3,575,135	2,568,059	258,630	5,854	251,307	423,939
Male						
<1	37,032	21,310	3,326	69	2,645	7,875
1 to 4	147,529	88,090	13,470	272	10,825	30,136
5 to 9	189,522	108,848	17,141	340	13,590	36,369
10 to 14	205,434	129,249	17,036	331	13,543	36,009
15 to 19	232,756	153,650	18,433	354	16,092	37,560
20 to 24	255,838	166,025	21,393	477	20,664	41,178
25 to 29	260,218	169,231	23,748	696	24,836	42,431
30 to 34	233,025	157,141	19,075	421	21,981	34,332
35 to 39	215,477	141,612	17,247	328	20,260	32,591
40 to 44	197,514	133,125	15,526	264	17,173	27,136
45 to 49	216,184	157,270	15,234	324	15,946	22,899
50+	1,181,523	983,365	61,982	1,985	52,210	69,743
All Males	3,372,050	2,408,917	243,612	5,861	229,764	418,258
State Total						
<1	72,245	41,728	6,570	128	5,029	15,402
1 to 4	288,757	171,914	26,734	521	21,027	59,370
5 to 9	370,838	213,240	33,634	704	26,263	71,403
10 to 14	402,916	252,175	33,756	647	27,040	70,798
15 to 19	464,001	305,150	36,792	724	33,994	73,630
20 to 24	513,606	333,992	43,217	926	43,794	79,415
25 to 29	513,810	335,167	46,283	1,310	50,650	81,458
30 to 34	468,452	315,371	38,302	804	47,389	66,647
35 to 39	435,550	285,442	34,931	642	42,906	64,304
40 to 44	404,159	270,252	32,012	540	36,505	55,773
45 to 49	446,420	322,573	31,644	664	33,547	48,613
50+	2,566,432	2,129,972	138,367	4,104	112,927	155,384
State Total	6,947,185	4,976,976	502,242	11,715	481,071	842,196

1. Population estimates were calculated using UMass Donahue Institute (UMDI) estimates for 2018.

2. Persons of Hispanic ethnicity are NOT included in the race categories. These estimates are used to calculate **statewide population based rates** published in this report.



The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
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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 2018 calendar year.

Sincerely,

A handwritten signature in black ink that reads "Margret R. Cooke".

Margret R. Cooke
Commissioner
Department of Public Health

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

CHARLES D. BAKER
GOVERNOR

KARYN POLITO
LT. GOVERNOR



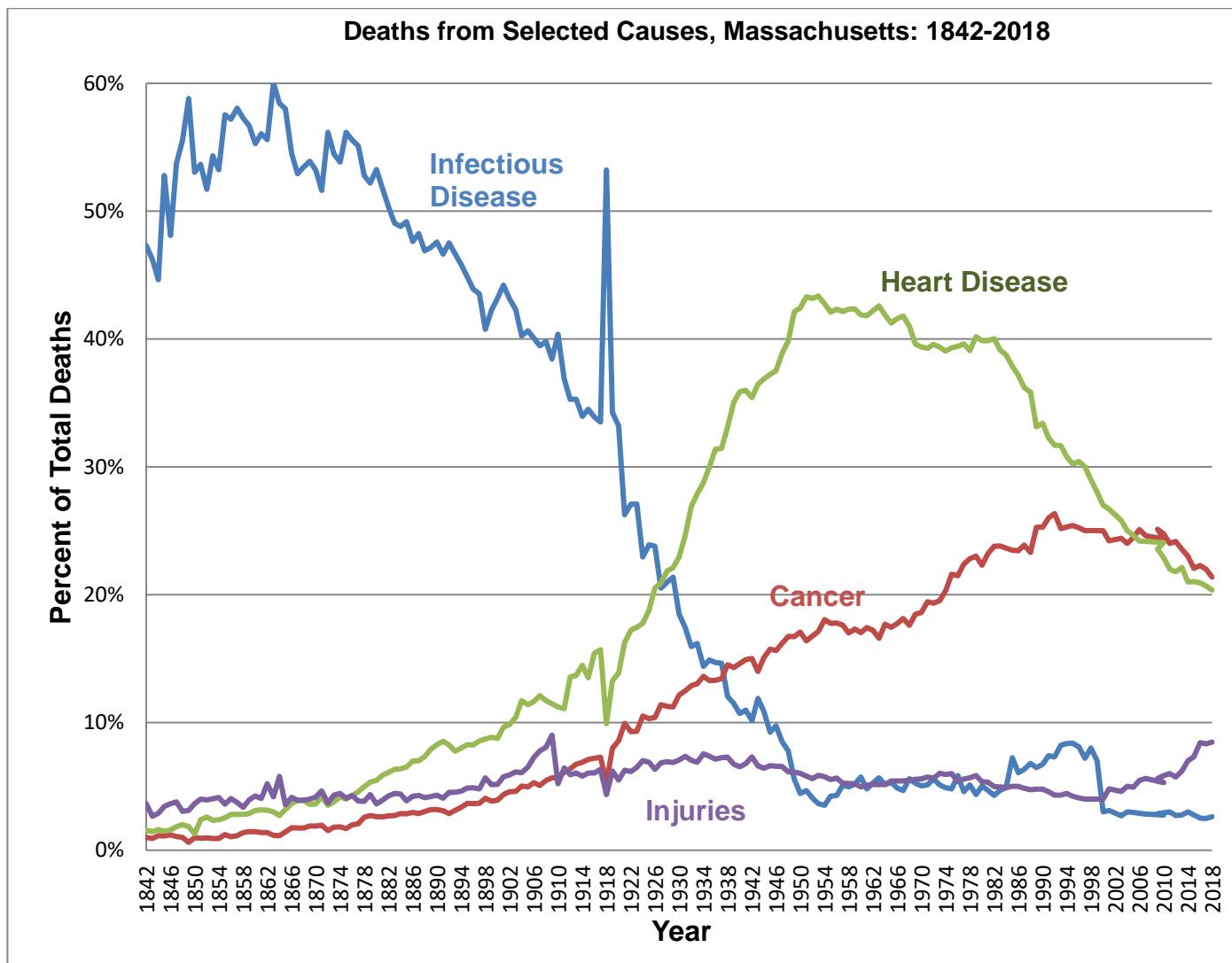
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COMMISSIONER

Massachusetts Deaths 2018

February 2022

Massachusetts Deaths 2018



Office of Population Health

Massachusetts Department of Public Health

February 2022

Massachusetts Deaths 2018



Charles D. Baker, Governor
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Massachusetts Department of Public Health

February 2022

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To obtain additional copies of this report, contact:

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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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2018 Massachusetts Deaths Highlights

- From 2017 to 2018, the age-adjusted mortality rate for Massachusetts residents decreased from 675.7 deaths per 100,000 to 662.8 deaths per 100,000. The age-adjusted mortality rates for White non-Hispanic, Black non-Hispanic, Asian non-Hispanic, Hispanic, and female residents did not change significantly, but the decrease in the rate for male residents was significant (Table 1).
- The average life expectancy of Massachusetts residents was 80.8 years in 2018 (Figure 1). Since 2006, the Massachusetts life expectancy has remained close to 80 years, reaching 80.9 years at its highest in 2012/2013. Hispanic women had the highest life expectancy, living 88.8 years from birth, on average, while the life expectancies for White non-Hispanic women and Black non-Hispanic women were 82.7 and 84.0 years, respectively (Table 3).
- In 2018, the premature mortality rate (which only includes deaths that occur before age 75) remained higher for Black non-Hispanic residents (335.1 deaths per 100,000) than for White non-Hispanic (285.5), Hispanic (242.6), and Asian non-Hispanic (127.1) 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 five times higher death rate than those with more than a high school education. (Table 5).
- Cancer was the leading cause of death for Massachusetts residents in 2018 (Table 6). The rate of cancer deaths was highest for White non-Hispanic residents (146.8 per 100,000) and lowest for Asian non-Hispanic residents (96.6 per 100,000) (Table 9). Lung cancer remained the leading cancerous cause of death (Table 11).
- In 2018, 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 2018, 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 2018, the injury death rate due to poisoning was 33.8 per 100,000 in 2017 and 34.1 per 100,000 in 2018 (Table 18). For all leading causes of injury death, rates were higher for men than for women, with the greatest disparity in poisoning deaths (55.9 per 100,000 for men and 13.6 per 100,000 for women).
- The rate of suicide deaths for White non-Hispanic residents (11.5 per 100,000) was almost double the corresponding rates for other groups (6.1 per 100,000 for Black non-Hispanics, 3.6 per 100,000 for Asian non-Hispanics, and 4.3 per 100,000 for Hispanics) (Table 23).
- In 2018, the rate of infant mortality for Black non-Hispanic residents (8.7 per 1,000 live births) was over two times higher than the corresponding rate for White non-Hispanic residents (3.7 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 (59.8%) and for each race (Tables 31 & 32). Specifically, disorders relating to short gestation and low birthweight accounted for 23.0% 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 2018 (Annual Report Vital Statistics of Massachusetts-Deaths, Public Document #1 2018). The publication of this report was delayed due to both staffing vacancies and the reallocation of available staff in order to provide timely data for COVID-19 mortality reporting. Public Document #1 information on 2018 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 events¹. 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 2018 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 2018 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

¹ This report uses death record data prepared on 11/12/2019. 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 11/12/2019.

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 information on the 2018 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 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.

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 2018. 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 2018 the death worksheet still used the name “Cape Verdean”.

Table 1. Trends in Mortality Characteristics, Massachusetts: 2008-2018

Year		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Resident deaths	Number	53,341	51,915	52,420	53,536	53,169	54,609	55,159	57,785	56,953	58,844	59,169
	Crude rate ^{1,2,3}	820.9	787.4	800.6	812.7	807.1	815.9	817.7	850.5	836.1	849.7	848.1
	Age-adjusted rate ⁴	703.5	675.1	672.7	674.0	669.2	664.1	662.5	684.6	668.9	675.7	662.8
Race/ethnicity of decedent^{5,6}												
White non-Hispanic	Number	49,059	47,520	48,010	48,844	48,430	49,486	49,621	51,688	50,654	52,038	52,196
	Percent ⁷	92.0	91.5	91.6	91.2	91.1	90.6	90.0	89.4	88.9	88.4	88.2
	Age-adjusted rate ⁴	710.7	682.8	684.4	686.9	681.0	680.9	679.5	703.3	687.9	697.1	686.8
Black non-Hispanic	Number	2,222	2,288	2,278	2,333	2,318	2,446	2,390	2,349	2,504	2,636	2,717
	Percent ⁷	4.2	4.4	4.3	4.4	4.4	4.5	4.3	4.1	4.4	4.5	4.6
	Age-adjusted rate ⁴	805.8	812.2	702.6	707.6	701.8	675.5	630.4	589.5	612.4	641.6	625.4
Asian non-Hispanic	Number	692	697	759	806	811	816	938	1,091	1,028	1,165	1,222
	Percent ⁷	1.3	1.3	1.4	1.5	1.5	1.5	1.7	1.9	1.8	2.0	2.1
	Age-adjusted rate ⁴	372.5	353.1	364.8	375.2	372.4	320.5	344.7	371.8	324.7	361.1	351.8
Hispanic	Number	1,275	1,337	1,308	1,477	1,487	1,548	1,702	2,037	2,126	2,372	2,377
	Percent ⁷	2.4	2.6	2.5	2.8	2.8	2.8	3.1	3.5	3.7	4.0	4.0
	Age-adjusted rate ⁴	458.2	439.8	443.9	468.9	484.9	444.9	447.9	493.0	473.2	505.7	480.4
Gender of decedent⁶												
Female	Number	28,246	27,356	27,368	27,983	27,883	28,558	28,289	29,880	28,952	29,665	29,891
	Age-adjusted rate ⁴	595.9	572.8	567.2	572.8	571.1	569.5	557.9	581.2	560.2	563.2	555.1
Male	Number	25,095	24,557	25,051	25,553	25,280	26,051	26,867	27,905	28,000	29,178	29,276
	Age-adjusted rate ⁴	852.2	822.1	811.9	808.5	797.9	786.5	795.9	814.7	804.9	817.9	798.3
Age of decedent												
<1 year	Number	381	366	319	310	309	298	321	310	283	263	291
1-14 years	Number	119	118	113	114	99	118	129	119	115	122	111
15-24 years	Number	421	440	453	471	419	449	441	519	526	501	416
25-44 years	Number	1,906	1,974	1,823	1,870	1,880	1,993	2,234	2,475	2,742	2,788	2,751
45-64 years	Number	8,426	8,688	8,753	8,808	8,791	9,013	9,214	9,348	9,270	9,516	9,350
65-74 years	Number	7,425	7,380	7,423	7,616	7,891	8,259	8,678	9,038	9,332	9,719	9,918
75-84 years	Number	14,970	13,943	13,639	13,598	13,272	13,182	12,784	13,299	12,870	13,272	13,806
85+ years	Number	19,692	19,004	19,888	20,747	20,506	21,296	21,356	22,677	21,813	22,663	22,526

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: 2003-2018**

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

**Table 2 (continued). Selected Leading Causes of Death, Age-Adjusted Rates,
Massachusetts and United States: 2003-2018**

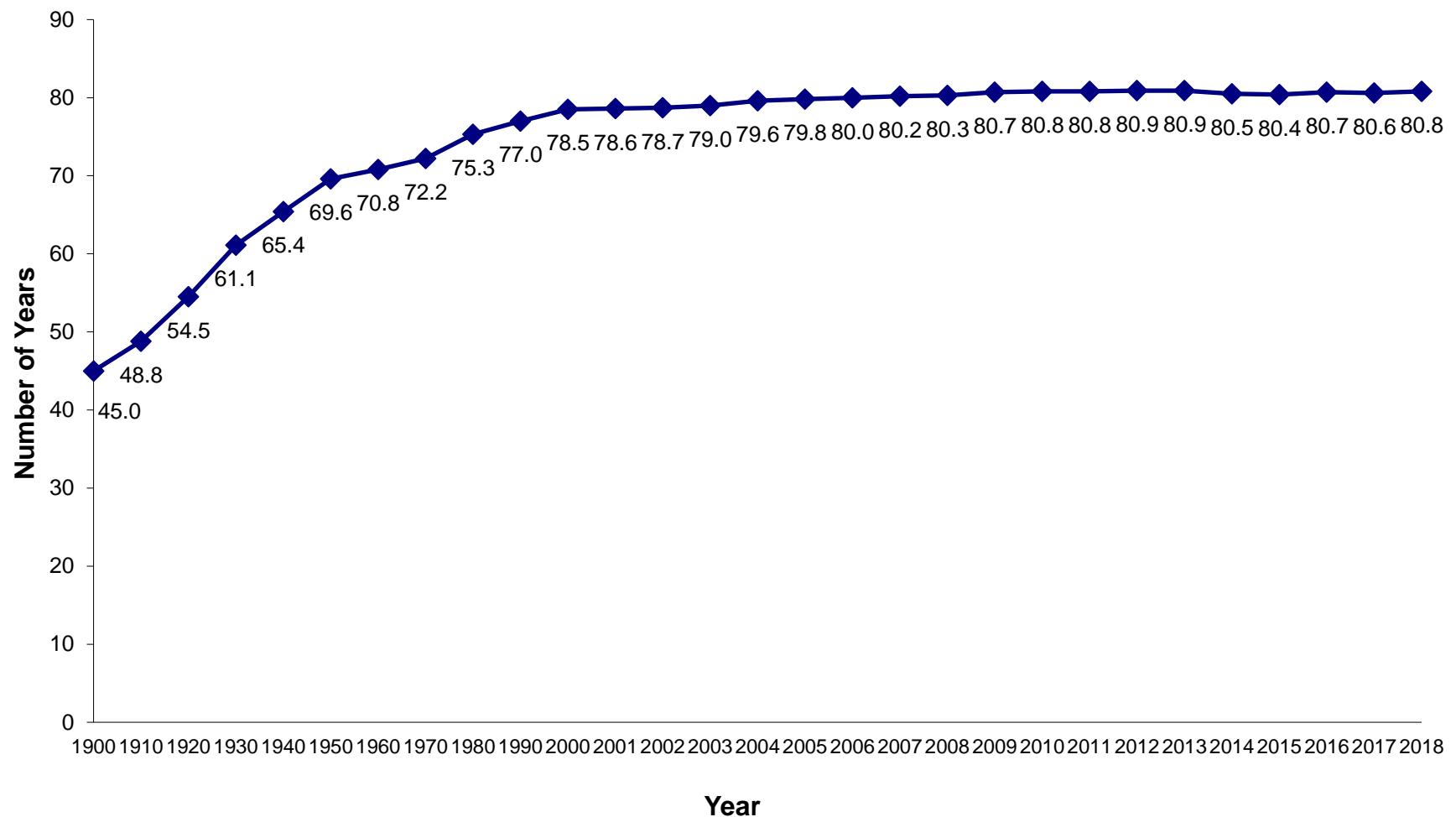
Year	Age-Adjusted Rates ^{1,2}	Influenza/Pneumonia		Unintentional Injuries		All Causes	
		MA	US ³	MA	US ³	MA	US ³
2003	Rate	26.0	22.0	20.1	37.3	772.6	832.7
	% of Total	3.6	2.7	2.5	4.3		
2004	Rate	24.9	19.8	19.4	37.7	739.3	800.8
	% of Total	3.6	2.5	2.5	4.7		
2005	Rate	24.2	20.3	27.4	39.1	720.6	798.8
	% 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 % of Total	15.8 2.4	14.9 2.1	52.8 6.7	48 5.9	662.8	723.6
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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.

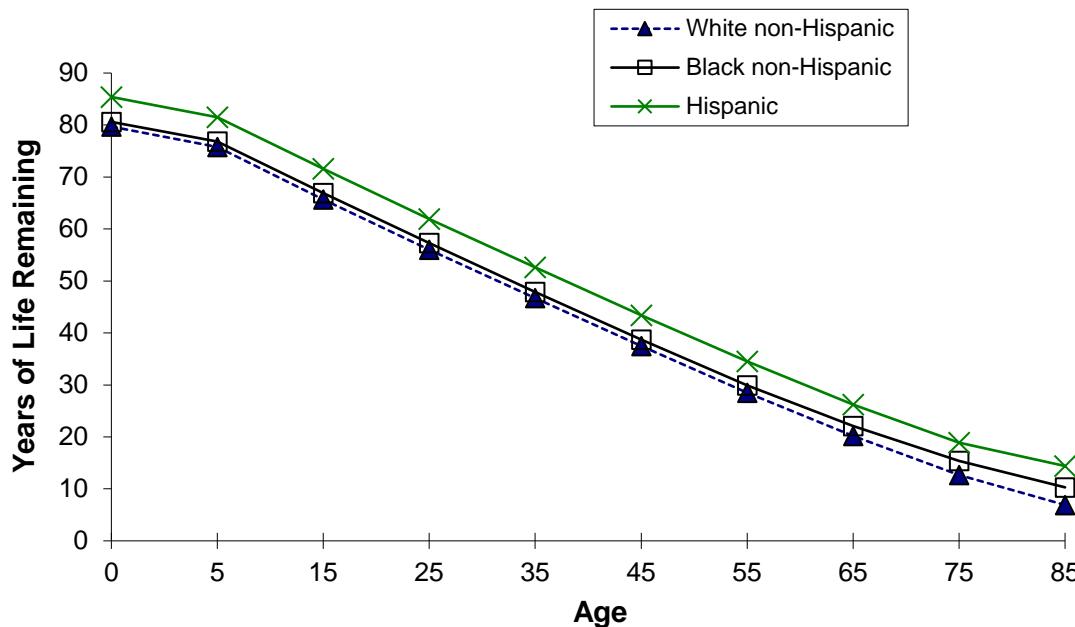
1. Data coded according to ICD-10. ICD-10 codes used in this publication are listed in the Appendix. 2. Rates are age-adjusted per 100,000 residents using the 2000 US standard population. 3. US data for 2018 obtained from NCHS Data Brief Mortality in the United States, 2018. Percentages for the specific causes of death were not available.

Figure 1. Life Expectancy at Birth, Massachusetts: 1900-2018



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 Remaining¹ at Different Ages by Race and Hispanic Ethnicity², Massachusetts: 2018



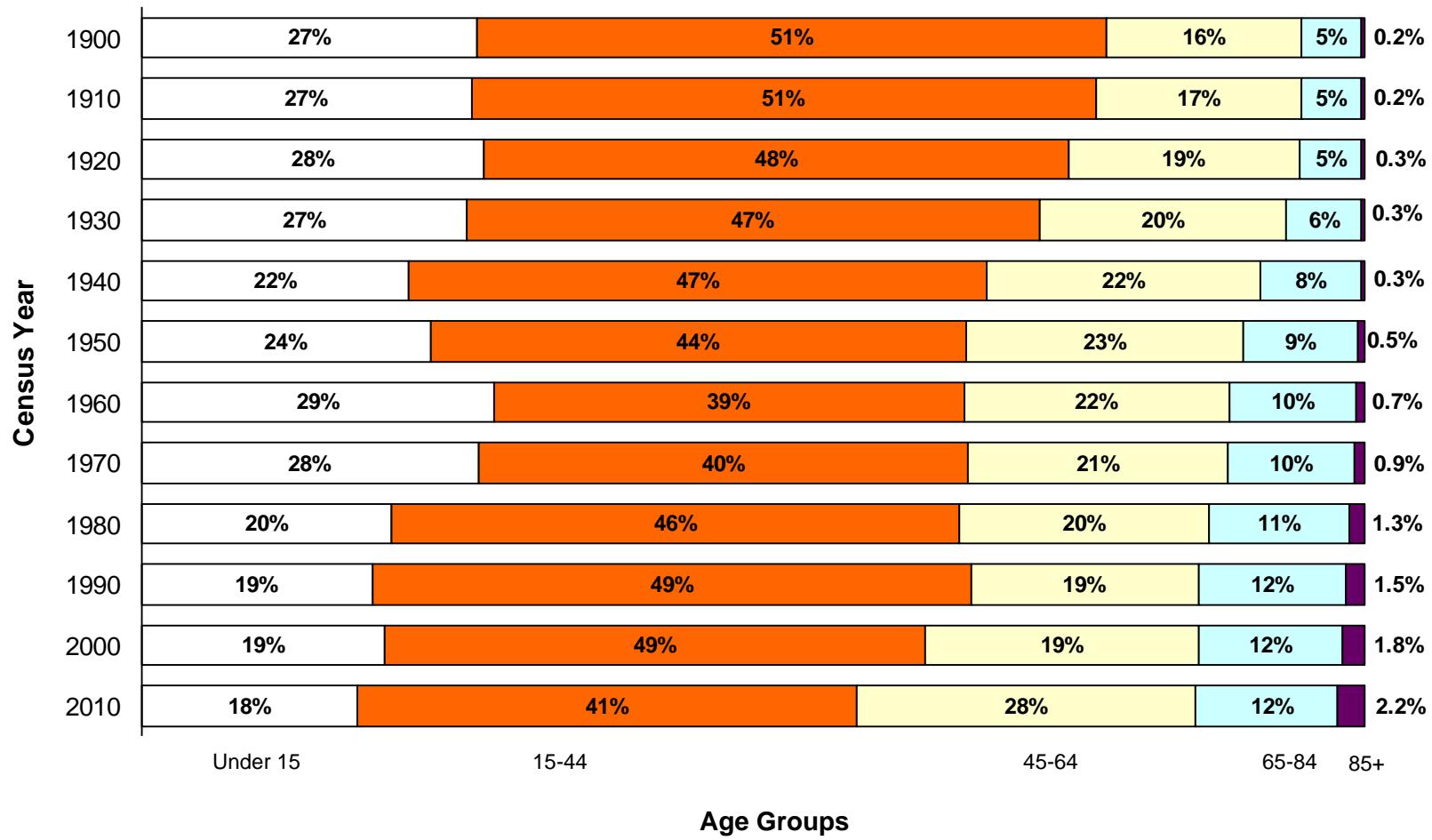
1. Years of Life Remaining calculated using the Greville Abridged Life Table Method (source: Dublin LI. Length of Life - A Study of the Life Table. Ronald Press Co. New York. 1949). 2. Population estimates are from 2018 bridged population file, MARS (Modified Age, Race/Ethnicity, and Sex) file. Please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

Table 3. Years of Life Remaining¹ by Race and Hispanic Ethnicity² and Gender, Massachusetts: 2018

At Age:	All	All Females	White non-Hispanic Females	Black non-Hispanic Females	Hispanic Females	All	White non-Hispanic Males	Black non-Hispanic Males	Hispanic Males
	All	Females				Males			
Birth	80.8	83.2	82.7	84.0	88.8	78.2	77.8	77.4	83.1
1 year old	80.1	82.5	82.0	83.7	88.1	77.5	77.1	77.3	82.5
5 years old	76.2	78.5	78.0	79.8	84.2	73.6	73.1	73.4	78.6
15 years old	66.2	68.6	68.1	69.9	74.3	63.7	63.3	63.6	68.6
25 years old	56.5	58.7	58.3	60.1	64.4	54.0	53.6	54.1	59.0
35 years old	47.1	49.2	48.7	50.3	54.9	44.9	44.5	45.1	50.0
45 years old	37.8	39.7	39.3	41.0	45.4	35.8	35.5	35.9	41.0
55 years old	28.9	30.5	30.1	32.0	36.1	27.0	26.8	27.3	32.5
65 years old	20.5	21.8	21.4	23.7	27.2	19.0	18.8	20.0	24.8
75 years old	12.9	13.8	13.5	16.4	19.5	11.8	11.5	13.8	18.0
85 years old	7.2	7.6	7.3	10.5	14.1	6.5	6.2	9.8	14.9

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..

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



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

Figure 4. Trends in Percentage of Deaths from Selected Causes, Massachusetts: 1842-2018

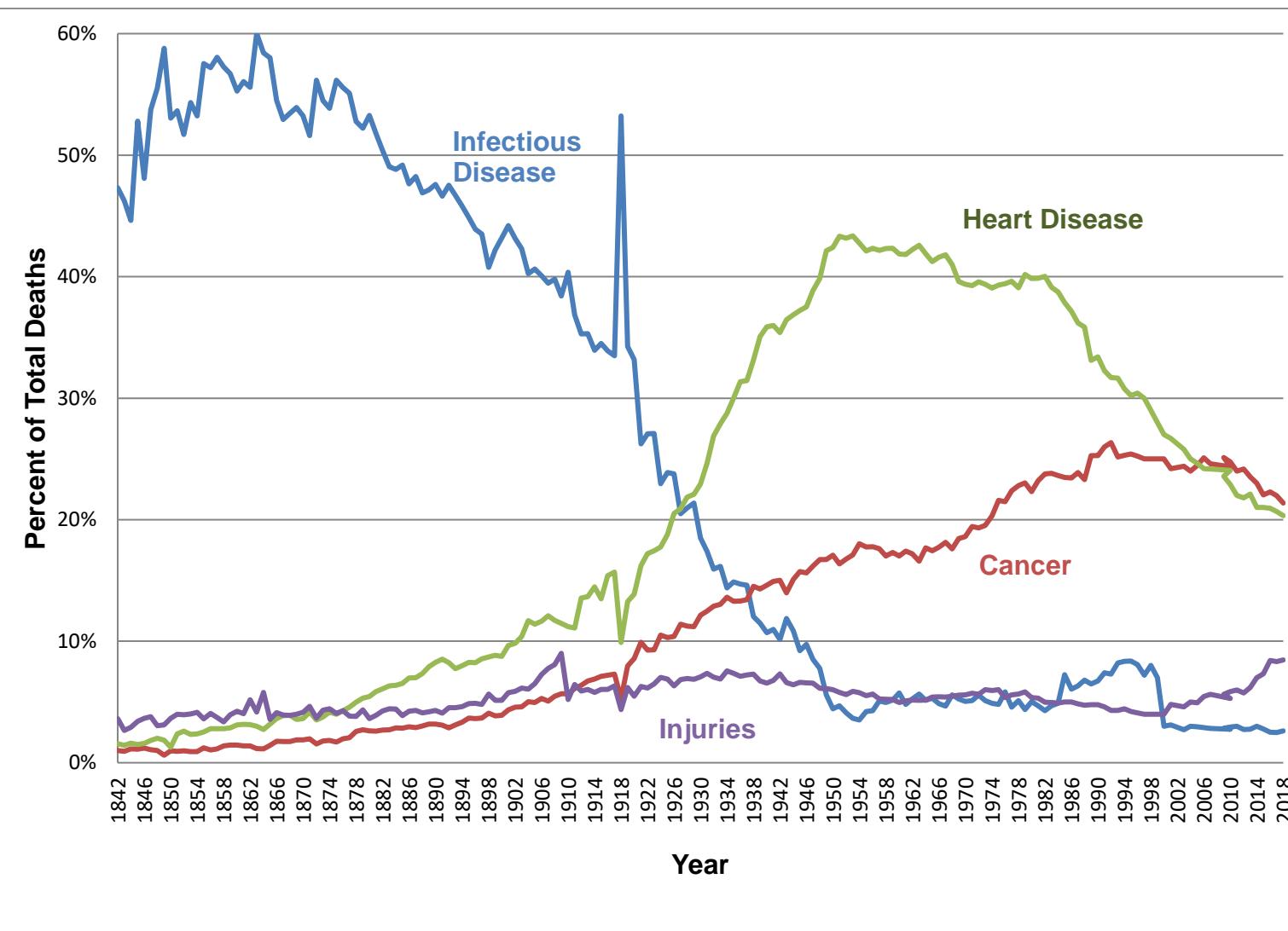
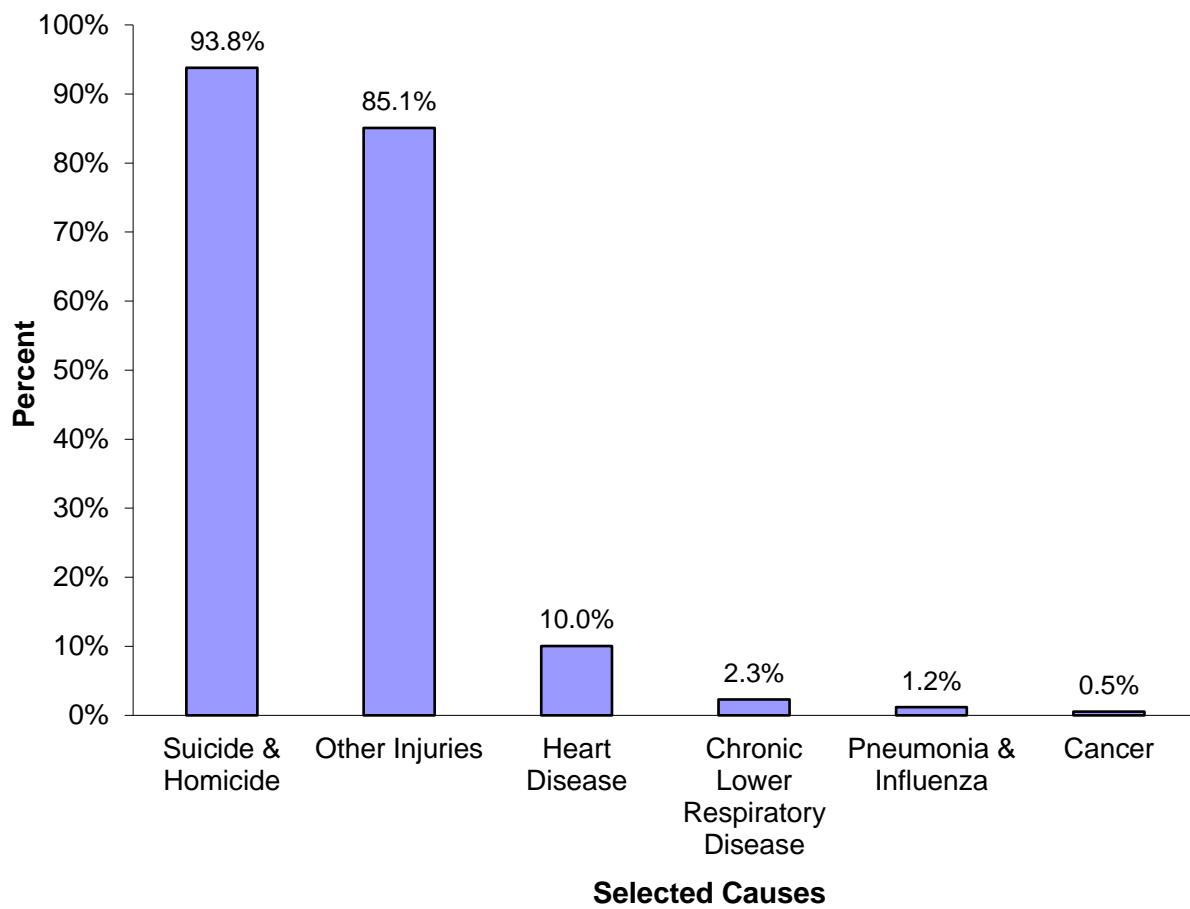


Table 4. Distribution of Deaths by Place of Occurrence, Massachusetts: 2014-2018

Type of Place where Death Occurred	2014		2015		2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Hospital (inpatient/outpatient)	20,534	37%	21,397	37%	20,579	36%	21,343	36%	21,502	36%
Dead on Arrival	641	1%	602	·	732	1%	644	1%	681	1%
Nursing Home	15,353	28%	16,099	2	14,800	26%	15,003	26%	14,606	25%
Hospice	-- ¹	-- ¹	2,628	5%	3,137	6%	3,321	6%	3,525	6%
Assisted Living Facility or Rest Home	-- ²	-- ²	1,251	2%	1,332	2%	1,646	3%	1,864	3%
At Home	15,096	27%	14,419	25%	14,925	26%	15,361	26%	15,552	26%
Other	3,499	6%	1,382	2%	1,446	3%	1,520	3%	1,438	2%
Unknown	36	0.07%	7	0.01	2	0%	6	0%	1	0%

1. Prior to 2015, these deaths were included in the "Other" category. 2. Prior to 2015 these deaths were included in the Residence category.

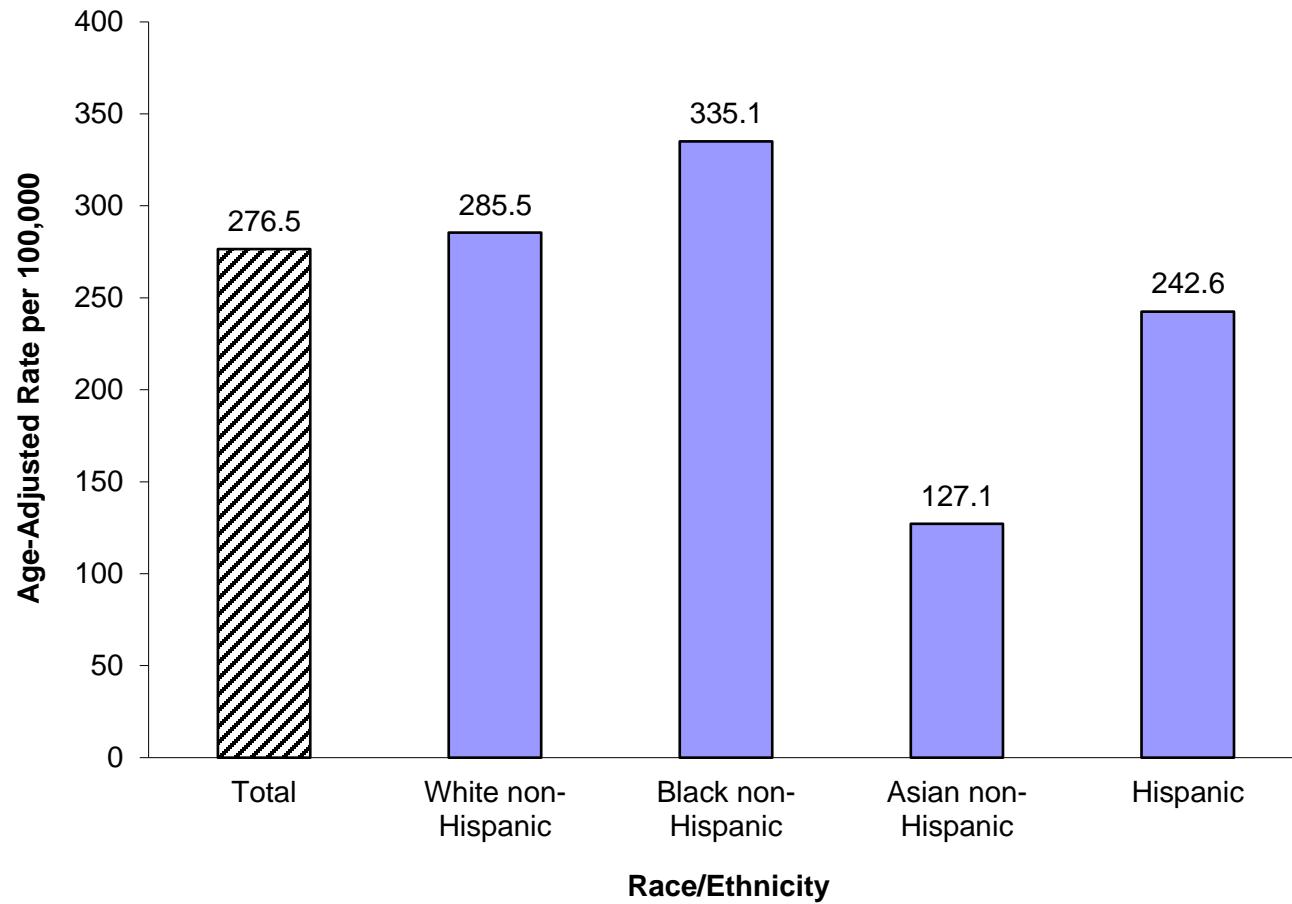
Figure 5. Proportion of Deaths Certified by Medical Examiner for Selected Causes of Death, Massachusetts: 2018



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.

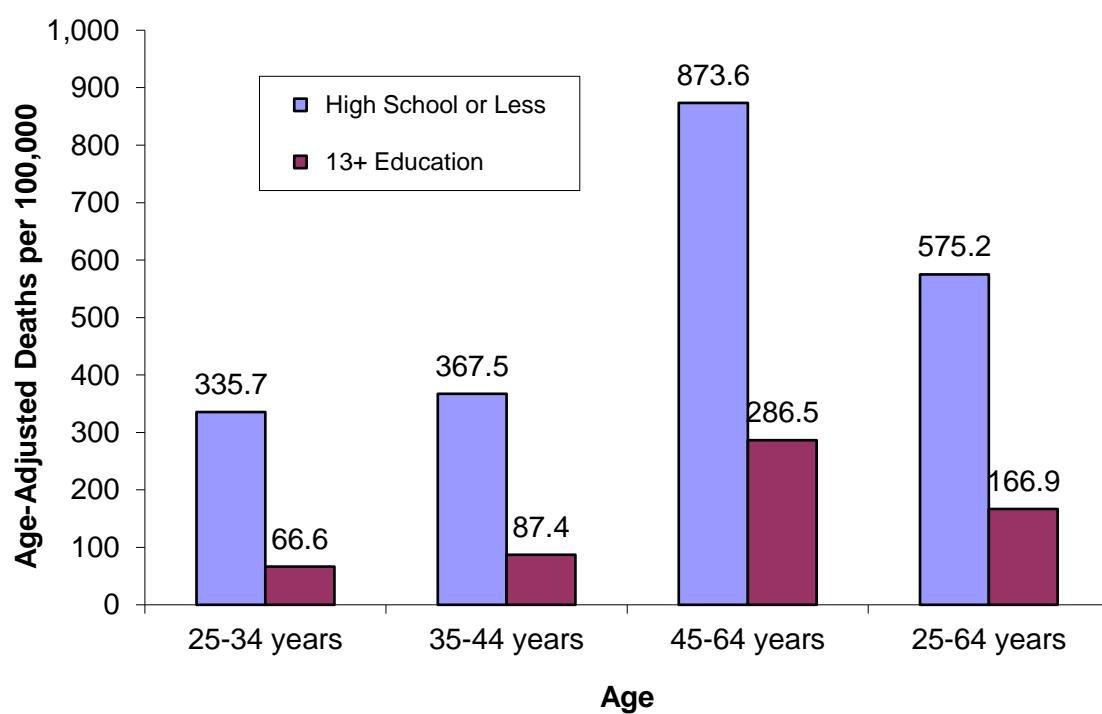
Figure 6. Premature Mortality Rate (PMR) by Race and Hispanic Ethnicity, Massachusetts: 2018



Notes: 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: 2018

Years of School Completed	Age-Specific Rates			Age-Adjusted Rates
	25-34 years	35-44 years	45-64 years	25-64 years
High School or Less	335.7	367.5	873.6	575.2
13+ Education	66.6	87.4	286.5	166.9



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: 2018

Every day in 2018, in Massachusetts there were on average:

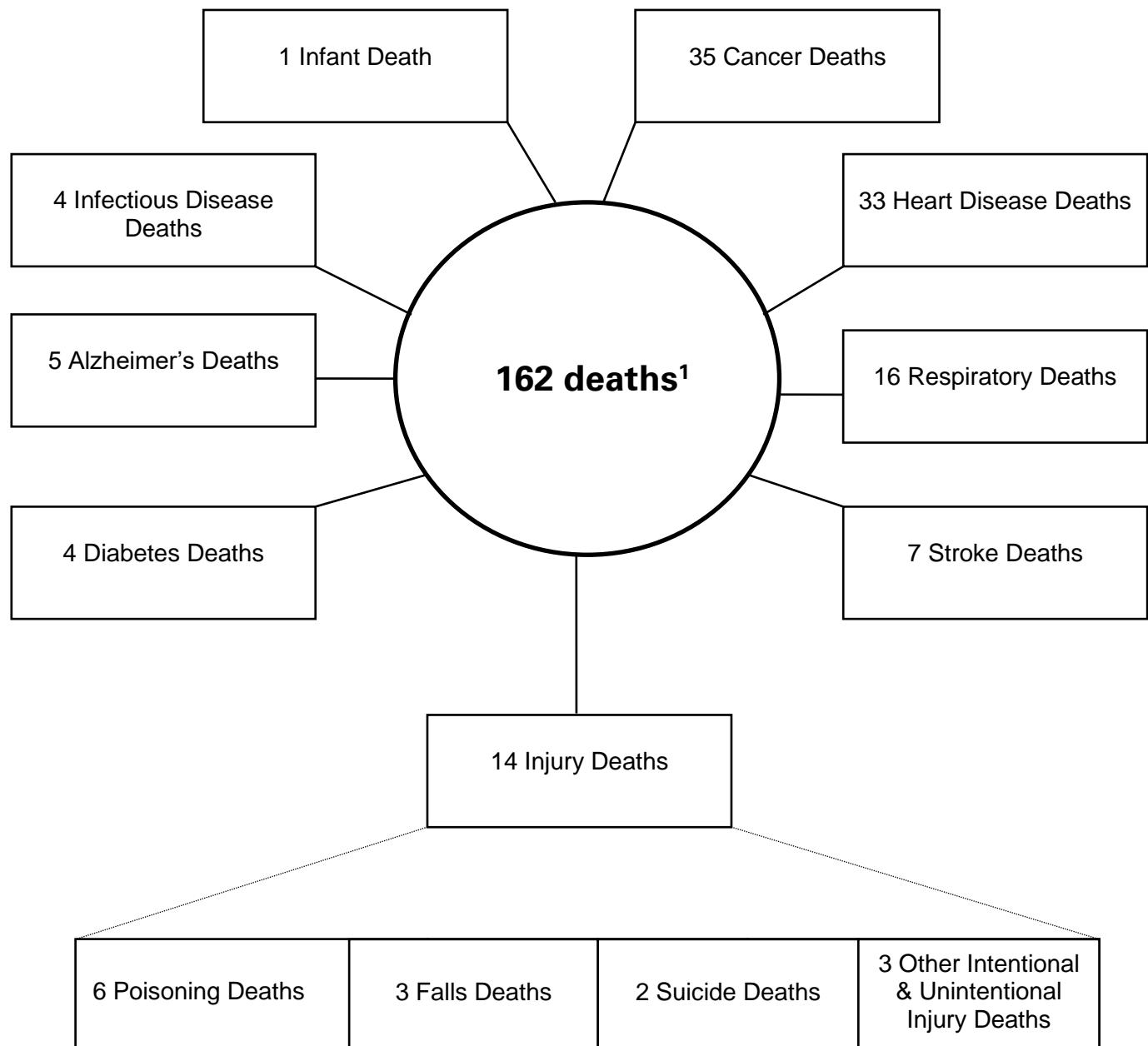


Table 6. Top Ten Leading Underlying Causes of Death by Age, Massachusetts: 2018

	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
25	1	Short Gestation and LBW ¹ (67)	Cancer (23)	Unintentional Injuries (197)	Unintentional Injuries (1403)	Cancer (2805)	Cancer (3370)	Cancer (3471)	Heart Disease (5802)	Cancer (12638)
	2	Congenital Malformations (61)	Unintentional Injuries (19)	Suicide (80)	Cancer (247)	Heart Disease (1548)	Heart Disease (1801)	Heart Disease (2682)	Cancer (2699)	Heart Disease (12036)
	3	SIDS (21)	Congenital Malform (12)	Homicide (43)	Suicide (222)	Unintentional Injuries (1082)	Chronic Lower Respiratory Disease (595)	Chronic Lower Respiratory Disease (876)	Alzheimer's Disease (1246)	Unintentional Injuries (3973)
	4	Pregnancy Complications (19)	III-Defined Conditions-signs and symptoms (10)	Cancer (23)	Heart Disease (184)	Chronic Liver Disease (389)	Stroke (335)	Stroke (648)	Stroke (1230)	Chronic Lower Respiratory Disease (2765)
	5	Complications of Placenta (13)	Heart Disease (8)	Heart Disease (10)	Homicide (82)	Chronic Lower Respiratory Disease (319)	Diabetes (323)	Alzheimer's Disease (431)	Chronic Lower Respiratory Disease (959)	Stroke (2467)
	6	Neonatal Hemorrhage (8)	Chronic Lower Respiratory Disease (4)	III-Defined Conditions-signs and symptoms (9)	Chronic Liver Disease (64)	Diabetes (315)	Unintentional Injuries (280)	Influenza & Pneumonia (361)	Influenza & Pneumonia (730)	Alzheimer's Disease (1825)
	7	Bacterial Sepsis of Newborn (7)	Other Infections (3)	Congenital Malform (6)	III-Defined Conditions-signs and symptoms (49)	Suicide (312)	Septicemia (216)	Nephritis (350)	Unintentional Injuries (647)	Influenza & Pneumonia (1441)
	8	Intrauterine Hypoxia (6)	Homicide (3)	Diabetes (5)	Diabetes (45)	Stroke (228)	Nephritis (213)	Unintentional Injuries (342)	Nephritis (492)	Diabetes (1392)
	9	Necrotizing Enterocolitis (6)	Perinatal Conditions (2)	Influenza & Pneumonia (4)	Septicemia (27)	Septicemia (148)	Influenza & Pneumonia (205)	Diabetes (335)	III-Defined Conditions-signs and symptoms (463)	Nephritis (1175)
	10	Respiratory Distress (4)	Suicide (2)	Injuries of Undetermined Intent (3)	Stroke (22)	Influenza & Pneumonia (121)	Chronic Liver Disease (190)	Septicemia (279)	Diabetes (369)	Septicemia (976)
	All Causes	291	111	416	2,751	9,350	9,918	13,806	22,526	59,169

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. III-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: 2018

Age	Cause of Death ¹	<u>Total</u>		<u>Female</u>		<u>Male</u>	
		Number	Rate ²	Number	Rate ²	Number	Rate ²
1-14	TOTAL	111	10.3	53	10.1	58	10.6
	Cancer	23	2.1	15	2.9	8	1.5
	Unintentional Injuries	19	1.8	7	1.3	12	2.2
	III Defined Conditions	12	1.1	5	1.0	7	1.3
	Stroke	10	0.9	5	1.0	5	0.9
15-24	TOTAL	416	42	126	25.6	290	58.9
	Unintentional Injuries	197	20.0	66	13.4	131	26.6
	Suicide	80	8.1	24	4.9	56	11.4
	Homicide	43	4.4	6	1.2	37	7.5
	Cancer	23	2.3	11	2.2	12	2.4
25-44	TOTAL	2,751	150.4	901	98.0	1,850	203.3
	Unintentional Injuries	1,403	76.7	372	40.5	1,031	113.3
	Cancer	247	13.5	144	15.7	103	11.3
	Suicide	222	12.1	51	5.5	171	18.8
	Heart Disease	184	10.1	54	5.9	130	14.3
45-64	TOTAL	9,350	499.3	3,547	366.2	5,803	641.8
	Cancer	2,805	149.8	1,339	138.3	1,466	162.1
	Heart Disease	1,548	82.7	413	42.6	1,135	125.5
	Unintentional Injuries	1,082	57.8	304	31.4	778	86.0
	Chronic Liver Disease	389	20.8	134	13.8	255	28.2
65+ ³	TOTAL	46,250	4038.8	25,134	3,874.7	21,115	4,253.0
	Heart Disease	10,285	898.1	5,285	814.7	5,000	1,007.1
	Cancer	9,540	833.1	4,587	707.1	4,953	997.6
	Chronic Lower Respiratory Disease	2,430	212.2	1,400	215.8	1,030	207.5
	Stroke	2,213	193.3	1,357	209.2	855	172.2

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: 2018**

Age	Cause of Death ¹	Total		Female		Male	
		Number	Rate ²	Number	Rate ²	Number	Rate ²
65-74	TOTAL	9,918	1,497.7	4,257	1,195.1	5,660	1,849.5
	Cancer	3,370	508.9	1,516	425.6	1,854	605.8
	Heart Disease	1,801	272.0	623	174.9	1,178	384.9
	Chronic Lower Respiratory Disease	595	89.8	309	86.8	286	93.5
	Stroke	335	50.6	161	45.2	173	56.5
75-84	TOTAL	13,806	4,294.6	6,661	3,601.0	7,145	5,234.6
	Cancer	3,471	1,079.7	1,628	880.1	1,843	1,350.2
	Heart Disease	2,682	834.3	1,144	618.5	1,538	1,126.8
	Chronic Lower Respiratory Disease	876	272.5	484	261.7	392	287.2
	Stroke	648	201.6	344	186.0	304	222.7
85+	TOTAL	22,526	13,952.1	14,216	13,224.8	8,310	15,401.2
	Heart Disease	5,802	3593.6	3,518	3,272.7	2,284	4,233.0
	Cancer	2,699	1671.7	1,443	1,342.4	1,256	2,327.8
	Alzheimers Disease	1,246	771.7	944	878.2	302	559.7
	Stroke	1,230	761.8	852	792.6	378	700.6

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.

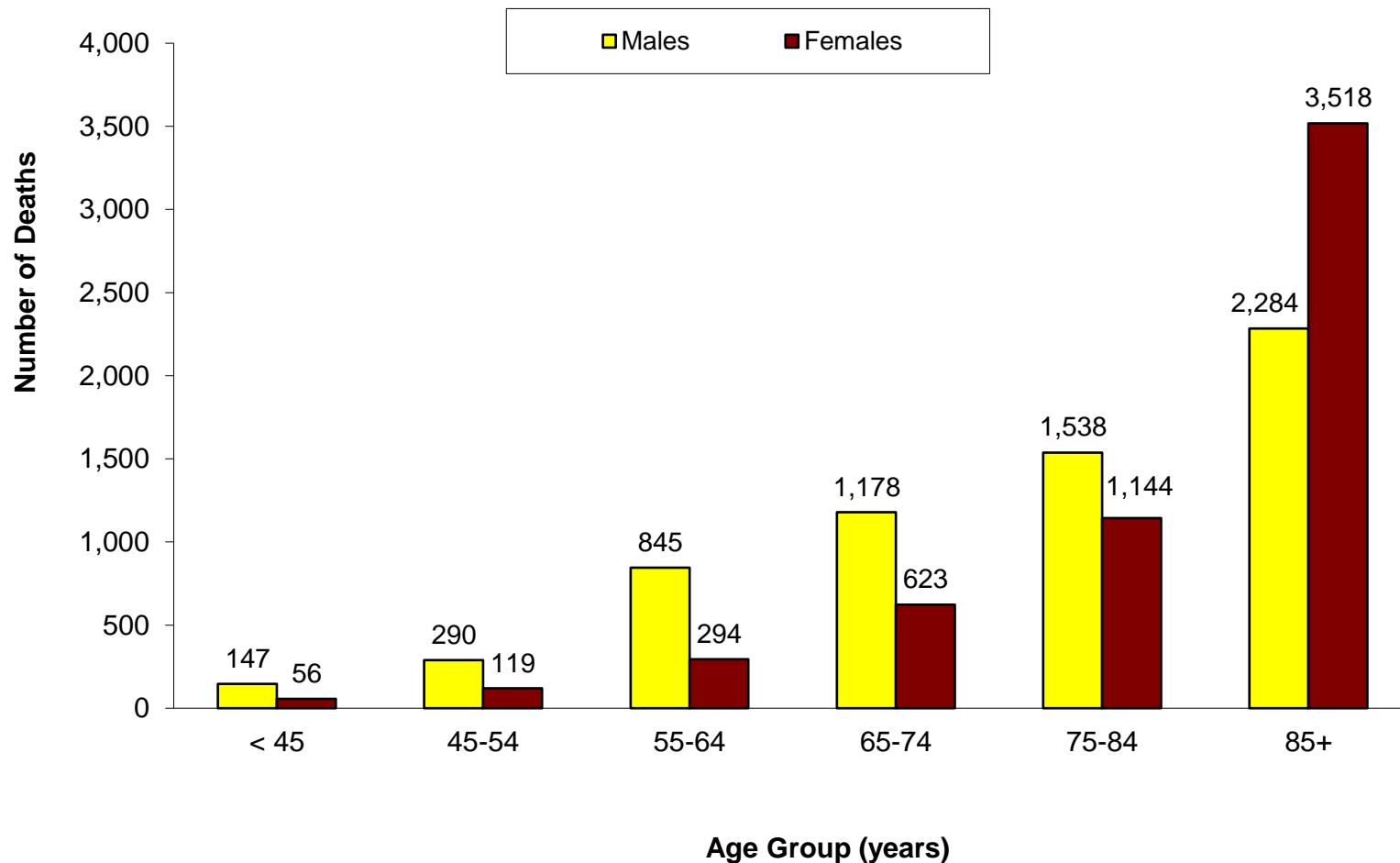
Table 9. Leading Causes of Death¹ and Age-Adjusted Rates by Race and Hispanic Ethnicity, Massachusetts: 2018

<u>White non-Hispanic²</u>			<u>Black non-Hispanic²</u>			<u>Asian non-Hispanic²</u>			<u>Hispanic²</u>		
<u>Cause³</u>	<u>#</u>	<u>Rate⁴</u>	<u>Cause³</u>	<u>#</u>	<u>Rate⁴</u>	<u>Cause³</u>	<u>#</u>	<u>Rate⁴</u>	<u>Cause³</u>	<u>#</u>	<u>Rate⁴</u>
Total	52,196	686.8	Total	2,717	625.4	Total	1,222	351.8	Total	2,377	480.4
Cancer	11,086	146.8	Cancer	585	136.5	Cancer	350	96.6	Cancer	476	99.1
Heart Disease	10,898	136.5	Heart Disease	505	120.2	Heart Disease	196	57.9	Unintentional Injuries ⁵	360	46.9
Unintentional Injuries ⁵	3,296	58.6	Unintentional Injuries ⁵	164	33.2	Stroke	84	25.8	Heart Disease	311	75.0
Chronic Lower Respiratory Disease	2,577	33.2	Diabetes	118	27.9	Unintentional Injuries ⁵	82	21.1	Diabetes	104	23.0
Stroke	2,157	26.9	Stroke	108	26.9	Diabetes	39	10.9	Stroke	82	20.8
Alzheimer's Disease	1,708	20.5	Nephritis	98	24.8	Nephritis	37	11.7	Chronic Lower Respiratory Disease	62	15.5
Influenza & Pneumonia	1,313	16.4	Chronic Lower Respiratory Disease	85	19.7	Influenza & Pneumonia	24	7.4	Chronic liver disease	53	10.1
Diabetes	1,112	14.7	Hypertension	60	14.1	Chronic Lower Respiratory Disease	24	7.7	Influenza & Pneumonia	50	12.5
Nephritis	979	12.4	Homicide	56	9.9	Alzheimer's Disease	23	7.9	III-Defined Conditions-signs and symptoms	50	7.4
Septicemia	859	11.3	Septicemia	55	13.0	Hypertension	23	7.4	Nephritis	49	12.3

Total		
<u>Cause³</u>	<u>#</u>	<u>Rate⁴</u>
Total	59,169	662.8
Cancer	12,638	142.5
Heart Disease	12,036	131.1
Unintentional Injuries ⁵	3,973	52.8
Chronic Lower Respiratory Disease	2,765	30.9
Stroke	2,467	27.0
Alzheimer's Disease	1,825	19.4
Influenza & Pneumonia	1,441	15.7
Diabetes	1,392	15.7
Nephritis	1,175	13.1
Septicemia	976	11.1

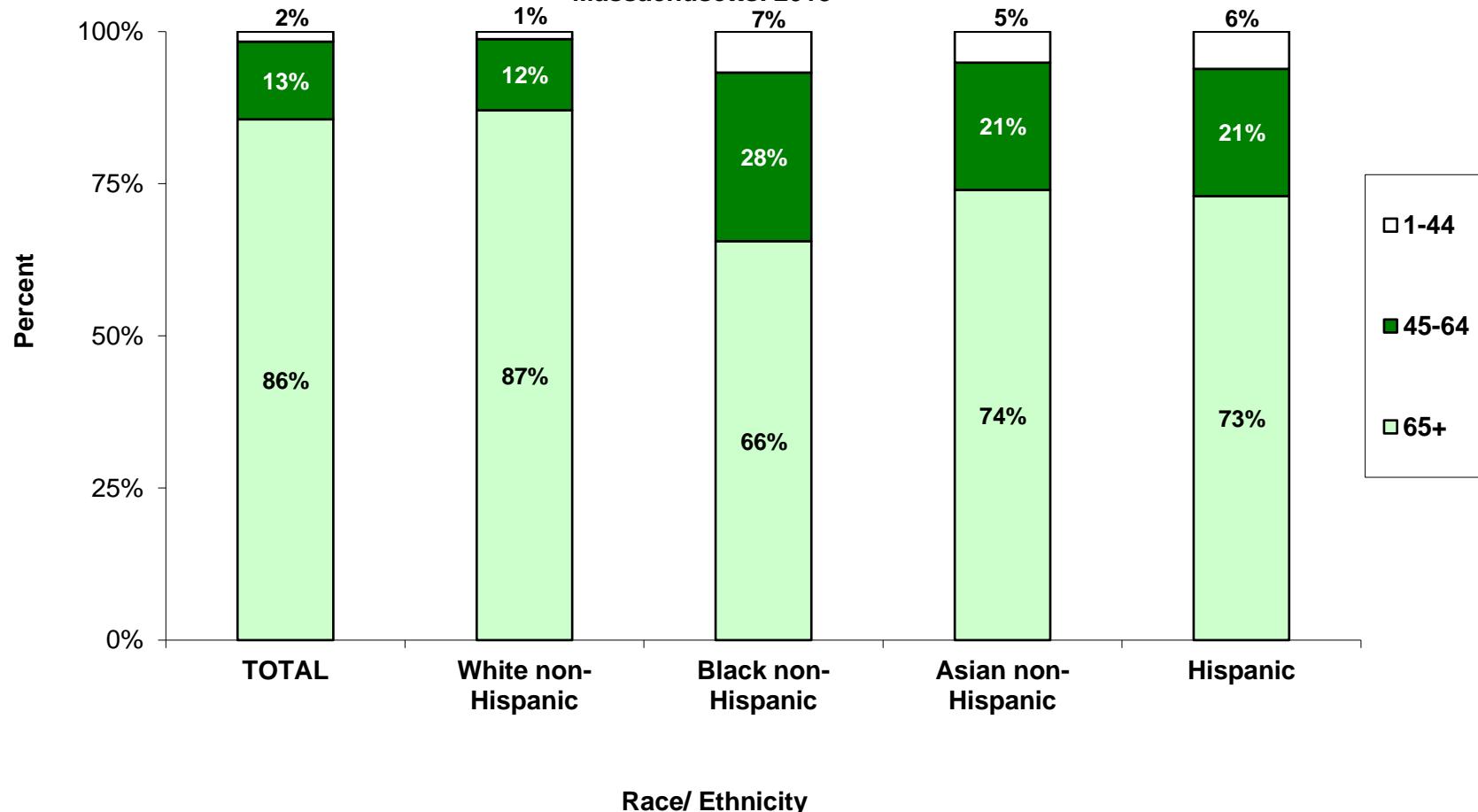
1. Ranking based on number of deaths. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the technical notes for more information on race and ethnicity. 3. Underlying Cause of Death based 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:
2018**



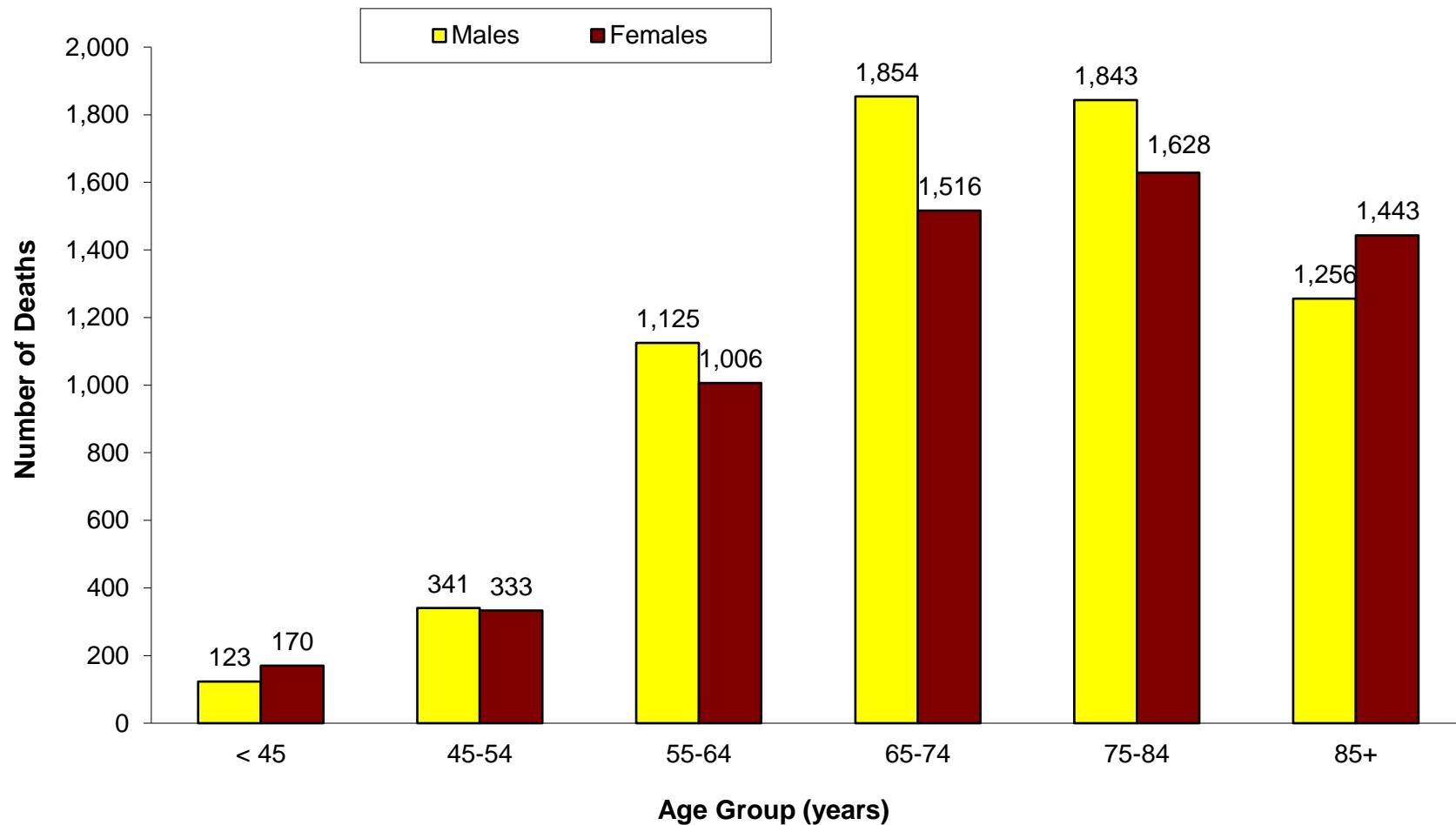
Note: The ICD-10 codes used for heart disease deaths were I00-I09, I11, I13, and I20-I51.

**Figure 9. Age Distribution by Race and Hispanic Ethnicity for Heart Disease Deaths,
Massachusetts: 2018**



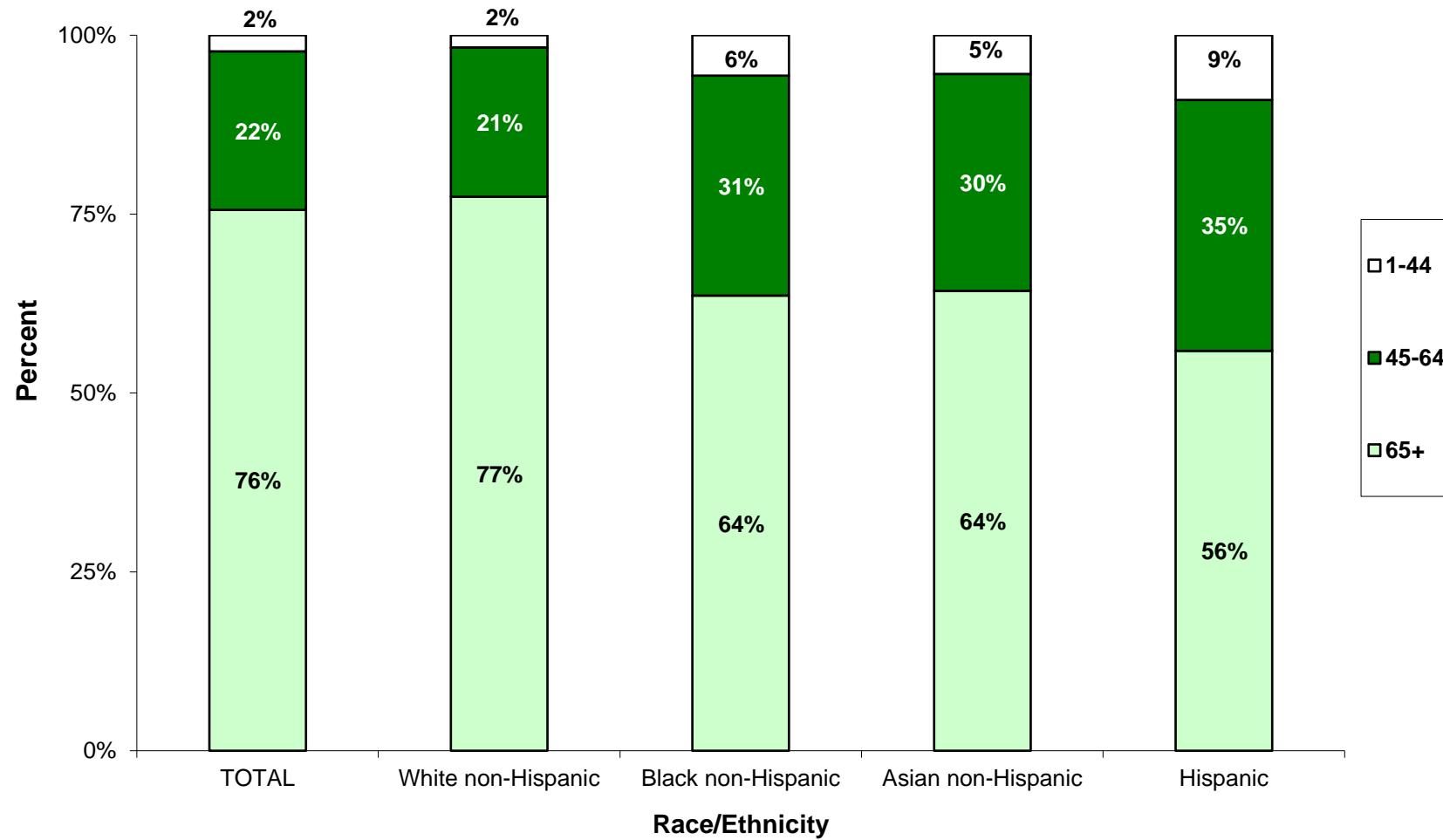
Notes: The ICD-10 codes used for heart disease deaths were I00-I09, I11, I13, and I20-I51. Please see the technical notes for more information on race and ethnicity

Figure 10. Number of Cancer Deaths by Age Group and Gender, Massachusetts: 2018



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: 2018



Notes: 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 Rates¹, Massachusetts: 2005-2018

Year	Heart Disease					
	<u>White non-Hispanic²</u>			<u>Black non-Hispanic²</u>		
Year	Male	Female	Total	Male	Female	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
<u>Asian non-Hispanic²</u>						
Year	Male	Female	Total	Male	Female	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

Table 10 (continued). Heart Disease and Cancer Deaths by Race and Hispanic Ethnicity and Gender, Age-Adjusted Rates, Massachusetts: 2005-2018

Year	Cancer			Black non-Hispanic ²		
	<u>White non-Hispanic²</u>		Total	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
Year	<u>Asian non-Hispanic²</u>			<u>Hispanic²</u>		
	Male	Female	Total	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

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: 2018

Cause of Death ¹	ICD-10 Code	Total		Female		Male	
		#	Rate ^{2,3}	#	Rate ²	#	Rate ²
Total Cancer Deaths	C00-C97	12,638	142.5	6,096	121.7	6,542	172.7
Bladder	C67	410	4.6	110	2.0	300	8.2
Brain and nervous system	C70-C72	376	4.4	178	3.9	198	5.1
Cervix	C53	39	0.8	39	0.8	NA	NA
Colorectal	C18-C21	1,005	11.4	471	9.2	534	14.2
Esophagus	C15	389	4.3	68	1.3	321	8.2
Female breast	C50	773	15.7	773	15.7	NA	NA
Hodgkin's disease	C81	15	0.2	7	0.1	8	0.2
Kidney and other urinary organs	C64, C65	223	2.5	84	1.6	139	3.6
Leukemia	C91-C95	502	5.8	222	4.4	280	7.8
Lung	C33, C34	2,984	33.6	1,522	30.5	1,462	38.2
Melanoma of the skin	C43	181	2.0	66	1.3	115	3.2
Multiple myeloma	C88, C90	277	3.1	116	2.2	161	4.3
Non-Hodgkin's lymphoma	C82-C85	472	5.4	222	4.3	250	6.8
Ovary	C56	303	6.1	303	6.1	NA	NA
Pancreas	C25	1,002	11.3	486	9.6	516	13.4
Prostate	C61	648	18.1	NA	NA	648	18.1
Stomach	C16	235	2.7	96	2.0	139	3.7
Uterus	C54, C55	259	5.2	259	5.2	NA	NA
All other cancers	Residual	2,545	28.6	1,074	21.5	1,471	37.7

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: 2018

Age	Cause of death ¹	ICD-10 Code	Number	Age-specific rate ²
1 – 14 years	Total		23	2.1
	Brain and nervous system	C70-C72	9	0.8
	Leukemia	C91-C95	3	-3
	Lung	C33, C34	1	-3
	Kidney and other urinary organs	C64, C65	1	-3
15 – 24 years	Total		23	2.3
	Brain and nervous system	C70-C72	5	0.5
	Leukemia	C91-C95	5	0.5
	Female breast ⁴	C50	2	-3
	Non-Hodgkin's lymphoma	C82-C85	1	-3
25 – 44 years	Total		247	13.5
	Colorectal	C18-C21	35	1.9
	Female breast ⁴	C50	34	3.7
	Brain and nervous system	C70-C72	27	1.5
	Lung	C33, C34	23	1.3
45 – 64 years	Total		2,805	149.8
	Lung	C33, C34	634	33.9
	Colorectal	C18-C21	264	14.1
	Female breast ⁴	C50	230	23.7
	Pancreas	C25	206	11.0
65 + years	Total		9,540	833.1
	Lung	C33, C34	2,326	203.1
	Pancreas	C25	789	68.9
	Colorectal	C18-C21	706	61.7
	Prostate ⁵	C61	600	120.9
65-74 years	Total		3,370	508.9
	Lung	C33, C34	917	138.5
	Pancreas	C25	293	44.2
	Colorectal	C18-C21	200	30.2
	Female breast ⁴	C50	177	49.7
75-84 years	Total		3,471	1,079.7
	Lung	C33, C34	930	289.3
	Pancreas	C25	295	91.8
	Colorectal	C18-C21	228	70.9
	Prostate ⁵	C61	215	157.5
85+ years	Total		2,699	1,671.7
	Lung	C33, C34	479	296.7
	Colorectal	C18-C21	278	172.2
	Prostate ⁵	C61	253	468.9
	Pancreas	C25	201	124.5

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: 2018

<u>White non-Hispanic¹</u>			<u>Black non-Hispanic¹</u>			<u>Asian non-Hispanic¹</u>			<u>Hispanic¹</u>		
Cause²	#	Rate³	Cause²	#	Rate³	Cause²	#	Rate³	Cause²	#	Rate³
Lung	2,706	35.8	Lung	100	23.4	Lung	77	20.6	Lung	67	14.7
Colorectal	881	11.8	Pancreas	65	16.2	Pancreas	30	8.9	Female Breast ⁴	46	15.6
Pancreas	863	11.4	Prostate ⁵	48	34.2	Female Breast ⁴	25	11.6	Colorectal	43	10.0
Female Breast ⁴	648	15.5	Female Breast ⁴	47	18.4	Colorectal	23	6.2	Pancreas	32	6.6
Prostate ⁵	551	17.7	Colorectal	45	10.1	Stomach	14	4.0	Prostate ⁵	32	21.2
Total Cancer	11,086	146.8	Total Cancer	585	136.5	Total Cancer	350	96.6	Total Cancer	476	99.1

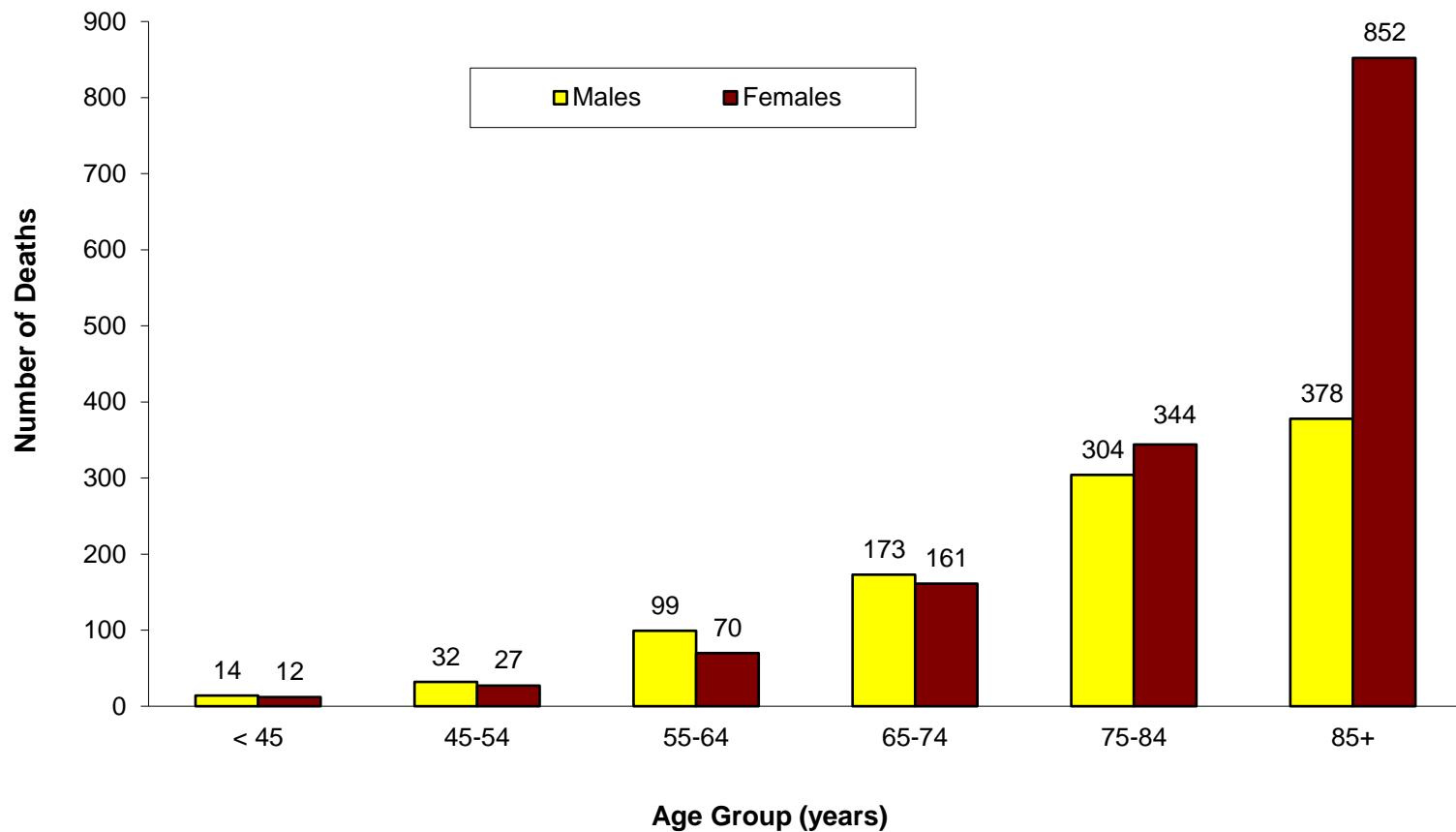
1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the technical notes for more information on race and ethnicity. 2. ICD-10 codes used. Please see the ICD-10 codes listing in the Appendix 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: 2018

Cause of Death	ICD-10 Code	Total			Female			Male		
		#	%	Rate ¹	#	%	Rate ¹	#	%	Rate ¹
Total Stroke Deaths	I60-I69	2,467	100%	27	1,466	100%	26	1,000	100%	27.9
Subarachnoid hemorrhage	I60	112	4.5%	1.3	63	4.3%	1.3	49	4.9%	1.3
Intracerebral and other intracranial hemorrhage	I61-I62	507	20.6%	5.7	277	18.9%	5.3	230	23.0%	6.4
Cerebral infarction	I63	286	11.6%	3.1	177	12.1%	3.1	109	10.9%	2.9
Stroke, not specified	I64	1,038	42.1%	11.2	639	43.6%	10.9	398	39.8%	11.3
Other	I67, I69	524	21.2%	5.7	310	21.1%	5.4	214	21.4%	6.0

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

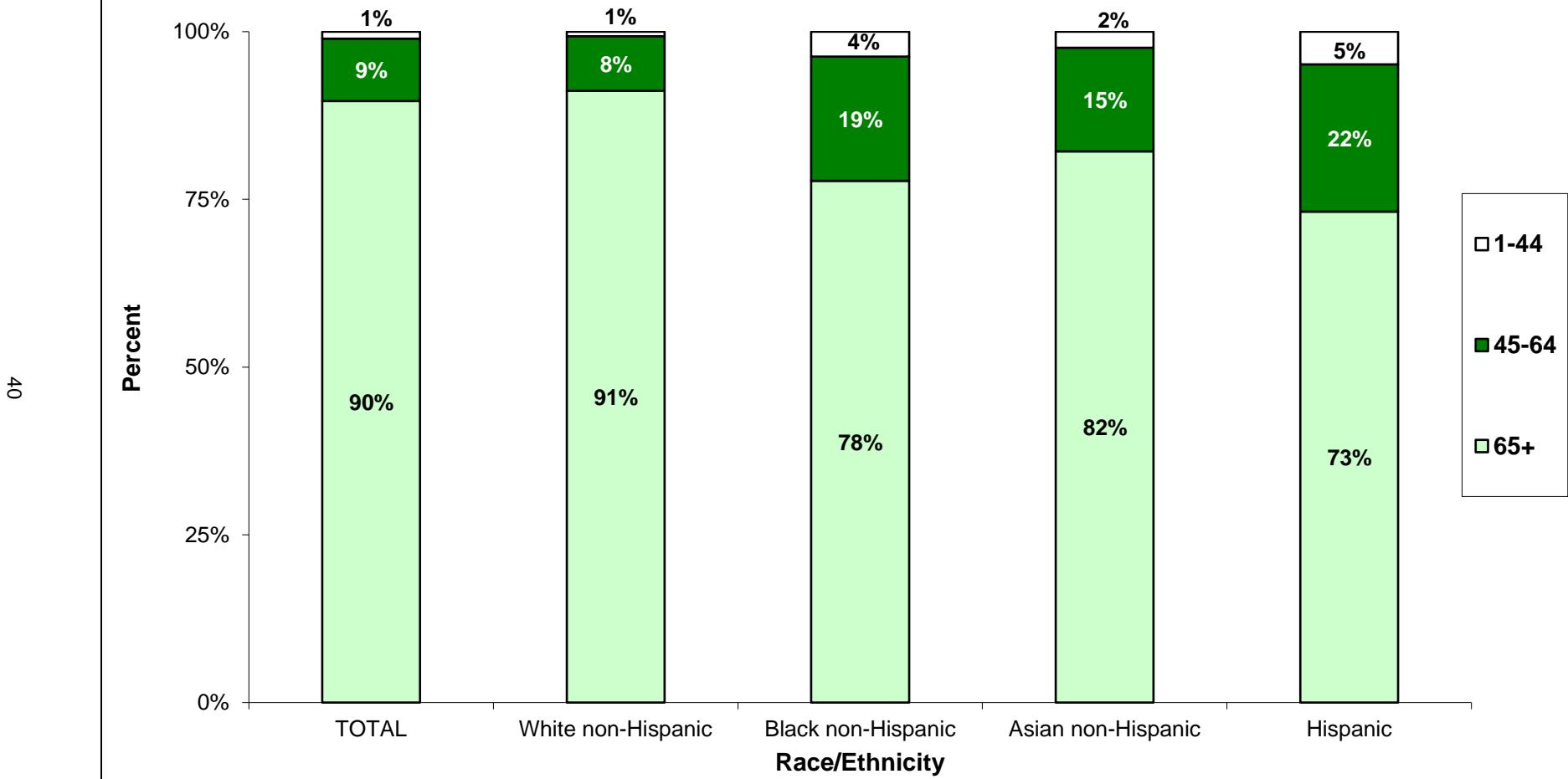
Figure 12. Number of Stroke Deaths by Age Group and Gender, Massachusetts: 2018



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: 2018



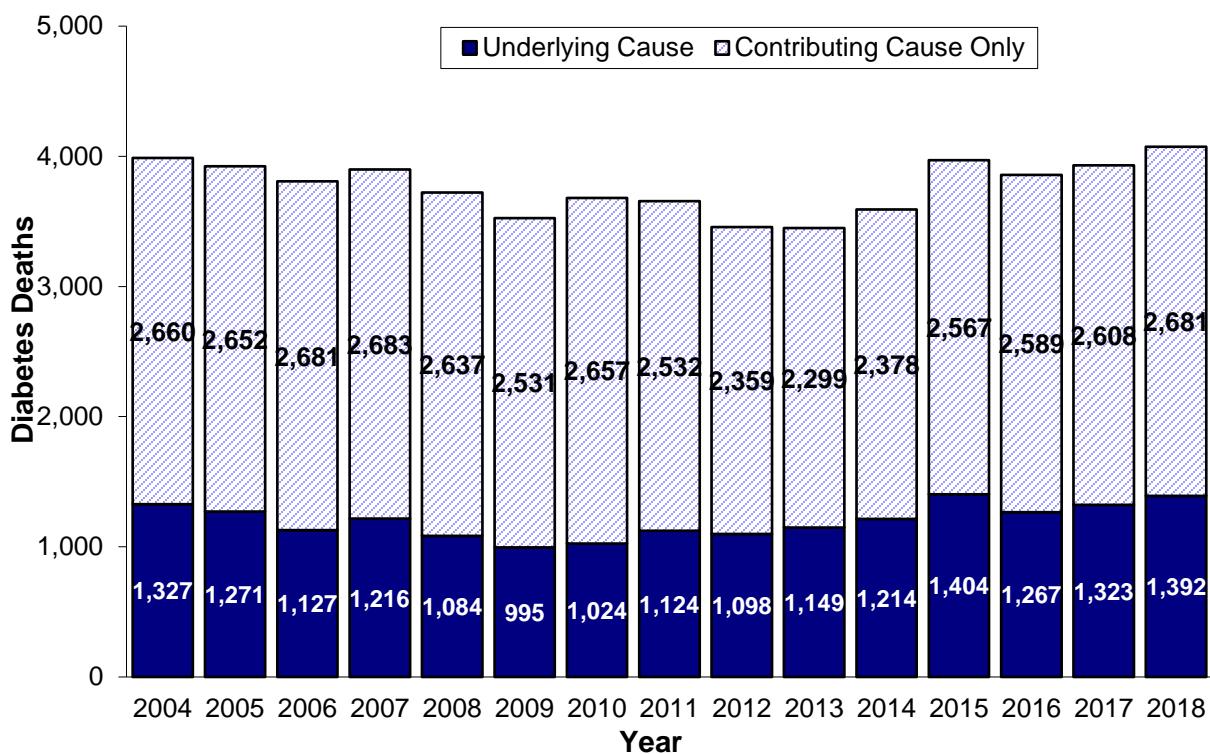
Notes: The ICD-10 codes used for stroke deaths were I60-I69. Please see the technical notes for more information on race and ethnicity

Table 15. Stroke Deaths by Race and Hispanic Ethnicity and Gender, Age-Adjusted Rates¹, Massachusetts: 2005-2018

Year	<u>White non-Hispanic²</u>			<u>Black non-Hispanic²</u>		
	Male	Female	Total	Male	Female	Total
2005	37.7	37.3	37.9	50.6	44.9	47.5
2006	37.5	35.6	36.7	57.6	51.9	54.5
2007	35.4	34.0	34.8	34.4	36.4	35.6
2008	33.1	33.4	33.6	53.5	40.7	45.5
2009	31.7	31.7	32.0	51.7	36.0	42.7
2010	30.5	30.1	30.5	46.2	39.9	42.9
2011	30.4	29.6	30.2	34.4	29.8	32.0
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
Year	<u>Asian non-Hispanic²</u>			<u>Hispanic²</u>		
	Male	Female	Total	Male	Female	Total
2005	28.2	27.5	28.1	33.2	24.5	28.2
2006	34.5	41.9	39.2	26.5	29.6	28.8
2007	26.7	29.5	28.4	32.0	26.7	28.9
2008	23.4	27.1	25.6	23.9	18.4	21.1
2009	38.1	22.0	28.1	23.9	16.7	19.9
2010	35.2	27.0	30.8	31.1	22.1	26.0
2011	21.3	25.5	24.2	22.0	23.3	23.1
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

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: 2004-2018



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

Table 16. Diabetes Deaths by Gender, Massachusetts: 2018

Cause of Death	Proportion of all Deaths (%) ¹			Number		
	Males	Females	Total	Males	Females	Total
Underlying	2.7%	2.0%	2.4%	782	610	1,392
Contributing/Associated	4.9%	4.2%	4.5%	1,439	1,242	2,681
Total Diabetes-Related	7.6%	6.2%	6.9%	2,221	1,852	4,073

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

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

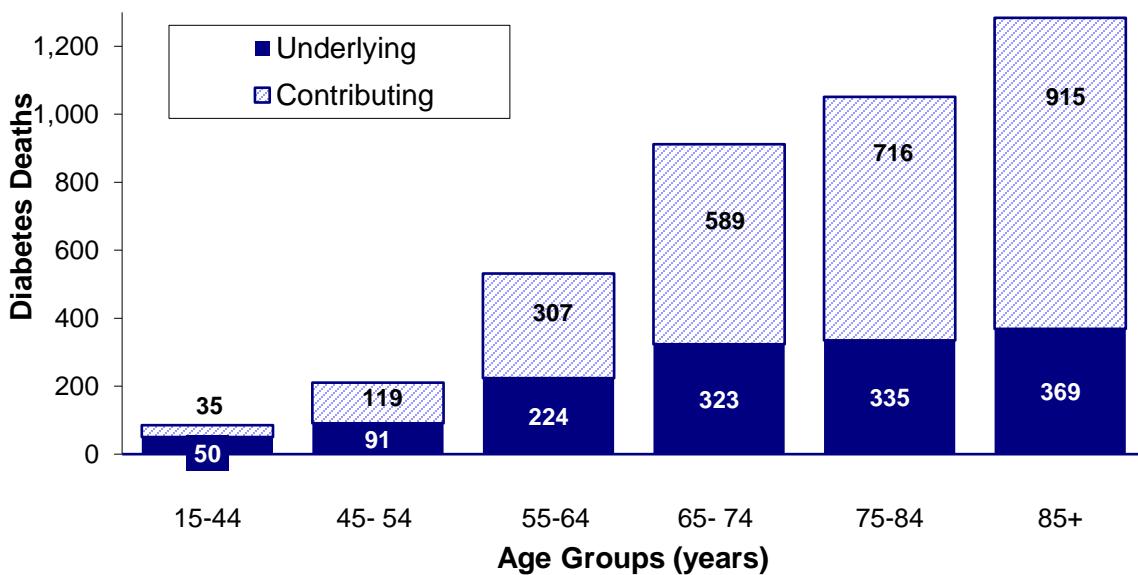
Table 17. Diabetes Deaths by Race and Hispanic Ethnicity, Massachusetts: 2018

Cause of Death	Race/Hispanic Ethnicity				
	White non-Hispanic	Black non-Hispanic	Hispanic	Asian non-Hispanic	Total
Number					
Underlying	1,112	118	104	39	1,392
Contributing/Associated	2,225	198	150	68	2,681
Total Diabetes-Related	3,337	316	254	107	4,073
Total Deaths (All Causes)	52,196	2,717	2,377	1,222	59,169
Proportion of all deaths (%)					
Underlying	2.1	4.3	4.4	3.2	2.4
Contributing/Associated	4.3	7.3	6.3	5.6	4.5
Total Diabetes-Related	6.4	11.6	10.7	8.8	6.9
Death Rates ¹					
Underlying	14.7	27.9	23	10.9	15.7
Contributing/Associated	28.7	47.6	34.6	21.5	29.8
Total Diabetes-Related	43.4	75.4	57.6	32.4	45.6

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

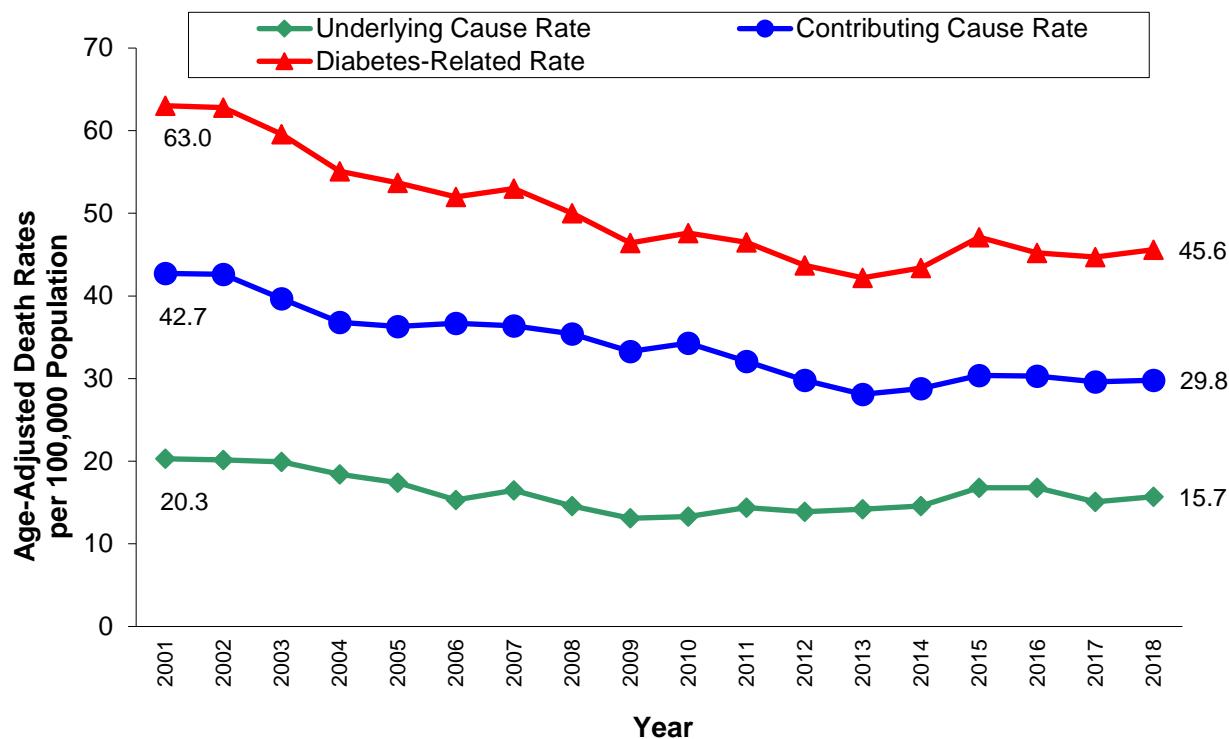
1. Rates are per 100,000 age-adjusted to the 2000 U.S. standard population.

Figure 15. Age Distribution of Diabetes Deaths, Massachusetts: 2018



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

Figure 16. Diabetes Death Rates, Massachusetts: 2001-2018



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: 2018

	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	5,006	66.6	2,346	34.1	943	10.4	506	6.5	401	5.3	258	3.5	552	6.8
< 1	6	8.3	0	0.0	0	0.0	0	0.0	1	-.6	0	0.0	5	6.9
1-14	27	2.5	1	-.6	1	-.6	3	-.6	7	0.7	0	0.0	15	1.4
15-24	324	32.9	135	13.7	9	0.9	39	4.0	59	6.0	47	4.8	35	3.6
25-44	1,728	94.5	1,255	68.6	31	1.7	140	7.7	126	6.9	85	4.6	91	5.0
45-64	1,453	77.6	854	45.6	101	5.4	172	9.2	107	5.7	72	3.8	147	7.8
65-74	383	57.8	80	12.1	106	16.0	48	7.2	41	6.2	23	3.5	85	12.8
75-84	405	126.0	15	4.7	220	68.4	39	12.1	38	11.8	22	6.8	71	22.1
85+	680	421.2	6	3.7	475	294.2	65	40.3	22	13.6	9	5.6	103	63.8
All Females	1,631	38.8	684	19.3	475	8.5	132	3.1	120	3.0	22	0.6	198	4.3
< 1	4	-.6	0	0.0	0	0.0	0	0.0	1	-.6	0	0.0	3	-.6
1-14	12	2.3	1	-.6	1	-.6	2	-.6	2	-.6	0	0.0	6	1.1
15-24	98	19.9	51	10.4	3	-.6	10	2.0	20	4.1	5	1.0	9	1.8
25-44	441	48.0	348	37.9	6	0.7	31	3.4	30	3.3	3	-.6	23	2.5
45-64	412	42.5	250	25.8	36	3.7	43	4.4	34	3.5	10	1.0	39	4.0
65-74	127	35.7	24	6.7	48	13.5	14	3.9	12	3.4	2	-.6	27	7.6
75-84	169	91.4	8	4.3	102	55.1	7	3.8	13	7.0	2	-.6	37	20.0
85+	368	342.3	2	-.6	279	259.5	25	23.3	8	7.4	0	0.0	54	50.2
All Males	3,375	97.2	1,662	49.3	468	13.2	374	10.5	281	7.9	236	6.6	354	9.7
< 1	2	-.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	-.6
1-14	15	2.7	0	0.0	0	0.0	1	-.6	5	0.9	0	0.0	9	1.6
15-24	226	45.9	84	17.1	6	1.2	29	5.9	39	7.9	42	8.5	26	5.3
25-44	1,287	141.4	907	99.7	25	2.7	109	12.0	96	10.5	82	9.0	68	7.5
45-64	1,041	115.1	604	66.8	65	7.2	129	14.3	73	8.1	62	6.9	108	11.9
65-74	256	83.7	56	18.3	58	19.0	34	11.1	29	9.5	21	6.9	58	19.0
75-84	236	172.9	7	5.1	118	86.4	32	23.4	25	18.3	20	14.7	34	24.9
85+	312	578.2	4	-.6	196	363.3	40	74.1	14	25.9	9	16.7	49	90.8

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 Ethnicity⁷: Numbers and Age Adjusted Rates, Massachusetts: 2018

	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	4,076	72.5	1,889	39.3	856	11.0	437	7.5	319	5.7	149	2.5	426	6.5
Females	1,410	44.2	573	23.2	444	9.1	115	3.6	96	3.2	18	0.6	164	4.4
Males	2,666	103.4	1,316	55.9	412	13.6	322	12.0	223	8.5	131	4.5	262	9.0
Black non-Hispanic	260	50.5	110	21.3	16	3.7	19	3.8	19	3.8	50	8.7	46	9.3
Females	59	23.2	31	12.3	5	2.1	6	2.1	4	_. ⁶	1	_. ⁶	12	4.8
Males	201	80.7	79	31.1	11	5.5	13	6.0	15	6.5	49	17.1	34	14.4
Asian non-Hispanic	107	25.6	24	4.1	38	11.6	15	3.4	9	1.9	4	_.⁶	17	3.9
Females	32	14.4	5	1.6	14	7.6	5	2.2	3	_. ⁶	0	0	5	2.0
Males	75	39.7	19	7.0	24	17.1	10	4.8	6	3.0	4	_. ⁶	12	6.2
Hispanic	460	59.1	280	34.2	27	5.9	23	3.6	40	4.7	41	4.2	49	6.6
Females	101	25.9	57	13.0	10	4.2	2	_. ⁶	16	3.8	3	_. ⁶	13	4.0
Males	359	94.1	223	56.4	17	7.9	21	7.5	24	5.4	38	7.7	36	9.2

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. 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: 2018

	All Unintentional ¹		Poisonings		Falls		Motor Vehicle-Related	
	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>
All Persons	3,973	52.8	2,181	31.9	906	9.9	401	5.3
<1	3	-3	0	0.0	0	0.0	1	-3
1-14	19	1.8	0	0.0	1	-3	7	0.7
15-24	197	20.0	120	12.2	0	0.0	59	6.0
25-44	1403	76.7	1218	66.6	14	0.8	126	6.9
45-64	1082	57.8	777	41.5	92	4.9	107	5.7
65-74	280	42.3	57	8.6	105	15.9	41	6.2
75-84	342	106.4	7	2.2	220	68.4	38	11.8
85+	647	400.7	2	-3	474	293.6	22	13.6
All Females	1367	32.0	606	17.4	464	8.2	120	3.0
<1	2	-3	0	0.0	0	0.0	1	-3
1-14	7	1.3	0	0.0	1	-3	2	-3
15-24	66	13.4	42	8.5	0	0.0	20	4.1
25-44	372	40.5	331	36.0	4	-3	30	3.3
45-64	304	31.4	214	22.1	30	3.1	34	3.5
65-74	97	27.2	14	3.9	48	13.5	12	3.4
75-84	155	83.8	4	-3	102	55.1	13	7.0
85+	364	338.6	1	-3	279	259.5	8	7.4
All Males	2,606	75.5	1575	46.9	442	12.4	281	7.9
<1	1	-3	0	0.0	0	0.0	0	0.0
1-14	12	2.2	0	0.0	0	0.0	5	0.9
15-24	131	26.6	78	15.8	0	0.0	39	7.9
25-44	1031	113.3	887	97.5	10	1.1	96	10.5
45-64	778	86.0	563	62.3	62	6.9	73	8.1
65-74	183	59.8	43	14.1	57	18.6	29	9.5
75-84	187	137.0	3	-3	118	86.4	25	18.3
85+	283	524.5	1	-3	195	361.4	14	25.9

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 Ethnicity⁴: Numbers and Age-Adjusted Rates, Massachusetts: 2018

	All Unintentional ¹		Poisonings		Falls		Motor Vehicle- Related	
	Number	Rate ²	Number	Rate ²	Number	Rate ²	Number	Rate ²
White non-Hispanic	3,296	58.6	1743	36.8	828	10.4	319	5.7
Females	1,191	36.6	506	21.0	434	8.8	96	3.2
Males	2,105	82.5	1237	52.9	394	12.8	223	8.5
Black non-Hispanic	164	33.2	105	20.3	13	3.2	19	3.8
Females	43	17.5	29	11.6	5	2.1	4	— ³
Males	121	51.3	76	29.9	8	4.5	15	6.5
Asian non-Hispanic	82	21.1	21	3.6	35	11.0	9	1.9
Females	26	12.7	3	— ³	14	7.6	3	— ³
Males	56	31.6	18	6.6	21	15.6	6	3.0
Hispanic	360	46.9	272	33.2	25	5.6	40	4.7
Females	82	21.8	52	12.0	9	3.9	16	3.8
Males	278	73.2	220	55.5	16	7.7	24	5.4

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table.

2. Number of deaths per 100,000 persons 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: 2018

	All Intentional ¹		Suicide		Homicide	
	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>
All Persons	900	12.2	741	9.9	159	2.3
<1	2	-3	0	0.0	2	-3
1-14	5	0.5	2	-3	3	-3
15-24	123	12.5	80	8.1	43	4.4
25-44	304	16.6	222	12.1	82	4.5
45-64	332	17.7	312	16.7	20	1.1
65-74	74	11.2	69	10.4	5	0.8
75-84	42	13.1	39	12.1	3	-3
85+	18	11.1	17	10.5	1	-3
All Females	212	5.5	182	4.7	30	0.8
<1	2	-3	0	0.0	2	-3
1-14	2	-3	1	-3	1	-3
15-24	30	6.1	24	4.9	6	1.2
25-44	63	6.9	51	5.5	12	1.3
45-64	89	9.2	83	8.6	6	0.6
65-74	19	5.3	18	5.1	1	-3
75-84	6	3.2	4	-3	2	-3
85+	1	-3	1	-3	0	0.0
All Males	688	19.4	559	15.6	129	3.8
<1	0	0.0	0	0.0	0	0.0
1-14	3	-3	1	-3	2	-3
15-24	93	18.9	56	11.4	37	7.5
25-44	241	26.5	171	18.8	70	7.7
45-64	243	26.9	229	25.3	14	1.5
65-74	55	18.0	51	16.7	4	-3
75-84	36	26.4	35	25.6	1	-3
85+	17	31.5	16	29.7	1	-3

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table.

2. Number of deaths per 100,000 persons in each age group; rates for all rows except the age group rows are age-adjusted to the 2000 US standard population. 3. Calculations based on values 1-4 are excluded.

Table 23. Intentional Injury Deaths by Gender and Race and Hispanic Ethnicity⁴: Numbers and Age-Adjusted Rates, Massachusetts: 2018

	All Intentional ¹		Suicide		Homicide	
	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>
White non-Hispanic	673	12.2	637	11.5	36	0.8
Females	175	6.3	160	5.7	15	0.6
Males	498	18.7	477	17.8	21	0.9
Black non-Hispanic	89	16.0	33	6.1	56	9.9
Females	13	4.6	9	3.0	4	1.6
Males	76	27.6	24	9.4	52	18.2
Asian non-Hispanic	23	4.0	20	3.6	3	-3
Females	6	1.7	5	1.7	1	-3
Males	17	6.7	15	6.0	2	-3
Hispanic	83	9.8	34	4.3	49	5.5
Females	14	3.1	5	1.1	9	2.0
Males	69	17.0	29	7.9	40	9.1

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: 2018

Type of Injury¹	All Injury Deaths		Female		Male	
	Number	Rate²	Number	Rate²	Number	Ra
Unintentional Injuries (Accidents)	3,973	52.8	1,367	32.0	2,606	75.5
Motor vehicle-related	401	5.3	120	3.0	281	7.9
Injury to pedestrian	92	1.2	36	0.9	56	1.6
Injury to pedal cyclist	3	- ³	0	0	3	- ³
Injury to motorcyclist	55	0.8	5	0.1	50	1.4
Injury to occupant	28	0.4	8	0.2	20	0.6
Other and unspecified	223	3.0	71	1.8	152	4.2
Poisoning	2,181	31.9	606	17.4	1,575	46.9
Falls	906	9.9	464	8.2	442	12.4
Hanging, strangulation or suffocation	147	1.6	47	0.8	100	2.7
Cut or pierce	0	0	0	0	0	0
Firearm	1	- ³	0	0	1	- ³
Drowning and submersion	70	0.9	16	0.4	54	1.5
Smoke, fire and flames	39	0.5	19	0.4	20	0.5
Other and unspecified	212	2.4	95	1.8	117	3.1
Suicide	741	9.9	182	4.7	559	15.6
Poisoning	135	1.8	61	1.5	74	2.1
Hanging, strangulation or suffocation	356	4.9	83	2.2	273	7.7
Firearm	148	1.9	11	0.3	137	3.7
Other and unspecified	102	1.4	27	0.7	75	2.1
Homicide	159	2.3	30	0.8	129	3.8
Firearm	104	1.5	9	0.2	95	2.8
Cut or pierce	24	0.4	8	0.3	16	0.5
Other and unspecified	31	0.4	13	0.3	18	0.5
Injury Deaths of Undetermined Intent	53	0.7	26	0.7	27	0.8
Poisoning	29	0.4	17	0.4	12	0.4
Other and unspecified	24	0.3	9	0.3	15	0.4
Legal Intervention	3	-³	0	0	3	-³
Firearm	2	- ³	0	0	2	- ³
Other and unspecified	1	- ³	0	0	1	- ³
Adverse Effects	77	0.9	26	0.6	51	1.4
Medical care	71	0.8	22	0.5	49	1.3
Drugs	6	0.1	4	- ³	2	- ³
ALL INJURIES	5,006	66.6	1,631	38.8	3,375	97.2

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/AIDS¹ Deaths by Place of Occurrence, Massachusetts: 2001-2018

Year		Total ²	<u>Place of Occurrence</u>			
			At Home	Hospital	Out of State	Hospice/Nursing Home/Other
2001	#	249	47	164	4	34
	%	100.0	18.9	65.9	-.3	13.7
2002	#	229	33	156	4	36
	%	100.0	14.4	68.1	-.3	15.7
2003	#	226	55	134	5	32
	%	100.0	24.3	59.3	2.2	14.2
2004	#	211	45	134	1	31
	%	100.0	21.3	63.5	-.3	14.7
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

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. 2. Calculations based on values 1-4 are excluded.

Year		Setts: 2001-2018						
		<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	229

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. 2. Calculations based on values 1-4 are excluded.

Table 26. HIV/AIDS¹ Deaths² by Gender, Race and Hispanic Ethnicity, Massachusetts: 2002-2018

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

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/AIDS¹ Deaths by Gender, Race and Hispanic Ethnicity: Numbers, Percent and Age-Adjusted Rates, Massachusetts: 2005-2018

Year	White non-Hispanic ²			Black non-Hispanic ²			Hispanic ²		
	#	Percent	Rate ³	#	Percent	Rate ³	#	Percent	Rate ³
2005	75	42%	1.3	56	31%	16.0	45	25%	11.5
2006	91	51%	1.6	49	27%	13.7	37	21%	8.4
2007	58	41%	1.0	48	34%	13.0	37	26%	8.9
2008	69	50%	1.2	37	27%	10.6	31	23%	8.3
2009	48	41%	0.5	37	31%	15.2	33	28%	11.6
2010	58	49%	0.5	34	29%	15.2	26	22%	11.6
2011	36	40%	0.6	30	33%	6.9	24	27%	4.7
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
MALE									
2005	52	43%	1.9	34	28%	20.9	33	27%	18.4
2006	67	55%	2.4	33	27%	20.0	21	17%	9.8
2007	48	50%	1.7	23	24%	13.4	25	26%	13.3
2008	55	56%	1.9	25	26%	16.0	18	18%	11.0
2009	32	38%	1.1	29	34%	15.6	24	28%	12.4
2010	40	51%	1.1	20	25%	15.6	19	24%	12.4
2011	30	48%	1.1	14	22%	6.6	19	30%	8.2
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
FEMALE									
2005	23	40%	0.8	22	38%	11.8	12	21%	5.4
2006	24	42%	0.9	16	28%	8.3	16	28%	7.1
2007	10	21%	0.3	25	53%	12.8	12	26%	5.2
2008	14	36%	0.5	12	31%	6.4	13	33%	6.4
2009	16	48%	0.5	8	24%	3.8	9	27%	3.8
2010	18	46%	0.5	14	36%	3.8	7	18%	3.8
2011	6	22%	0.2	16	59%	7.1	5	19%	1.6
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

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 for a more informationon 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/AIDS¹ Deaths by Race, Hispanic Ethnicity, and Gender of Persons Ages 25-44, Massachusetts: 2005-2018

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

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 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: 2008-2018

INFANT MORTALITY (less than one year of age)

Year	State Total ¹		White ⁵ non-Hispanic		Black ⁵ non-Hispanic		Hispanic ⁵		Asian ⁵ non-Hispanic		Other ²	
	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³
2008	381	5.0	192	3.7	79	11.9	86	7.9	16	2.7	8	5.1
2009	366	4.9	205	4.1	54	7.8	78	7.1	20	3.4	9	7.8
2010	319	4.4	163	3.4	56	8.2	65	6.1	25	4.3	7	4.4
2011	310	4.2	158	3.4	47	6.7	75	5.8	22	3.6	6	4.2
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

NEONATAL MORTALITY (birth to 27 days)

Year	State Total ¹		White ⁵ non-Hispanic		Black ⁵ non-Hispanic		Hispanic ⁵		Asian, ⁵ non-Hispanic		Other ²	
	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³
2008	290	3.8	152	2.9	57	8.6	65	6.0	10	1.7	6	3.8
2009	276	3.7	162	3.2	36	5.2	54	4.9	17	2.9	7	6.0
2010	238	3.3	121	2.5	43	6.3	47	4.4	20	3.4	5	4.6
2011	230	3.1	111	2.4	33	4.7	60	4.7	19	3.1	3	-- ⁴
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

POST NEONATAL MORTALITY (28-365 days)

Year	State Total ¹		White ⁵ non-Hispanic		Black ⁵ non-Hispanic		Hispanic ⁵		Asian ⁵ non-Hispanic		Other ²	
	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³
2008	91	1.2	40	0.8	22	3.3	21	1.9	6	1.0	2	-- ⁴
2009	90	1.2	43	0.9	18	2.6	24	2.2	3	-- ⁴	2	-- ⁴
2010	81	1.1	42	0.9	13	1.9	18	1.7	5	0.9	2	-- ⁴
2011	80	1.1	47	1.0	14	2.0	15	1.2	3	-- ⁴	3	-- ⁴
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

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: 2018

Cause of Death ¹	ICD-10 Code	Infant (<1 year)		Neonatal (<28 days)		Post Neonatal (28-365 days)	
		#	%	#	%	#	%
TOTAL		291	100.0	224	100.0	67	100.0
Infectious and parasitic diseases	A00-B99	4	--2	0	0.0	4	--2
Cancer	C00-C97	0	0.0	0	0.0	0	0.0
Diseases of the blood and blood forming organs (anemia)	D50-D89	3	--2	1	--2	2	--2
Diseases of nervous system and ear	G00-G98, H60-H93	4	--2	0	0.0	4	--2
Diseases of the respiratory system	J00-J98	3	--2	0	0.0	3	--2
Diseases of digestive system	K00-K92	0	0.0	0	0.0	0	0.0
Congenital malformations	Q00-Q99	61	21.0	47	21.0	14	20.9
Congenital malformations of nervous system	Q00-Q07	6	2.1	5	2.2	1	--2
Anencephalus and similar malformations	Q00	3	--2	3	--2	0	0.0
Congenital malformations of heart	Q20-Q24	12	4.1	6	2.7	6	9.0
Other congenital malformations of circulatory system	Q25-Q28	8	2.7	7	3.1	1	--2
Congenital malformations of respiratory system	Q30-Q34	8	2.7	6	2.7	2	--2
Congenital malformations of genitourinary system	Q50-Q64	9	3.1	9	4.0	0	0.0
Congenital malformations of musculoskeletal system	Q65-Q85	5	1.7	2	--2	3	--2
Chromosomal abnormalities	Q90-Q99	9	3.1	8	3.6	1	--2
Certain conditions originating in the perinatal period	P00-P96	174	59.8	168	75.0	6	9.0
Newborn affected by maternal conditions which may be unrelated to present pregnancy	P00	4	--2	4	--2	0	0.0
Newborn affected by maternal complications of pregnancy	P01	19	6.5	19	8.5	0	0.0
Newborn affected by complications of placenta, cord and membrane	P02	13	4.5	12	5.4	1	--2
Newborn affected by other complications of labor and delivery	P03	0	0.0	0	0.0	0	0.0
Disorders relating to short gestation and low birthweight	P07	67	23.0	66	29.5	1	--2
Intrauterine hypoxia and birth asphyxia	P20-P21	6	2.1	6	2.7	0	0.0
Respiratory distress of newborn	P22	4	--2	4	--2	0	0.0
Other respiratory conditions of newborn	P23-P28	11	3.8	9	4.0	2	--2
Infections specific to the perinatal period	P35-P39	8	2.7	8	3.6	0	0.0
Neonatal hemorrhage	P50-P52, P54	8	2.7	8	3.6	0	0.0
Other and ill-defined conditions originating in the perinatal period	P90-P96	9	3.1	9	4.0	0	0.0
Symptoms, signs, and ill-defined conditions	R00-R99	31	10.7	6	2.7	25	37.3
Sudden Infant Death Syndrome (SIDS)	R95	21	7.2	4	--2	17	25.3
Unintentional injuries	V01-X59	3	--2	1	0.0	2	--2
Homicide	X85-Y09	2	--2	0	0.0	2	--2
All other causes	Residual	7	2.4	2	--2	5	7.5

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. Infant¹ Deaths by Major Causes², Race and Hispanic Ethnicity⁴, Massachusetts: 2018

Cause of Death²	ICD-10 Code	White non-Hispanic		Black non-Hispanic		Asian non-Hispanic		Hispanic	
		#	%	#	%	#	%	#	%
TOTAL		148	100.0%	62	100.0%	9	100.0%	63	100.0%
Certain conditions originating in the perinatal period	P00- P96	83	56.1%	46	74.2%	6	36.8%	35	55.6%
Congenital malformations	Q00-Q99	32	21.6%	8	12.9%	2	-3	15	23.8%
Symptoms, signs, and ill-defined conditions	R00-R99	20	13.5%	2	-3	0	0.0%	9	14.3%
SIDS	R95	13	8.8%	1	-3	0	0.0%	7	11.1%
Unintentional Injuries	V01-X59	1	-3	0	0.0%	0	0.0%	2	-3
Homicide	X85-Y09	0	0.0%	0	0.0%	1	-3	0	0.0%
All other causes	Residual	12	8.1%	6	9.7%	0	0.0%	2	-3

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 2015 ²	MA 2016 ²	MA 2017 ²	MA 2018 ²	TARGET STATUS
Overall Cancer	161.4	171.0	152.8	149.8	149.1	142.5	✓
Lung Cancer	45.5	47.3	39.0	37.3	35.2	33.6	✓
Female Breast Cancer (per 100,000 females)	20.7	19.1	17.7	16.8	18.5	15.7	✓
Uterine Cervical Cancer (per 100,000 females)	2.2	4.3	1.1	1.1	1.1	0.8	✓
Colorectal Cancer	14.5	14.9	12.0	11.6	11.5	11.4	✓
Oropharyngeal Cancer	2.3	3.0	2.4	2.1	2.4	2.3	✓
Prostate Cancer (per 100,000 males)	21.8	21.2	17.9	18.6	18.1	18.1	✓
Malignant Melanoma	2.4	3.1	3.1	3.1	3.1	3.1	●
COPD, Ages 45+	102.6	84.4	90.9	86.2	90.8	88.1	✓
Coronary Heart Disease	103.4	96.5	80.8	76.9	74.5	72.4	✓
Stroke	34.8	31.2	45.5	53.6	52.6	52.8	●
Cirrhosis	8.2	5.4	4.1	4.3	4.8	5.1	✓
Drug-Induced Deaths	11.3	12.5	29.0	35.8	34.9	34.8	●
HIV/AIDS	3.3	1.6	1.1	0.9	0.9	0.8	✓
Injury Deaths	53.7	43.3	58.0	66.2	66.4	66.6	○
Residential Fire Deaths	0.9	0.2	0.5	0.5	0.5	0.4	✓
Falls	7.2	6.9	8.7	8.5	9.6	10.4	●
Falls, Ages 65+	47.0	48.1	59.4	57.5	65.3	63.6	●
Firearm-Related	9.3	4.0	3.0	3.4	3.7	3.5	✓
Poisonings	13.2	12.5	28.4	35.4	33.8	34.1	●
Unintentional or Undetermined Intent Injuries	11.1	10.9	26.3	33.1	32.0	31.9	●
Poisonings, Ages 35-54	25.6	22.8	46.5	58.1	58.4	58.9	●
Unintentional or Undetermined Intent Injuries, Ages 35-54	21.6	20.0	46.5	58.1	58.4	58.9	●
Unintentional Injuries	36.4	28.3	45.5	53.6	52.6	52.8	●
Motor Vehicle Crashes	12.4	5.4	5.4	6.3	5.7	5.4	✓
Drowning	1.1	1.2	1.0	1.2	0.9	1.2	○
Hanging, Strangulation or Suffocation	1.8	5.8	6.3	5.9	6.8	6.5	●
Homicide	5.5	3.2	2.2	2.1	2.7	2.3	✓
Suicide	10.2	8.7	9.0	8.8	9.5	9.9	✓
Infant and Child Health							
Infant Deaths (per 1,000 live births)	6.0	4.4	4.3	4.0	3.7	4.3	✓
Neonatal Deaths (per 1,000 live births)	4.1	3.3	3.3	3.0	2.5	3.3	✓
Post Neonatal Deaths (per 1,000 live births)	2.0	1.1	1.0	1.0	1.2	1.0	✓
Birth Defects (per 1,000 live births)	1.3	0.7	0.5	0.7	0.8	0.8	✓
Congenital Heart Defects (per 1,000 live births)	0.3	0.1	0.1	0.1	0.2	0.2	✓
Sudden Infant Death Syndrome (SIDS) (per 1,000 live births)	0.5	0.5	0.3	0.2	0.3	0.3	✓
Child/Adolescent/Young Adults Death Rates							
1-4 years old	26.5	13.6	16.7	14.2	15.4	16.1	✓
5-9 years old	12.4	7.3	9.1	8.8	8.9	9.7	✓
10-14 years old	14.8	8.6	9.1	10.4	10.7	6.7	✓
15-19 years old	54.3	30.9	31.1	30.4	32.5	23.4	✓
20-24 years old	88.3	65.2	76.1	77.7	67.9	59.3	✓
Asthma Deaths (per million)							
Ages 35-64 Years	4.9	6.3	10.3	12.6	11.4	8.5	●
Ages 65+ Years	21.5	29.9	45.9	36.3	30.5	29.7	●

✓ = YES, met target

○ = 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: 2018 (Sorted by PMR)

Largest 30 Communities¹	Number of Premature Deaths	PMR² (per 100,000)
Fall River	474	462.8*
Springfield	722	461.1*
New Bedford	488	446.7*
Taunton	298	435.8*
Pittsfield	235	434.0*
Brockton	459	431.5*
Worcester	809	419.5*
Lowell	484	412.6*
Chicopee	273	391.4*
Lynn	404	386.9*
Haverhill	295	373.9*
Barnstable	209	328.6
Lawrence	255	309.9
Attleboro	167	304.0
Weymouth	221	301.3
Peabody	196	278.5
Methuen	177	275.6
Quincy	324	272.4
Malden	197	272.0
Boston	1774	270.2
Revere	180	268.6
Plymouth	225	260.3
Framingham	186	228.1*
Waltham	147	216.3*
Cambridge	207	214.5*
Medford	146	211.1*
Somerville	135	202.6*
Arlington	108	181.8*
Brookline	84	124.7*
Newton	135	116.8*
STATE	22,837	270.6

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. 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:
2018**

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (per 100,000 population)
STATE	22,837	270.6
Abington	54	249.8
Acton	39	136.2
Acushnet	42	301.8
Adams	32	316.0
Agawam	128	352.2
Alford	1	- ²
Amesbury	63	298.0
Amherst	44	200.8
Andover	63	148.0
Aquinnah	0	0
Arlington	108	181.8
Ashburnham	21	251.1
Ashby	10	188.6
Ashfield	7	291.7
Ashland	40	163.7
Athol	65	444.6
Attleboro	169	307.1
Auburn	67	341.8
Avon	19	362.5
Ayer	34	370.8
Barnstable	209	328.6
Barre	24	340.2
Becket	11	488.9
Bedford	32	157.3
Belchertown	65	337.1
Bellingham	53	253.7
Belmont	50	153.9
Berkley	23	251.4
Berlin	7	162.0
Bernardston	8	283.4
Beverly	144	269.8
Billerica	130	243.9
Blackstone	30	274.8
Blandford	10	521.9
Bolton	5	104.5
Boston	1,774	270.2
Bourne	82	303.5
Boxborough	8	128.5
Boxford	15	134.5
Boylston	12	185.9
Braintree	124	266.6
Brewster	44	281.9
Bridgewater	77	231.3
Brimfield	21	445.7
Brockton	459	431.5
Brookfield	17	321.1

**Table 35 (continued). Premature Mortality Rates by Community,
Massachusetts: 2018**

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (per 100,000 population)
Brookline	84	124.7
Buckland	5	241.0
Burlington	72	216.8
Cambridge	207	214.5
Canton	74	269.8
Carlisle	4	— ²
Carver	60	319.8
Charlemont	6	337.6
Charlton	34	196.8
Chatham	24	276.4
Chelmsford	98	200.6
Chelsea	104	307.0
Cheshire	19	464.9
Chester	6	461.5
Chesterfield	4	— ²
Chicopee	273	391.4
Chilmark	5	471.7
Clarksburg	7	359.7
Clinton	69	435.8
Cohasset	21	249.8
Colrain	5	152.7
Concord	33	122.4
Conway	5	111.9
Cummington	5	310.1
Dalton	20	207.8
Danvers	112	304.6
Dartmouth	104	242.7
Dedham	80	243.4
Deerfield	18	188.2
Dennis	84	518.0
Dighton	27	282.2
Douglas	23	202.6
Dover	10	155.2
Dracut	131	325.2
Dudley	38	311.1
Dunstable	7	172.5
Duxbury	34	152.7
East Bridgewater	54	280.9
East Brookfield	5	147.8
East Longmeadow	46	214.1
Eastham	24	281.3
Easthampton	64	286.7
Easton	65	238.5
Edgartown	20	294.9
Egremont	1	— ²
Erving	7	232.3
Essex	9	190.1
Everett	130	273.1
Fairhaven	72	331.5

**Table 35 (continued). Premature Mortality Rates by Community,
Massachusetts: 2018**

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (per 100,000 population)
Fall River	474	462.8
Falmouth	127	306.1
Fitchburg	205	447.2
Florida	4	.2
Foxborough	59	265.1
Framingham	186	228.1
Franklin	76	201.8
Freetown	28	221.7
Gardner	98	393.4
Georgetown	23	224.1
Gill	5	235.3
Gloucester	129	321.4
Goshen	3	.2
Gosnold	0	0
Grafton	63	281.1
Granby	13	180.5
Granville	6	211.7
Great Barrington	37	395.1
Greenfield	77	361.2
Groton	18	137.4
Groveland	17	175.4
Hadley	25	384.7
Halifax	42	384.4
Hamilton	11	120.2
Hampden	31	493.4
Hancock	1	.2
Hanover	41	221.8
Hanson	40	308.2
Hardwick	15	325.1
Harvard	12	146.2
Harwich	49	266.5
Hatfield	10	209.1
Haverhill	295	373.9
Hawley	0	0
Heath	5	294.2
Hingham	40	143.0
Hinsdale	10	288.3
Holbrook	68	513.5
Holden	64	264.9
Holland	6	131.4
Holliston	28	170.1
Holyoke	171	389.1
Hopedale	17	226.8
Hopkinton	30	158.4
Hubbardston	16	247.6
Hudson	65	250.9
Hull	59	387.8
Huntington	5	193.9

**Table 35 (continued). Premature Mortality Rates by Community,
Massachusetts: 2018**

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (per 100,000 population)
Ipswich	46	232.4
Kingston	47	291.6
Lakeville	39	266.5
Lancaster	15	142.2
Lanesborough	13	248.2
Lawrence	255	309.9
Lee	23	279.0
Leicester	40	277.7
Lenox	14	164.4
Leominster	169	344.6
Leverett	3	.2
Lexington	67	147.3
Leyden	4	.2
Lincoln	8	108
Littleton	21	176.3
Longmeadow	30	144
Lowell	484	412.6
Ludlow	83	337.3
Lunenburg	40	297.0
Lynn	404	386.9
Lynnfield	29	226.4
Malden	197	272.0
Manchester	18	267.4
Mansfield	67	238.9
Marblehead	49	175.4
Marion	10	163.0
Marlborough	119	242.4
Marshfield	95	277.2
Mashpee	76	330.2
Mattapoisett	28	366.1
Maynard	26	198.8
Medfield	21	164.3
Medford	146	211.1
Medway	30	204.1
Melrose	85	224.9
Mendon	23	400.3
Merrimac	23	250.0
Methuen	177	275.6
Middleborough	109	284.7
Middlefield	1	.2
Middleton	15	126.7
Milford	78	224.1
Millbury	55	305.6
Millis	19	172.3
Millville	10	243.6
Milton	71	211.9
Monroe	0	0
Monson	29	216.5
Montague	54	450.0

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2018

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (per 100,000 population)
Monterey	0	0
Montgomery	3	~2
Mount Washington	0	0
Nahant	19	327.6
Nantucket	28	208.3
Natick	87	193.3
Needham	58	160.5
New Ashford	3	~2
New Bedford	488	446.7
New Braintree	5	267.9
New Marlborough	5	183.3
New Salem	3	~2
Newbury	20	195.8
Newburyport	64	264.4
Newton	135	116.8
Norfolk	23	133.8
North Adams	74	465.3
North Andover	69	185.9
North Attleboro	101	288.2
North Brookfield	13	205.8
North Reading	45	235.7
Northampton	118	318.3
Northborough	31	182.8
Northbridge	60	307.0
Northfield	17	380.5
Norton	58	242.8
Norwell	33	246.1
Norwood	101	275.6
Oak Bluffs	12	167.2
Oakham	6	203.9
Orange	41	386.0
Orleans	32	397.4
Otis	8	187.5
Oxford	59	312.0
Palmer	57	384.5
Paxton	19	305.9
Peabody	196	278.5
Pelham	4	~2
Pembroke	74	291.2
Pepperell	42	257.3
Peru	3	~2
Petersham	3	~2
Phillipston	7	277.1
Pittsfield	235	434
Plainfield	2	~2
Plainville	35	320.5
Plymouth	225	260.3
Plympton	11	293.4
Princeton	10	220.9

**Table 35 (continued). Premature Mortality Rates by Community,
Massachusetts: 2018**

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (per 100,000 population)
Provincetown	11	144.9
Quincy	324	272.4
Randolph	121	296.5
Raynham	46	239.7
Reading	65	189.9
Rehoboth	30	184.4
Revere	180	268.6
Richmond	6	169.5
Rochester	18	231.8
Rockland	82	376.3
Rockport	23	283.3
Rowe	0	0
Rowley	20	253.3
Royalston	5	297.8
Russell	12	597.9
Rutland	25	245.0
Salem	154	297.1
Salisbury	39	288.2
Sandisfield	4	.2
Sandwich	77	269.6
Saugus	112	281.8
Savoy	3	.2
Scituate	51	190.8
Seekonk	35	184.9
Sharon	31	126.9
Sheffield	22	370.2
Shelburne	8	268.3
Sherborn	8	137.1
Shirley	27	270.6
Shrewsbury	90	198.9
Shutesbury	3	.2
Somerset	76	307.2
Somerville	135	202.6
South Hadley	47	235.1
Southampton	18	204.9
Southborough	23	180.7
Southbridge	84	416.9
Southwick	37	306.2
Spencer	61	409.5
Springfield	722	461.1
Sterling	23	235.2
Stockbridge	11	332.3
Stoneham	74	258.3
Stoughton	109	332.0
Stow	11	124.0
Sturbridge	27	208.4
Sudbury	30	156.5
Sunderland	9	190.5
Sutton	23	230.1

**Table 35 (continued). Premature Mortality Rates by Community,
Massachusetts: 2018**

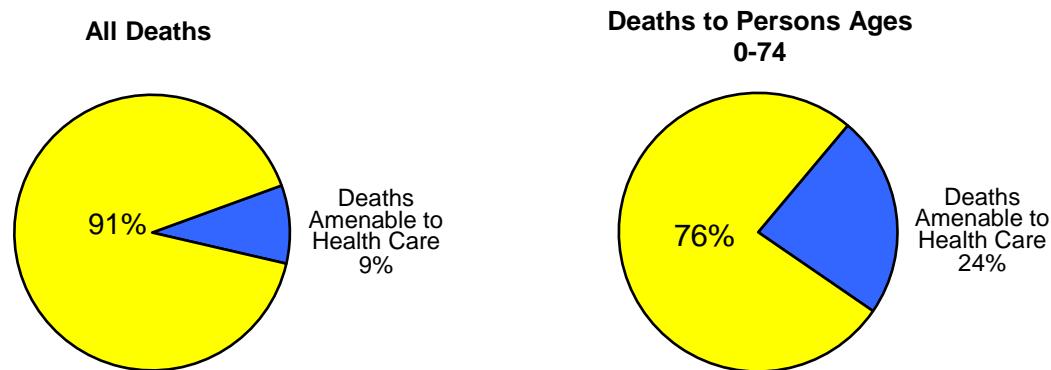
<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (per 100,000 population)
Swampscott	47	257.2
Swansea	62	301.4
Taunton	298	435.8
Templeton	28	261.5
Tewksbury	107	249.2
Tisbury	16	283.1
Tolland	5	701.0
Topsfield	9	98.8
Townsend	35	280.6
Truro	9	148.5
Tyngsborough	49	338.7
Tyringham	2	-2
Unknown	0	0
Upton	13	128.3
Uxbridge	53	251.6
Wakefield	75	226.0
Wales	14	610.2
Walpole	64	195.6
Waltham	147	216.3
Ware	44	323.2
Wareham	131	396.6
Warren	20	304.5
Warwick	0	0
Washington	0	0
Watertown	104	241.2
Wayland	30	162.9
Webster	87	408.5
Wellesley	40	125.1
Wellfleet	12	222.0
Wendell	2	-2
Wenham	9	292.9
West Boylston	28	268.2
West Bridgewater	29	272.2
West Brookfield	19	466.5
West Newbury	6	75.6
West Springfield	116	329.4
West Stockbridge	2	-2
West Tisbury	6	100.1
Westborough	50	228.0
Westfield	185	394.1
Westford	53	202.1
Westhampton	2	-2
Westminster	31	332.0
Weston	11	77.0
Westport	71	293.3
Westwood	27	141.2
Weymouth	221	301.3
Whately	4	-2
Whitman	57	347.3

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2018

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (per 100,000 population)
Williamsburg	8	212.5
Williamstown	25	286.2
Wilmington	57	204.1
Winchendon	47	381.0
Winchester	36	145.6
Windsor	2	- ²
Winthrop	70	293.2
Woburn	129	262.0
Worcester	809	419.5
Worthington	6	199.6
Wrentham	42	269.5
Yarmouth	113	317.0

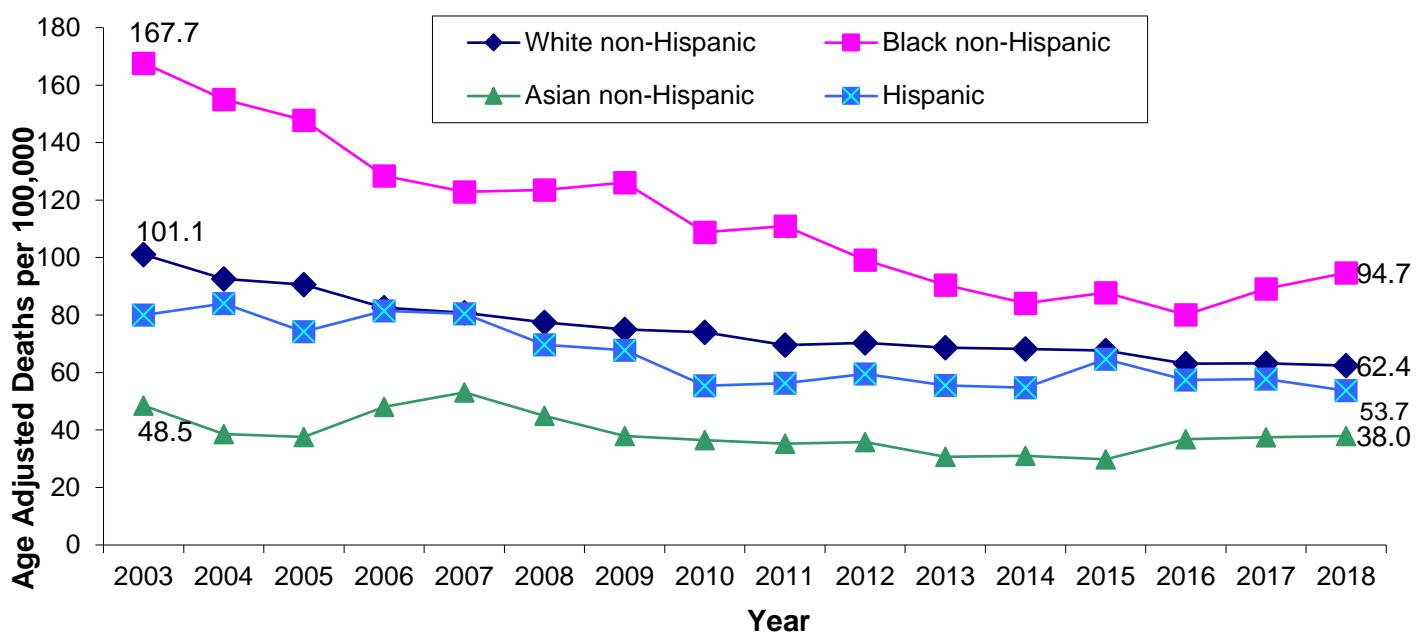
1. Premature mortality rates (PMR) are age-adjusted to the 2000 US Standard Population for persons ages 0-74 years. 2. Age-adjusted rates based on values 1-4 are excluded.

Figure 17. Percent of Deaths Amenable to Health Care¹, Massachusetts: 2018



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 Mortality¹ by Race and Hispanic Ethnicity²,
Massachusetts: 2003-2018**



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.

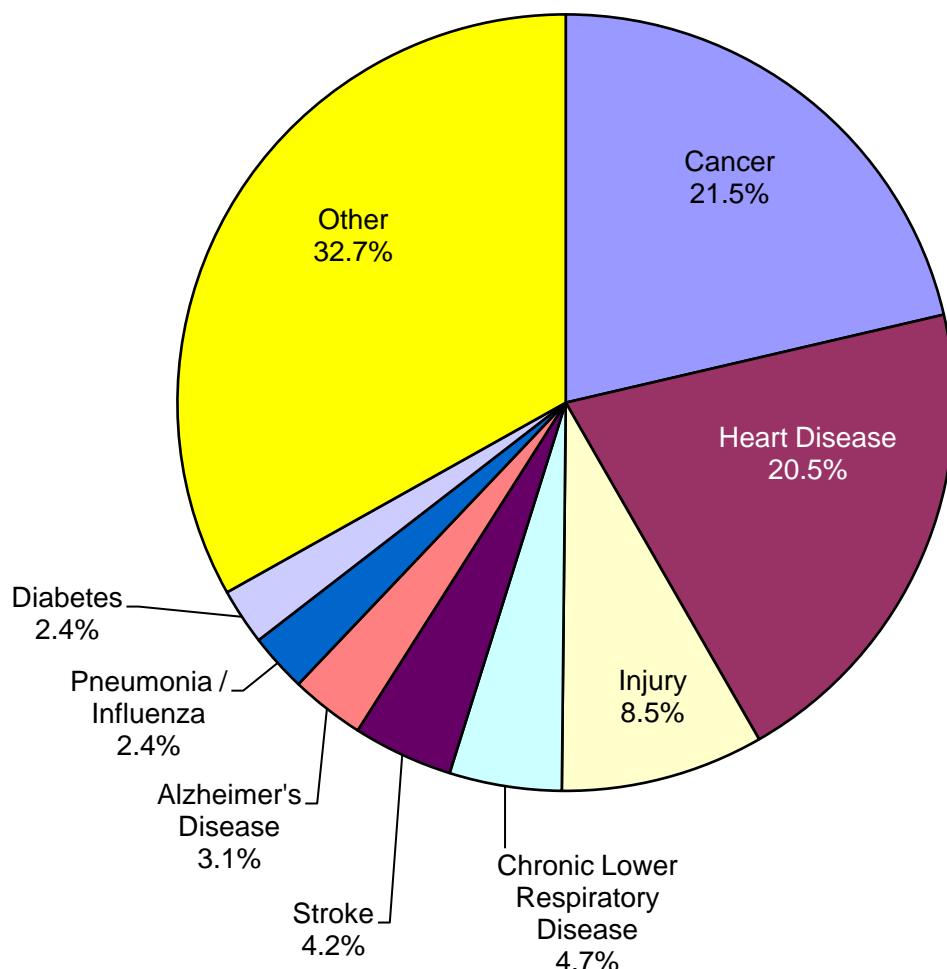
APPENDIX

Additional Tables & Figures

Technical Notes

Glossary

Figure 19. Percent Distribution of Leading Underlying Causes of Death, Massachusetts: 2018



Note: Total Number of Deaths = 59,169

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: 2018

Selected Causes ²	Total		White non-Hispanic ¹		Black non-Hispanic ¹		Asian non-Hispanic ¹		Hispanic ¹	
	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³
Age: 1-14, TOTAL	111	10.3	46	7.2	24	25.5	7	9.2	30	14.6
Cancer	23	2.1	15	2.3	2	-.6	2	-.6	4	-.6
Unintentional Injuries ⁴	19	1.8	6	0.9	6	6.4	0	0	7	3.4
Congenital malformations	12	1.1	5	0.8	0	0	2	-.6	5	2.4
III defined conditions	10	0.9	4	-.6	1	-.6	0	0	3	-.6
Age: 15-24, TOTAL	416	42.3	267	41.7	49	60.5	18	22.5	66	42.2
Unintentional Injuries ⁴	197	20.0	146	22.8	9	11.1	4	-.6	32	20.5
Suicide	80	8.1	59	9.2	5	6.2	9	11.2	4	-.6
Homicide	43	4.4	6	0.9	19	23.5	0	0	15	9.6
Cancer	23	2.3	12	1.9	4	-.6	1	-.6	4	-.6
Age: 25-44, TOTAL	2,751	150.4	1,995	165.2	221	144.8	69	38.1	389	144.0
Unintentional Injuries ⁴	1,403	76.7	1,108	91.8	53	34.7	20	11.0	188	69.6
Cancer	247	13.5	162	13.4	27	17.7	16	8.8	35	13.0
Suicide	222	12.1	170	14.1	18	11.8	6	3.3	19	7.0
Heart Disease	184	10.1	125	10.4	29	19.0	5	2.8	18	6.7
Age: 45-64, TOTAL	9,350	499.3	7,641	521.3	714	598.7	241	230.8	623	404.0
Cancer	2,805	149.8	2,313	157.8	180	150.9	106	101.5	167	108.3
Heart Disease	1,548	82.7	1,275	87.0	140	117.4	41	39.3	65	42.2
Unintentional Injuries ⁴	1,082	57.8	879	60.0	67	56.2	12	11.5	104	67.4
Chronic liver disease	389	20.8	327	22.3	22	18.4	6	5.7	32	20.8
Age: 65+, TOTAL	46,250	4,038.8	42,099	4,255.9	1,647	3,240.8	878	2,019.2	1,206	2,335.2
Heart Disease	10,285	898.1	9,490	959.4	331	651.3	145	333.5	227	439.6
Cancer	9,540	833.1	8,584	867.8	372	732.0	225	517.5	266	515.1
Chronic lower respiratory disease ⁵	2,430	212.2	2,293	231.8	55	108.2	22	50.6	47	91.0
Stroke	2,213	193.3	1,967	198.8	84	165.3	69	158.7	60	116.2

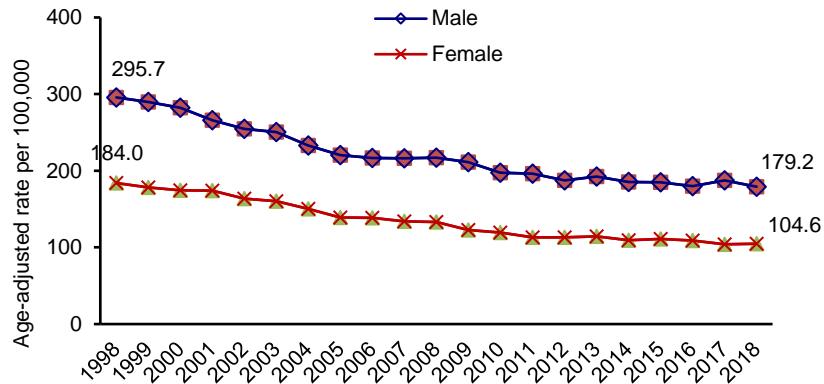
Table 36 (continued). Number and Age-Specific Rates for Leading Underlying Causes of Death by Race and Hispanic Ethnicity, Massachusetts: 2018

Selected Causes²	Total		White non-Hispanic¹		Black non-Hispanic¹		Asian non-Hispanic¹		Hispanic¹	
	#	Rate³	#	Rate³	#	Rate³	#	Rate³	#	Rate³
Age: 65-74, TOTAL	9,918	1,497.7	8,667	1,533.7	556	1,786.5	198	754.8	401	1,211.3
Cancer	3,370	508.9	2,965	524.7	161	517.3	82	312.6	127	383.6
Heart Disease	1,801	272.0	1,577	279.1	110	353.4	26	99.1	75	226.5
Chronic Lower Respiratory Disease ⁵	595	89.8	553	97.9	22	70.7	3	11.4	13	39.3
Stroke	335	50.6	271	48.0	30	96.4	12	45.7	13	39.3
Age: 75-84, TOTAL	13,806	4,294.6	12,356	4,429.6	547	3,873.1	320	2,531.0	452	3,355.8
Cancer	3,471	1,079.7	3,114	1,116.4	143	1,012.5	98	775.1	86	638.5
Heart Disease	2,682	834.3	2,414	865.4	101	715.1	48	379.7	80	593.9
Chronic Lower Respiratory Disease ⁵	876	272.5	823	295.0	17	120.4	9	71.2	24	178.2
Stroke	648	201.6	556	199.3	28	198.3	29	229.4	28	207.9
Age: 85+, TOTAL	22,526	13,952.1	21,076	14,518.3	544	9,756.1	360	7,815.7	353	6,965.6
Heart Disease	5,802	3,593.6	5,499	3,788.0	120	2,152.1	71	1,541.4	72	1,420.7
Cancer	2,699	1,671.7	2,505	1,725.6	68	1,219.5	45	977.0	53	1,045.8
Alzheimers	1,246	771.7	1,178	811.5	25	448.3	17	369.1	19	374.9
Stroke	1,230	761.8	1,140	785.3	26	466.3	28	607.9	19	374.9

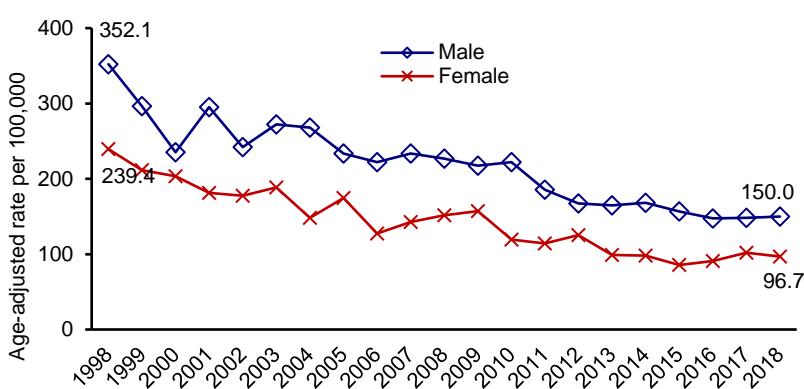
1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the Technical Notes for more information on race and ethnicity. 2. Deaths are coded according to ICD-10. Please see Appendix for a list 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 Rates¹ by Race and Hispanic Ethnicity³ and Gender, Massachusetts: 1998-2018²

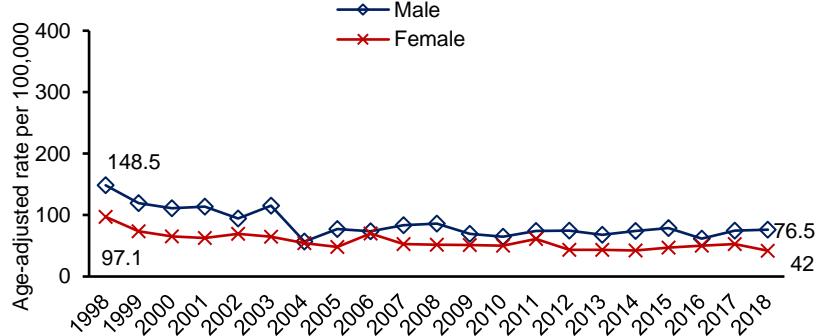
White non-Hispanic



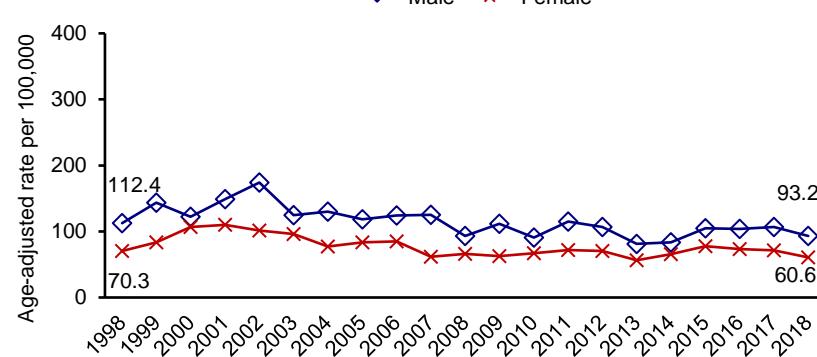
Black non-Hispanic



Asian non-Hispanic

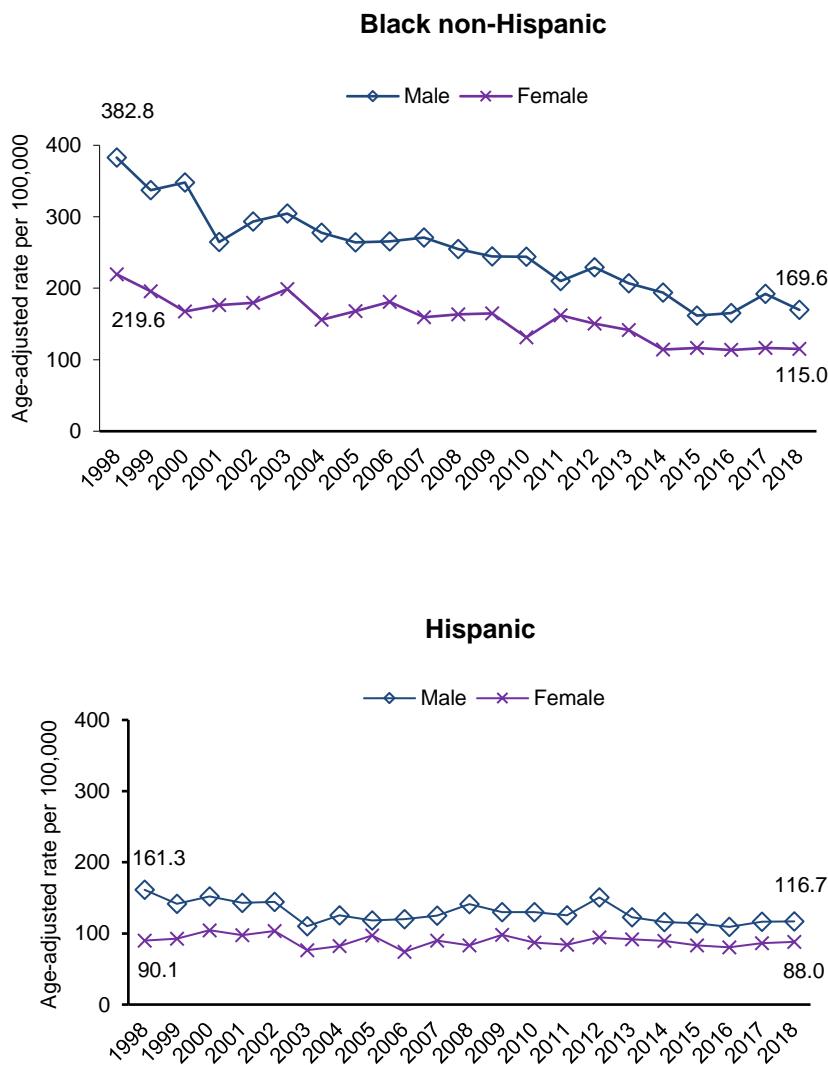
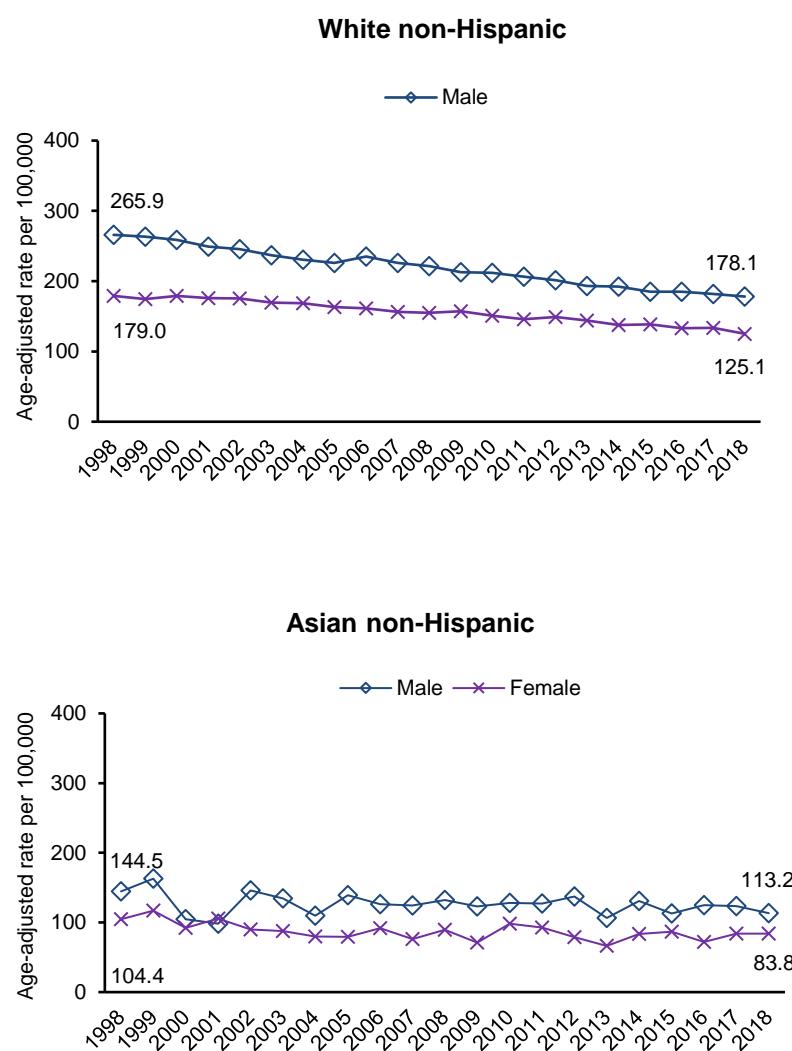


Hispanic



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 Rates¹ by Race and Hispanic Ethnicity³ and Gender, Massachusetts: 1998-2018²



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 Mortality¹ Rates (PMR) by Community Health Network Area (CHNA), Massachusetts: 2018

CHNA (Name and Number)	Number of Deaths	PMR² (per 100,000 population)
Massachusetts	22,837	270.6
1. Community Health Network of Berkshire	598	347.1
2. Upper Valley Health Web (Franklin County)	376	304.8
3. Partnership for Health in Hampshire County (Northampton)	483	265.4
4. The Community Health Connection (Springfield)	1,282	374.9
5. Community Health Network of Southern Worcester County	505	326.4
6. Community Partners for Health (Milford)	489	223.5
7. Community Health Network of Greater Metro West (Framingham)	1,027	204.2
8. Common Pathways (Worcester)	1,247	345.8
9. Community Health Network of North Central Massachusetts	1,037	309.4
10. Greater Lowell Community Health Network	1,059	305.3
11. Greater Lawrence Community Health Network	579	249.2
12. Greater Haverhill Community Health Network	585	289.5
13. Community Health Network North (Beverly/Gloucester)	398	249.1
14. North Shore Community Health Network	1,122	305.9
15. Northwest Suburban Health Alliance	506	176.1
16. North Suburban Health Alliance (Medford/Malden/Melrose)	817	237.1
17. Greater Cambridge/Somerville Community Health Network	604	201.1
18. West Suburban Health Network (Newton/Waltham)	508	155.8
19. Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	2,212	260.0
20. Blue Hills Community Health Alliance (Greater Quincy)	1,271	255.9
21. Community Health Network of Chicopee, Holyoke, Ludlow, Westfield	723	378.1
22. Greater Brockton Community Health Network	991	346.6
23. South Shore Community Health Network	751	277.4
24. Greater Attleboro-Taunton Health & Education Response	1,002	297.9
25. Partners for Healthier Communities (Fall River)	683	399.3
26. Greater New Bedford Community Health Network	921	359.9
27. Cape Cod and Islands Health Network	1,060	297.9

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 Mortality¹ Rates by County, Massachusetts: 2018

County	Number of Deaths	PMR ² (per 100,000 population)
Massachusetts	22,837	270.6
Barnstable	973	311.2
Berkshire	598	347.1
Bristol	2,336	341.5
Dukes	59	222.6
Essex	2,684	279.2
Franklin	296	290.0
Hampden	2,041	377.0
Hampshire	488	264.2
Middlesex	4,105	217.4
Nantucket	28	208.3
Norfolk	2,005	234.0
Plymouth	1,999	300.6
Suffolk	2,128	271.0
Worcester	3,096	314.3

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: 2018

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	59,169	662.8	12,036	12,638	2,984	773	2,467	2,765	1,392	1,441	401	159	741	1,991
Abington	133	761.7	28	25	6	2	5	12	1	4	1	0	1	11
Acton	132	476.7	30	27	3	1	3	9	4	3	0	1	0	4
Acushnet	109	731	28	19	6	2	2	7	2	4	0	0	5	2
Adams	104	795.4	26	19	7	0	7	3	3	1	2	0	0	7
Agawam	351	701.3	65	74	16	3	14	11	9	8	1	0	5	12
Alford	3	- ³	1	1	0	0	0	0	0	0	0	0	0	0
Amesbury	147	724.3	22	37	8	0	2	2	0	4	0	0	1	9
Amherst	170	567.3	41	29	3	2	10	3	2	6	0	0	1	2
Andover	240	515.2	53	57	12	5	5	12	3	2	1	0	2	2
Aquinnah	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arlington	348	515.9	70	84	15	4	26	10	9	5	0	0	2	3
Ashburnham	40	658.6	11	13	4	0	2	2	0	1	1	0	1	1
Ashby	22	664.7	5	5	0	0	0	1	0	1	0	0	0	0
Ashfield	12	503.1	5	3	0	0	0	0	0	0	0	0	0	1
Ashland	113	583.7	34	28	3	4	5	6	1	0	0	0	1	2
Athol	154	992.2	24	34	8	0	5	8	2	7	1	0	1	5
Attleboro	399	720.1	81	107	31	5	18	26	14	14	1	0	9	11
Auburn	208	784.7	47	38	7	3	3	20	7	7	2	0	4	6
Avon	53	916.7	7	15	3	1	2	3	3	2	1	1	0	2
Ayer	93	1,186.70	20	14	3	0	7	6	1	3	0	1	0	2
Barnstable	593	764.8	123	144	38	8	38	27	9	10	7	1	9	17
Barre	49	722.6	11	9	0	0	2	5	1	3	2	0	0	3
Becket	16	840.1	4	2	0	1	3	0	1	0	1	0	0	2
Bedford	128	477	26	34	6	0	3	0	1	1	0	0	0	3
Belchertown	127	765.7	21	32	10	4	3	4	2	4	3	0	2	7
Bellingham	118	617.9	25	29	6	1	3	5	2	1	2	0	1	8
Belmont	181	488	35	34	5	3	12	6	2	5	2	0	2	2
Berkley	37	547	13	11	1	1	1	0	0	0	0	0	1	1
Berlin	23	431.4	5	6	1	0	1	2	0	0	1	0	0	0
Bernardston	25	772.1	6	4	2	0	1	3	0	1	0	0	0	0

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2018

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	422	751.9	91	88	18	5	16	17	8	18	3	0	3	7
Billerica	338	681.5	54	80	26	4	9	24	5	5	3	0	3	13
Blackstone	66	635.4	9	16	1	3	6	7	2	0	1	0	2	3
Blandford	13	683.1	4	1	1	0	2	1	0	0	0	0	1	0
Bolton	19	427.3	3	7	2	1	0	0	0	1	0	0	0	1
Boston	3,831	606.2	684	921	198	60	155	122	135	79	18	53	58	180
Bourne	265	789.5	51	51	15	2	13	9	6	3	2	0	5	3
Boxborough	29	555.6	6	5	0	0	2	2	1	1	0	0	1	0
Boxford	54	529.9	9	14	2	1	4	1	0	1	0	0	0	0
Boylston	38	649.2	8	11	1	0	3	1	1	0	0	0	0	1
Braintree	416	720.1	70	91	26	10	20	18	10	17	3	0	3	10
Brewster	163	653.1	42	39	8	1	9	9	4	2	2	0	5	2
Bridgewater	177	604.4	37	53	18	3	7	10	4	7	0	0	2	5
Brimfield	32	689.5	5	6	0	0	2	1	2	0	1	0	2	2
Brockton	876	852.2	180	171	48	11	49	40	20	26	13	11	10	35
Brookfield	33	748.4	10	6	2	0	0	2	0	2	0	0	0	2
Brookline	293	388	65	70	12	5	12	7	4	6	2	0	6	2
Buckland	13	536.9	2	1	0	0	0	0	2	0	1	0	0	0
Burlington	256	596.3	48	56	10	2	10	10	6	5	1	0	4	3
Cambridge	545	571	113	127	27	6	24	14	17	9	4	2	11	11
Canton	243	633.7	57	54	13	4	17	5	5	8	2	0	1	4
Carlisle	19	399.2	8	6	1	0	0	0	0	0	0	0	0	1
Carver	137	857.7	39	38	10	3	4	10	2	4	2	0	0	1
Charlemont	11	572.1	3	5	3	0	2	0	0	0	0	0	0	0
Charlton	111	480.1	34	14	3	0	5	3	2	3	1	0	2	1
Chatham	119	675.6	29	14	4	0	11	4	2	2	0	0	2	1
Chelmsford	319	557.4	56	80	15	3	19	14	11	7	2	0	4	3
Chelsea	248	811.7	46	47	16	4	9	14	10	4	1	0	0	10
Cheshire	32	762.7	3	7	0	0	3	1	1	1	0	0	1	3
Chester	16	1,122.80	5	2	0	0	0	0	1	0	0	0	1	1
Chesterfield	9	818.4	2	1	1	0	1	0	0	0	0	0	0	0
Chicopee	630	837.5	143	122	37	5	20	36	24	10	1	0	5	31
Chilmark	11	704.4	2	2	0	0	0	0	0	0	1	0	0	0
Clarksburg	19	901.1	5	4	0	1	0	2	0	1	0	0	0	0

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2018

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	149	981.3	33	27	4	2	5	3	6	4	0	0	1	5
Cohasset	71	592.5	16	14	0	2	4	4	1	3	0	0	1	2
Colrain	17	711.3	2	2	0	0	1	1	0	1	0	0	0	0
Concord	161	361.6	24	37	7	1	8	6	7	2	2	0	0	2
Conway	9	417.8	3	3	0	0	0	0	1	0	0	0	0	0
Cummington	11	828.5	2	4	2	0	1	0	0	0	0	0	0	0
Dalton	77	642.1	17	12	2	2	3	3	1	1	3	0	0	0
Danvers	370	743	79	51	8	1	12	16	5	11	0	0	5	8
Dartmouth	333	599	88	68	20	1	8	15	6	7	3	0	4	4
Dedham	312	592.7	70	64	19	6	10	13	4	6	2	0	5	5
Deerfield	53	696.4	11	12	3	1	4	0	1	0	1	0	0	1
Dennis	225	837.2	52	57	12	3	9	4	4	5	0	2	0	14
Dighton	72	832.1	18	13	5	0	3	7	8	1	0	1	0	2
Douglas	51	719.6	9	13	2	0	1	4	3	5	0	0	1	2
Dover	27	486.5	7	5	0	1	3	1	0	0	0	0	1	0
Dracut	312	837.1	57	76	14	4	11	22	8	7	1	0	2	10
Dudley	93	755.9	22	20	6	1	3	5	1	3	0	0	2	5
Dunstable	18	591.3	3	6	1	1	1	0	0	0	0	0	1	1
Duxbury	130	473.4	32	30	6	1	6	5	1	1	0	0	2	0
East Bridgewater	125	708	32	26	7	2	4	7	2	3	2	0	0	6
East Brookfield	18	679.1	4	4	0	1	0	1	0	1	1	0	0	0
East Longmeadow	209	592.6	42	43	11	6	13	5	2	9	1	0	1	1
Eastham	73	596.3	13	25	8	0	2	0	2	2	0	0	0	0
Easthampton	183	787.3	41	31	8	1	5	8	8	7	3	0	3	6
Easton	179	650.6	35	35	5	4	5	5	5	3	2	0	4	5
Edgartown	47	852.4	9	13	4	0	1	3	0	0	0	0	1	1
Egremont	16	675.8	3	4	0	0	0	1	1	0	0	0	0	0
Erving	14	521.6	4	3	0	0	0	2	0	0	0	0	0	0
Essex	27	585.5	6	6	0	0	0	0	1	0	0	0	0	1
Everett	284	637.1	57	59	18	2	8	11	8	4	2	1	2	15
Fairhaven	215	733.9	40	35	10	2	8	8	5	4	1	0	4	4
Fall River	1,026	886.8	222	188	59	13	33	55	27	36	5	2	6	55
Falmouth	450	688.3	109	92	22	2	21	18	6	6	2	1	5	11
Fitchburg	451	968.4	82	88	17	0	18	26	13	11	0	2	1	15

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2018

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	9	780	1	2	0	0	1	1	0	1	0	0	0	0
Foxborough	141	657.5	30	35	9	3	10	7	3	7	2	0	5	4
Framingham	550	557.5	143	98	18	8	24	21	14	17	3	0	11	20
Franklin	213	639.2	44	49	9	1	10	6	3	6	4	0	6	7
Freetown	67	682	10	19	5	3	1	5	3	3	0	0	0	4
Gardner	223	781.9	31	46	10	3	29	12	1	12	0	0	1	12
Georgetown	61	746.7	11	11	6	1	1	5	2	0	0	0	3	2
Gill	12	624.9	3	3	0	0	0	1	0	1	0	0	0	0
Gloucester	328	711.6	60	71	13	7	12	16	11	5	0	0	5	17
Goshen	8	675.7	3	0	0	0	0	0	0	1	0	0	0	0
Gosnold	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grafton	129	642.5	25	28	4	4	4	6	2	3	2	0	4	3
Granby	43	613.3	13	7	1	1	0	3	0	2	0	0	0	1
Granville	8	312.7	3	2	0	0	0	0	0	0	0	0	0	0
Great Barrington	91	839	14	25	4	2	4	6	3	0	2	0	4	2
Greenfield	207	766.9	53	33	4	0	6	4	3	6	3	0	3	11
Groton	63	498.1	14	21	3	3	3	1	1	2	1	0	0	0
Groveland	59	531.8	15	10	1	1	3	5	1	0	0	0	2	0
Hadley	70	701.6	17	11	0	1	3	2	1	3	0	0	0	2
Halifax	80	824.6	16	17	2	1	3	6	1	0	0	0	1	3
Hamilton	34	387.1	4	8	2	0	1	1	3	1	0	0	1	1
Hampden	71	895.2	9	13	4	0	2	2	2	2	2	0	3	4
Hancock	5	394.7	2	2	0	0	0	0	0	0	0	0	0	0
Hanover	109	624.3	22	28	5	1	3	4	3	4	1	1	1	2
Hanson	96	904	24	19	7	4	2	3	4	1	0	0	0	3
Hardwick	27	689.3	4	8	1	1	0	3	1	0	0	0	0	1
Harvard	24	386.3	6	6	1	0	2	1	1	0	0	0	1	1
Harwich	193	688.3	41	45	8	2	11	5	3	3	2	0	2	2
Hatfield	31	617.3	4	7	2	0	1	2	0	0	0	0	1	1
Haverhill	663	864.9	146	121	27	5	22	38	16	25	10	1	8	25
Hawley	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heath	14	957.1	3	6	1	0	0	1	0	0	0	0	0	0
Hingham	311	517.1	71	61	10	4	11	15	4	5	0	0	1	2

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2018

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	18	505.3	3	5	0	0	2	1	0	0	0	1	0	0
Holbrook	128	969.2	25	35	9	2	7	4	4	7	4	0	1	8
Holden	150	606	28	34	4	3	4	10	2	5	2	0	2	3
Holland	22	975.3	3	6	0	0	0	0	1	0	0	1	0	0
Holliston	98	603.1	25	24	4	1	2	3	0	2	0	1	1	1
Holyoke	428	805.5	102	77	16	3	16	20	5	11	2	2	3	14
Hopedale	53	630.1	11	10	2	1	3	4	1	2	1	0	0	1
Hopkinton	94	776.3	21	22	2	0	2	13	2	1	0	0	1	3
Hubbardston	30	630.5	5	10	1	1	2	1	1	2	0	0	0	2
Hudson	181	693.2	45	44	9	3	3	6	3	3	1	0	1	6
Hull	122	901.1	15	39	13	3	3	7	4	2	0	0	3	5
Huntington	19	879.4	2	5	2	0	1	0	1	0	1	0	0	1
Ipswich	141	602.5	33	39	4	2	5	3	7	4	1	0	0	5
Kingston	139	690	28	31	6	2	4	6	2	4	0	0	4	2
Lakeville	85	669.6	19	29	6	1	3	3	0	0	0	0	3	2
Lancaster	47	489.4	9	10	2	1	0	5	1	1	0	0	1	0
Lanesborough	28	583.6	11	6	1	0	1	3	0	1	0	0	0	0
Lawrence	521	752.9	99	91	17	12	21	23	11	17	6	5	4	48
Lee	74	689.6	17	16	5	2	4	5	1	1	1	0	1	2
Leicester	103	748.6	23	18	6	0	4	5	3	2	0	1	1	6
Lenox	98	581.8	24	18	4	1	3	0	1	4	0	0	1	0
Leominster	424	762.5	73	84	29	3	28	35	5	9	2	0	5	12
Leverett	12	533.1	4	2	1	0	1	0	0	1	1	0	0	0
Lexington	253	403.4	53	57	8	6	15	6	5	3	2	0	3	3
Leyden	6	565.7	1	2	1	0	0	1	1	1	0	0	0	0
Lincoln	74	1,423.40	11	19	2	1	8	2	1	1	0	0	1	0
Littleton	77	558.3	15	8	5	0	3	5	3	4	0	0	2	1
Longmeadow	169	540.1	44	27	5	4	11	8	2	6	2	0	1	2
Lowell	904	834.3	151	172	40	11	36	49	24	21	8	3	23	64
Ludlow	216	702.8	39	45	15	0	11	9	4	2	1	3	5	7
Lunenburg	98	772.1	17	30	4	1	6	3	1	1	0	0	2	3
Lynn	765	790.1	161	149	40	10	26	38	28	11	3	2	8	51
Lynnfield	109	612.6	24	21	1	1	5	2	1	2	1	0	1	5
Malden	423	638.8	78	104	27	7	16	16	17	10	0	0	8	19

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2018

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	47	606.9	9	10	2	0	2	7	0	1	0	0	0	0
Mansfield	174	741.7	38	42	8	8	6	9	4	4	0	0	2	3
Marblehead	181	610	32	37	13	2	13	6	6	8	1	0	2	3
Marion	49	508.3	8	7	1	2	3	1	1	2	0	0	1	1
Marlborough	325	611.4	70	60	13	8	17	18	11	7	1	1	2	14
Marshfield	218	680.6	39	46	7	2	9	14	5	6	1	1	6	8
Mashpee	197	664.2	43	44	13	3	7	4	4	1	3	0	6	2
Mattapoisett	59	650.3	12	12	4	0	3	3	0	1	0	0	3	5
Maynard	61	518.3	15	18	9	0	1	0	2	1	1	0	1	1
Medfield	61	444.7	17	12	2	0	3	0	0	1	1	0	3	2
Medford	483	610.8	90	88	18	7	23	27	12	8	1	0	1	7
Medway	81	551	13	13	5	1	2	4	0	1	1	0	0	3
Melrose	255	623.6	65	57	15	3	7	11	9	8	3	0	1	8
Mendon	46	883.6	6	10	3	1	0	2	0	1	2	0	1	2
Merrimac	54	671.3	10	12	3	3	1	4	2	1	0	0	1	1
Methuen	437	658.2	93	110	22	6	11	21	7	15	0	1	1	18
Middleborough	256	647.6	47	51	11	5	6	23	5	6	1	0	3	6
Middlefield	3	-3	1	0	0	0	0	0	0	0	0	0	0	0
Middleton	59	452.6	12	9	3	1	8	2	0	1	1	0	1	2
Milford	248	688.6	58	53	15	2	8	10	6	10	2	0	0	6
Millbury	146	809.8	36	25	8	0	6	12	0	3	0	0	3	7
Millis	53	603.9	9	6	1	1	2	4	2	2	0	0	1	2
Millville	22	755.3	5	8	3	3	2	1	1	1	0	0	0	0
Milton	227	545.1	43	49	10	5	18	10	9	4	0	0	0	7
Monroe	1	-3	0	0	0	0	0	0	0	0	0	0	0	0
Monson	68	651.9	9	16	5	2	3	5	0	3	1	0	2	2
Montague	115	925.8	29	33	5	3	6	3	1	6	2	0	1	2
Monterey	3	-3	0	0	0	0	0	0	0	0	0	0	0	0
Montgomery	5	486.9	2	0	0	0	0	0	0	0	1	1	1	0
Mount Washington	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nahant	52	779.6	14	11	2	0	0	4	2	2	0	0	1	0
Nantucket	77	611.4	16	17	1	1	5	3	4	7	0	0	1	1
Natick	303	661.5	73	63	17	4	7	17	9	5	2	0	4	4
Needham	274	545.7	57	55	12	5	20	8	9	8	2	0	1	2

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2018

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2018

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	11	706	4	1	1	0	1	0	1	0	0	0	0	0
Phillipston	14	918.2	0	2	0	0	2	2	0	1	0	0	0	0
Pittsfield	567	852	126	109	30	10	22	38	17	12	3	2	6	19
Plainfield	3	-3	1	2	1	0	0	0	0	0	0	0	0	0
Plainville	73	721.3	20	18	5	1	2	9	1	2	0	0	3	0
Plymouth	565	657.1	97	117	25	5	17	38	9	15	4	0	9	20
Plympton	23	606.5	5	8	3	1	0	0	0	1	2	0	0	0
Princeton	17	442.9	2	2	0	0	1	2	0	2	1	0	0	1
Provincetown	35	623.9	9	7	3	0	5	3	0	1	0	0	0	0
Quincy	848	634.2	165	191	66	13	32	30	15	27	5	1	6	39
Randolph	282	708.5	66	44	12	2	12	12	14	8	2	0	3	10
Raynham	152	794.9	23	33	8	2	7	6	4	5	1	0	2	3
Reading	211	568.7	54	42	7	2	10	7	3	6	0	0	1	5
Rehoboth	75	552.6	10	21	5	1	2	4	1	1	1	0	0	3
Revere	457	594.8	86	109	34	4	11	23	14	11	6	2	1	15
Richmond	14	529.2	5	2	0	0	1	1	0	0	0	0	0	0
Rochester	46	743.4	5	13	4	1	1	5	0	3	1	0	0	1
Rockland	192	864.9	35	39	12	4	15	9	6	5	1	0	3	9
Rockport	76	629.3	16	17	5	0	2	6	0	1	0	0	3	2
Rowe	3	-3	1	1	1	0	0	0	0	0	0	0	0	0
Rowley	44	592.8	12	7	0	1	0	2	0	2	0	0	1	1
Royalston	11	809.4	3	1	0	0	0	1	1	0	0	0	0	0
Russell	16	861.4	0	6	4	0	0	1	0	0	0	0	2	1
Rutland	48	596.8	8	15	4	0	4	2	2	1	2	0	0	1
Salem	347	671	72	75	22	1	16	10	9	13	1	0	3	20
Salisbury	79	678.2	18	18	8	2	6	2	0	6	1	0	0	5
Sandisfield	6	471.6	1	1	0	0	0	0	0	1	1	0	0	0
Sandwich	188	640.9	29	49	11	2	8	10	2	3	0	0	3	6
Saugus	300	717.1	70	62	19	3	7	14	6	2	2	1	1	11
Savoy	6	750.8	0	2	1	0	0	0	2	0	0	0	0	0
Scituate	166	558.3	34	33	6	3	7	4	1	7	0	0	0	1
Seekonk	108	585	23	19	6	0	7	5	3	5	0	0	0	2
Sharon	103	465.4	23	30	7	2	3	5	0	2	0	0	2	0
Sheffield	45	770.1	12	16	2	1	0	2	2	0	1	0	1	0

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2018

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	29	936.1	7	6	3	0	0	3	0	0	1	0	0	0
Sherborn	20	388.9	4	6	0	1	0	0	0	0	0	0	1	1
Shirley	55	703.6	14	20	4	0	0	4	1	1	0	0	3	0
Shrewsbury	280	539.8	59	61	11	6	15	8	7	5	1	1	5	7
Shutesbury	10	570.8	3	2	0	0	0	0	0	0	0	0	0	0
Somerset	252	704.5	60	60	14	1	12	15	4	8	2	0	2	5
Somerville	395	632.6	87	88	18	1	16	23	17	5	1	1	5	7
South Hadley	178	643.1	50	27	6	3	6	13	2	6	2	0	0	3
Southampton	51	784.4	11	16	3	0	3	1	1	0	0	0	0	0
Southborough	54	476.4	14	18	4	1	2	4	2	1	0	0	0	1
Southbridge	207	948	50	27	9	2	9	15	4	3	0	0	2	5
Southwick	110	758.4	22	25	8	0	0	9	5	0	3	0	2	4
Spencer	124	829	24	30	8	1	4	7	4	0	3	0	4	4
Springfield	1,347	892.1	266	267	68	26	48	66	43	21	18	16	13	80
Sterling	80	613.3	13	12	2	0	7	5	1	1	1	0	0	2
Stockbridge	24	645.6	5	7	1	0	3	0	0	0	0	0	0	1
Stoneham	235	634.1	32	56	12	3	13	17	3	6	0	0	3	6
Stoughton	280	721.8	52	52	15	1	11	19	5	4	7	0	6	15
Stow	46	484.1	9	10	0	0	3	1	0	0	1	0	0	0
Sturbridge	90	705.9	26	19	6	3	4	1	0	1	2	1	3	1
Sudbury	109	495	33	29	1	3	2	2	0	5	0	0	0	3
Sunderland	18	398.9	1	5	1	0	0	1	2	1	0	0	0	1
Sutton	59	698.5	11	14	1	0	2	1	0	2	1	0	2	2
Swampscott	132	549.3	23	37	8	1	4	2	2	5	0	0	2	4
Swansea	171	708.9	31	37	11	0	7	14	5	3	1	0	3	7
Taunton	600	831.8	107	129	31	11	26	22	9	12	4	1	12	35
Templeton	76	712.3	20	12	4	0	0	3	1	1	0	0	1	4
Tewksbury	301	683.9	48	75	22	4	11	18	6	10	0	0	4	8
Tisbury	45	843.4	7	10	0	0	3	2	1	0	0	0	2	3
Tolland	7	944.2	2	0	0	0	0	1	2	0	0	0	0	1
Topsfield	53	413.2	6	9	3	2	3	2	1	1	0	0	0	0
Townsend	67	712.4	14	24	6	2	4	3	0	2	0	0	0	2
Truro	20	444.6	5	4	0	0	0	3	0	0	0	0	0	0
Tyngsborough	87	756.7	15	28	8	0	2	5	0	5	1	0	1	5

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2018

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	2	-3	1	0	0	0	0	0	0	0	0	0	0	0
Upton	34	417.2	2	9	2	1	1	2	0	2	0	0	0	2
Uxbridge	119	596	26	34	9	0	3	5	6	4	1	0	0	3
Wakefield	239	685.9	37	44	6	6	9	12	6	5	0	0	2	8
Wales	27	1,247.50	6	5	2	0	2	1	0	1	1	0	0	2
Walpole	213	568.3	36	47	15	2	11	12	6	6	1	0	4	10
Waltham	403	553.2	83	95	21	5	14	19	12	11	0	0	10	7
Ware	97	717.1	20	24	7	1	8	9	1	0	2	1	1	4
Wareham	281	830.3	59	69	23	7	9	24	7	5	0	1	3	15
Warren	47	874.7	8	13	3	0	1	4	1	0	1	0	0	1
Warwick	3	-3	0	0	0	0	0	0	0	0	0	0	0	0
Washington	4	-3	1	0	0	0	1	0	0	0	0	0	0	0
Watertown	278	628.7	60	76	18	1	11	9	13	5	0	0	5	3
Wayland	121	527.6	29	28	3	4	8	6	0	2	1	0	1	2
Webster	222	894	37	44	19	5	18	15	2	6	2	0	7	9
Wellesley	174	453.5	31	32	3	5	7	6	3	5	1	0	2	1
Wellfleet	33	553.6	8	8	2	1	2	5	0	0	0	0	2	0
Wendell	5	760.3	1	0	0	0	0	2	0	0	1	0	0	0
Wenham	23	501.9	3	6	1	0	0	1	1	2	0	0	0	2
West Boylston	83	540.3	17	17	3	1	1	3	0	3	1	1	2	4
West Bridgewater	91	702.1	24	20	3	0	1	8	1	0	0	0	1	2
West Brookfield	60	1,010.20	11	6	0	0	4	5	0	1	1	1	1	0
West Newbury	19	388.2	2	6	0	0	1	3	0	0	0	0	0	0
West Springfield	290	761.9	54	63	12	3	9	11	9	6	2	2	5	14
West Stockbridge	10	427.5	1	4	2	0	1	1	1	0	0	0	0	0
West Tisbury	20	495.7	2	8	0	0	2	0	0	0	0	0	0	0
Westborough	194	726.9	46	36	8	3	9	7	0	3	0	0	2	6
Westfield	429	838.5	86	90	31	4	13	28	10	14	0	1	10	18
Westford	155	765.4	29	36	10	4	7	4	3	2	1	0	2	2
Westhampton	10	452	2	2	1	0	0	1	0	0	0	0	0	0
Westminster	80	1,026.60	20	20	6	3	7	3	1	0	1	1	2	4
Weston	95	418.4	24	12	1	2	9	1	2	1	0	0	3	0
Westport	172	613.3	26	39	9	2	6	5	1	6	3	0	7	8

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2018

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
Weymouth	586	766.3	124	118	22	9	24	30	12	23	4	1	5	16
Whately	11	445.1	2	2	1	0	0	0	0	0	0	0	0	1
Whitman	119	851.3	19	39	12	3	6	8	3	4	0	0	3	4
Wilbraham	170	622.6	35	32	8	3	5	6	1	1	0	0	3	1
Williamsburg	21	588.9	3	3	0	0	0	5	1	0	0	0	0	1
Williamstown	83	610.7	17	10	1	0	7	7	1	0	1	0	0	1
Wilmington	180	575.9	45	27	7	3	8	8	3	1	1	0	2	6
Winchendon	105	958.2	16	28	8	1	8	8	4	5	3	0	2	5
Winchester	149	438.3	27	35	7	6	10	3	1	2	0	1	0	2
Windsor	6	532.2	2	1	0	0	0	1	1	0	0	0	0	0
Winthrop	194	731.7	35	42	9	0	8	4	3	9	2	0	4	7
Woburn	418	670.3	76	87	20	4	20	27	18	14	1	0	10	14
Worcester	1,770	898.9	343	354	90	15	56	83	48	55	15	7	14	97
Worthington	13	751.3	2	3	1	0	0	1	0	0	0	0	1	0
Wrentham	116	691.1	25	23	8	1	5	2	3	6	0	0	0	1
Yarmouth	393	699.3	84	79	17	4	18	16	5	7	5	0	4	7
Unknown	5	-	1	2	0	0	0	1	0	0	0	0	0	1

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: 2018

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	59,169	662.8	12,036	12,638	2,984	773	2,467	2,765	1,392	1,441	401	159	741	1,991
1. Community Health Network of Berkshire	1,582	746.6	348	316	72	23	75	89	41	33	19	4	15	40
2. Upper Valley Health Web (Franklin County)	914	733.9	207	192	43	4	34	41	16	31	11	0	7	27
3. Partnership for Health in Hampshire County (Northampton)	1,321	674.5	293	265	61	17	54	61	24	38	12	3	14	36
4. The Community Health Connection (Springfield)	2,975	778.8	588	596	153	50	111	131	78	59	32	20	42	130
5. Community Health Network of Southern Worcester County	1,237	770.5	262	246	68	17	55	72	23	25	13	3	24	33
6. Community Partners for Health (Milford)	1,279	644.3	250	290	68	16	47	58	28	39	17	0	13	45
7. Community Health Network of Greater Metro West (Framingham)	3,099	591.5	729	658	137	50	129	145	60	74	14	2	44	86
8. Common Pathways (Worcester)	2,939	775.0	594	593	134	32	97	148	71	84	24	11	35	135
9. Community Health Network of North Central Massachusetts	2,413	748.3	457	547	122	24	138	140	46	66	19	4	22	80
10. Greater Lowell Community Health Network	2,434	735.1	413	553	136	31	96	136	57	57	16	3	40	106
11. Greater Lawrence Community Health Network	1,528	648.1	320	325	66	28	55	67	26	43	10	6	10	71
12. Greater Haverhill Community Health Network	1,447	735.6	296	285	63	22	54	78	28	41	11	1	22	49
13. Community Health Network North (Beverly/Gloucester)	1,151	641.7	228	254	48	16	41	53	32	33	4	0	12	35
14. North Shore Community Health Network	3,015	695.8	646	575	143	25	127	119	70	76	9	5	31	115
15. Northwest Suburban Health Alliance	1,876	514.6	369	398	76	24	90	78	50	37	7	2	23	39
16. North Suburban Health Alliance (Medford/Malden/Melrose)	2,235	623.5	431	476	109	30	90	105	59	48	8	1	18	73
17. Greater Cambridge/Somerville Community Health Network	1,747	567.8	365	409	83	15	89	62	58	29	7	3	25	26
18. West Suburban Health Network (Newton/Waltham)	2,022	490.7	422	428	86	33	106	71	43	46	6	1	27	19
19. Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	5,023	597.0	916	1,189	269	73	195	170	166	109	29	55	69	214
20. Blue Hills Community Health Alliance (Greater Quincy)	3,771	640.1	771	791	199	60	163	160	84	118	21	3	32	103
21. Community Health Network of Chicopee, Holyoke, Ludlow, Westfield	1,738	806.7	377	341	101	12	61	93	45	37	5	6	24	72
22. Greater Brockton Community Health Network	2,161	771.9	439	471	126	29	97	116	48	60	30	12	28	93
23. South Shore Community Health Network	1,833	687.4	361	414	92	29	66	101	39	43	12	2	27	48
24. Greater Attleboro-Taunton Health & Education Response	2,318	711.5	461	528	131	37	93	130	58	53	13	2	38	76
25. Partners for Healthier Communities	1,621	799.7	339	324	93	16	58	89	37	53	11	2	18	75
26. Greater New Bedford Community Health Network	2,192	752.2	444	434	131	29	70	121	52	55	16	4	32	90
27. Cape Cod and Islands Health Network	3,296	685.3	709	740	174	31	176	130	53	54	25	4	49	75

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: 2018

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	59,169	662.8	12,036	12,638	2,984	773	2,467	2,765	1,392	1,441	401	159	741	1,991
Barnstable	3,049	696.2	662	681	165	30	163	119	48	47	23	4	43	70
Berkshire	1,582	746.6	348	316	72	23	75	89	41	33	19	4	15	40
Bristol	5,534	747.1	1,129	1,140	311	70	201	286	139	147	40	7	79	216
Dukes	170	643.0	31	42	8	0	8	8	1	0	2	0	5	4
Essex	7,141	681.7	1,490	1,439	320	91	277	317	156	193	34	12	75	270
Franklin	724	697.1	176	154	34	4	26	30	12	23	10	0	6	22
Hampden	4,775	789.5	977	949	254	62	175	226	125	97	38	27	68	205
Hampshire	1,340	676.6	295	270	63	17	55	61	25	38	13	3	14	37
Middlesex	11,783	592.5	2,389	2,612	549	153	511	531	297	249	52	13	152	318
Nantucket	77	611.4	16	17	1	1	5	3	4	7	0	0	1	1
Norfolk	5,886	607.2	1,206	1,246	309	92	274	248	125	175	50	4	75	168
Plymouth	4,816	701.9	966	1,081	269	77	184	273	96	120	31	14	61	150
Suffolk	4,730	615.8	851	1,119	257	68	183	163	162	103	27	55	63	212
Worcester	7,560	748.5	1,499	1,572	372	85	330	410	161	209	62	16	84	278

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

<input type="checkbox"/> American Indian/Alaska Native (specify tribal nation): _____ <input type="checkbox"/> Asian <input type="checkbox"/> Black <input type="checkbox"/> Guamanian or Chamorro <input type="checkbox"/> Hispanic/Latino/Black <input type="checkbox"/> Hispanic/Latino/White <input type="checkbox"/> Hispanic/Latino/Other(specify): _____	<input type="checkbox"/> Native Hawaiian <input type="checkbox"/> Samoan <input type="checkbox"/> White <input type="checkbox"/> Other Pacific Islander (specify): _____ <input type="checkbox"/> Other race not listed (specify): _____ <input type="checkbox"/> Refused <input type="checkbox"/> Not obtainable <input type="checkbox"/> Unknown
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Decedent Race

Enter race to appear on death certificate: _____

Decedent Ethnicity

<input type="checkbox"/> African (specify): _____	<input type="checkbox"/> Laotian
<input type="checkbox"/> African-American	<input type="checkbox"/> Mexican, Mexican American, Chicano
<input type="checkbox"/> American	<input type="checkbox"/> Middle Eastern (specify): _____
<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Native American (specify tribal nation(s)): _____
<input type="checkbox"/> Brazilian	<input type="checkbox"/> Portuguese
<input type="checkbox"/> Cambodian	<input type="checkbox"/> Puerto Rican
<input type="checkbox"/> Cape Verdean	<input type="checkbox"/> Russian
<input type="checkbox"/> Caribbean Islander (specify): _____	<input type="checkbox"/> Salvadoran
<input type="checkbox"/> Chinese	<input type="checkbox"/> Vietnamese
<input type="checkbox"/> Colombian	<input type="checkbox"/> Other Asian (specify): _____
<input type="checkbox"/> Cuban	<input type="checkbox"/> Other Central American (specify): _____
<input type="checkbox"/> Dominican	<input type="checkbox"/> Other Pacific Islander (specify): _____
<input type="checkbox"/> European (specify): _____	<input type="checkbox"/> Other Portuguese (specify): _____
<input type="checkbox"/> Filipino	<input type="checkbox"/> Other South American (specify): _____
<input type="checkbox"/> Guatemalan	<input type="checkbox"/> Other ethnicity (ies) not listed (specify): _____
<input type="checkbox"/> Haitian	<input type="checkbox"/> Refused
<input type="checkbox"/> Honduran	<input type="checkbox"/> Not obtainable
<input type="checkbox"/> Japanese	<input type="checkbox"/> Unknown
<input type="checkbox"/> 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 Pneumonia¹ 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

by Joyce A. Martin, M.P.H.; Brady E. Hamilton, Ph.D.; Paul D. Sutton, Ph.D.; Stephanie J. Ventura, M.A.; Fay Menacker, Dr. P.H.; and Martha L. Munson, M.S.;

From the Division of Vital Statistics, NCHS. (Technical Notes, "Significance testing" section begins on page 110).

This document is available from the following website:

<http://www.cdc.gov/nchs/products/pubs/pubd/nvsr/52/52-23.htm>

For comparisons of more than 100 events, whether they are rates, proportions, or numbers, the binomial distribution is assumed, and confidence intervals are examined to see whether they overlap (Refer to the "Confidence Intervals" section in the next page for an explanation of using confidence intervals to determine statistical significance). When the number of events is less than 100, a Poisson distribution is assumed, and confidence intervals are constructed based upon the Poisson distribution. For more details and exact formulas for calculating confidence intervals or other tests of statistical significance, refer to the publication listed above.

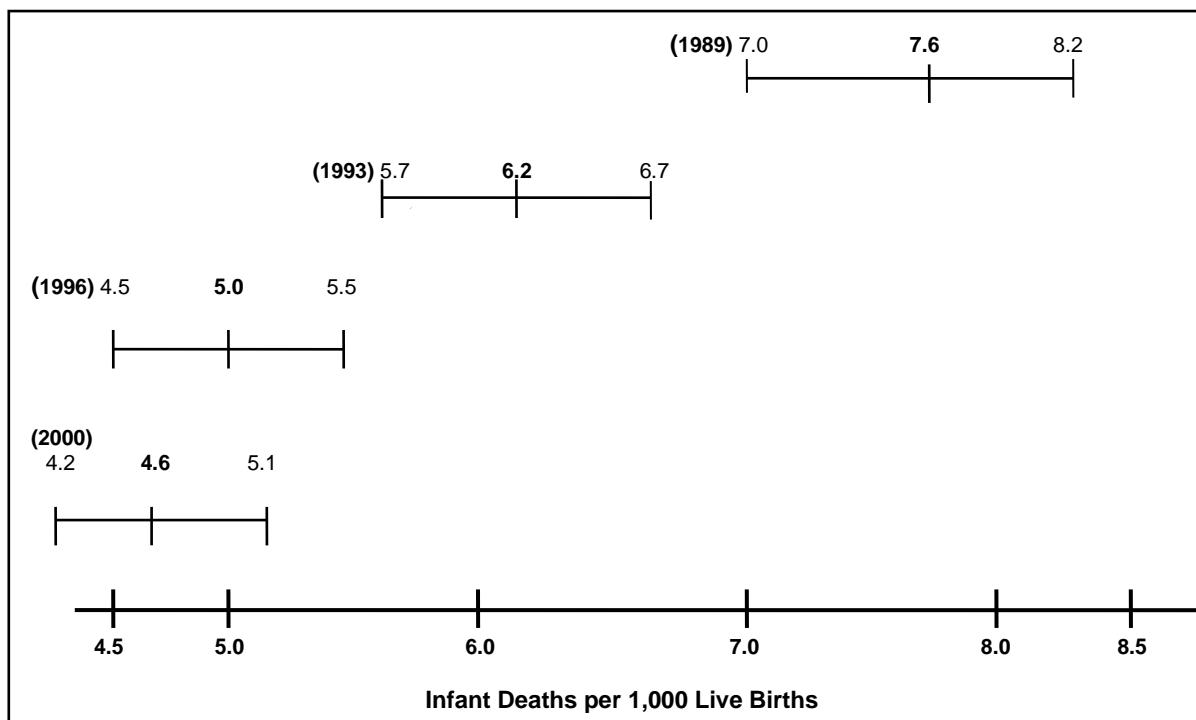
When two statistics are determined to differ significantly, they are referred to in the text as being "significantly" different, either lower or higher than the statistic of comparison.

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 (using 1940 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 Diseases¹	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 Objectives¹ 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	Comparability Ratio (most similar title)
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	Comparability Ratio (most similar title)
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 Estimates¹ 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 Estimates¹ for Massachusetts Communities, 2018

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 Estimates¹ for Massachusetts Communities, 2018

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 Estimates¹ for Massachusetts Communities, 2018

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

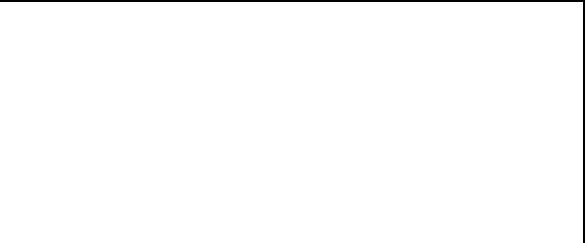
1. State, County, and Small Area Population Estimates 2011-2020, version 2018, Massachusetts Department of Public Health, Bureau of Environmental Health. Population estimates used for years following the decennial census were developed by the University of Massachusetts Donahue Institute (UMDI) in partnership 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. 2018 Massachusetts Population Estimates¹ 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	37,051	21,264	3,245	2,759	7,969
	Female	35,240	20,397	3,132	2,535	7,605
	Total	72,291	41,661	6,377	5,294	15,574
1 TO 4	Male	152,690	90,048	13,486	11,197	31,707
	Female	146,137	85,651	13,058	10,682	30,678
	Total	298,827	175,699	26,544	21,880	62,385
5 TO 14	Male	395,344	237,511	34,487	27,418	72,804
	Female	379,094	227,024	32,923	26,430	70,582
	Total	774,438	464,535	67,410	53,848	143,386
15 TO 24	Male	492,367	320,036	40,572	37,712	80,801
	Female	491,889	319,897	40,373	42,360	75,464
	Total	984,256	639,933	80,946	80,072	156,265
25 TO 34	Male	496,079	326,904	43,363	48,241	77,509
	Female	491,813	324,462	42,324	52,814	72,034
	Total	987,891	651,367	85,687	101,055	149,543
35 TO 44	Male	413,893	274,893	32,934	38,001	59,844
	Female	427,319	281,288	34,044	42,221	60,705
	Total	841,211	556,181	66,978	80,222	120,549
45 TO 54	Male	449,605	337,588	30,508	29,304	44,104
	Female	478,006	354,973	33,582	32,186	48,558
	Total	927,611	692,560	64,090	61,490	92,662
55 TO 64	Male	454,523	374,315	25,858	20,145	28,308
	Female	490,511	398,765	29,318	22,803	33,230
	Total	945,034	773,081	55,176	42,948	61,537
65 TO 74	Male	306,022	263,029	13,772	11,770	14,273
	Female	356,195	302,066	17,350	14,463	18,833
	Total	662,217	565,095	31,122	26,232	33,106
75 TO 84	Male	136,496	119,249	5,276	5,627	5,238
	Female	184,976	159,690	8,848	7,016	8,231
	Total	321,471	278,940	14,123	12,643	13,469
85 +	Male	53,957	48,143	1,785	1,861	1,755
	Female	107,495	97,025	3791.19	2,746	3,312
	Total	161,452	145,168	5,576	4,606	5,068
ALL AGES	Male	3,388,027	2,412,980	245,286	234,035	424,312
	Female	3,588,674	2,571,238	258,742	256,256	429,232
	Total	6,976,701	4,984,218	504,028	490,291	853,544

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: 2018

		Commonwealth of Massachusetts Registry of Vital Records and Statistics CERTIFICATE OF DEATH	
Form R-301 08012015			
State File # Registered #			
DECEDENT	<i>Place of Death</i>	<i>Age</i>	<i>Sex</i>
	<i>Date of Death</i>		
	<i>Current Name</i>		
	<i>Surname at Birth or Adoption</i>		<i>SSN</i>
	<i>AKA</i>		
	<i>Date of Birth</i>	<i>Birthplace</i>	
	<i>Residence</i>		
	<i>Race</i>	<i>Education</i>	
	<i>Marital Status</i>	<i>Occupation/Industry</i>	
	<i>Last Spouse – Last, First, Middle (Surname at Birth or Adoption)</i>		<i>Decedent: U.S. Veteran (Most Recent)</i>
MEDICAL CERTIFIER	<i>Mother/Parent Name – Last, First Middle (Surname at Birth or Adoption)</i>		<i>Birthplace</i>
	<i>Father/Parent Name – Last, First Middle (Surname at Birth or Adoption)</i>		<i>Birthplace</i>
	<i>Part I. Cause of Death – Sequentially list immediate cause then antecedent causes then underlying cause</i>		
	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:		
	<i>Interval between onset and death</i>		
	<i>Part II. Other significant conditions contributing to death but not resulting in underlying cause</i>		
	<i>Manner of Death:</i>		
<i>Time of Death:</i>			
<i>Result of Injury:</i>			
<i>Certifier</i>			<i>Lic #</i>
<i>Addr.</i>			
DISPOSITION	<i>Funeral Licensee/ Designee</i>		
	<i>Facility/Addr.</i>		
	<i>Immediate Disposition</i>		
	<i>Date of Immediate Disposition</i>		
	<i>Place/Address</i>		
			
<i>Date of Record</i>			
<i>Date of Amendment</i>			

<i>If U.S. war veteran, specify war/conflict(s)</i>			
<i>Branch of military (most recent)</i>	<i>Rank/organization/outfit(most recent)</i>		
<i>Date entered(most recent)</i>	<i>Date Discharged (most recent)</i>	<i>Service Number(most recent)</i>	
<i>Place of Death Type</i>	<i>Date of Pronouncement</i>	<i>Time of Pronouncement</i>	
<i>RN/NP/PA Pronouncement?</i>	<i>Name of RN/NP/PA Pronouncing Death</i>		
<i>RN/NP/PA Employing Agency or Institution</i>		<i>Name of Physician or Medical Examiner notified</i>	
<i>Was M.E. Notified?</i>	<i>Provider in charge of patient's care, if not certifier</i>		
<i>Autopsy Performed?</i>	<i>Findings available for Cause?</i>	<i>Tobacco contribute to death?</i>	<i>Pregnancy Status, if female</i>
<i>Date of Injury</i>	<i>Time of Injury</i>	<i>Injury at Work?</i>	<i>If Transportation Injury, specify:</i>
<i>Place of Injury</i>		<i>Location/Address of Injury:</i>	
<i>Describe How Injury Occurred</i>			
<i>Expanded Race:</i>			
<i>Ethnicity:</i>			
<i>Informant Name</i>		<i>Relationship</i>	
<i>Addr.</i>			
<i>Date Disposition Permit Issued:</i>	<i>Board of Health Agent Local Permit No.</i>		
<i>State Tracking No.</i>			

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: 2018 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?

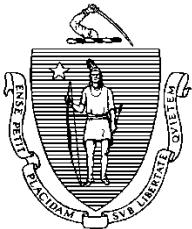
Name (optional):

Address:

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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



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

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March 7, 2022

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

Michael D. Hurley
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 birth data and statistics for the 2019 calendar year.

Sincerely,

A handwritten signature in black ink that reads "Margret R. Cooke".

Margret R. Cooke
Commissioner
Department of Public Health

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

CHARLES D. BAKER
GOVERNOR

KARYN POLITICO
LT. GOVERNOR



MARYLOU SUDDERS
SECRETARY

MARGRET R. COOKE
COMMISSIONER

Massachusetts Births 2019

February 2022

Massachusetts Births 2019



Massachusetts Department of Public Health
Registry of Vital Records and Statistics

February 2022

Massachusetts Births 2019

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Marylou Sudders, Secretary of Health and Human Services
Margret R Cooke, Commissioner of Public Health
Abigail R. Averbach, MSc, Assistant Commissioner

Karin Barrett, Registrar
Registry of Vital Records and Statistics

Massachusetts Department of Public Health

February 2022

Acknowledgments

This report was prepared by Xiaohui Cui, Hafsatou Diop, and Sarah L. Stone, Bureau of Family Health and Nutrition and Maria Vu and Sharon Pagnano, Registry of Vital Records and Statistics.

An additional thank you to: Kevin Foster, Office of Data Management and Outcomes Assessment.

Data in this report have been collected through the efforts of the Registry of Vital Records and Statistics staff, including: Tara Andrews, Michael Baker, June Deloney, Alex Forman, Marta Mercado, and Margaret Riley.

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 births in Massachusetts and other Department of Public Health data please visit the Department's free, Internet-based public health information reports at: <http://www.mass.gov/dph/phit> or email DPH.PHIT@state.ma.us

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Note to Readers

As required by Chapter 111, Section 2 of the General Laws, this report satisfies the requirement of the annual report of statistics on births for calendar year 2017 (Annual Report Vital Statistics of Massachusetts-Births, Public Document #1 2017). Public Document #1 information on 2017 deaths, marriages, and divorces is covered in separate reports.

- 1. Population Sources.** We have used two population files based upon the 2010 Census for denominators in rate calculations:
 - Population estimates from 2000-2009 were created using straight line interpolation of data from the U.S. Census.
 - Population estimates from 2011-present were created by the UMASS Donahue Institute (UMDI). The same categorizations were applied to the 2010 census data to make a consistent dataset from 2010-present. Data are updated annually with summary census files that incorporate lagging birth data. These more accurate and up-to-date rates may differ somewhat from previously released rates. UMDI estimates were created by a team of expert demographers using novel modifications of an existing and well-accepted methodology. UMDI created estimates by sex, age, race, and ethnicity at the census tract and community levels. These estimates are controlled to the annual county level Census estimates¹ on a yearly basis, so they become more accurate over time. To read the full methodology, please refer to the report created by UMDI: Strate, S., Renski, H., Peake, T., Murphy, J.J., Zaldonis, P. (2016). Small area population estimates for 2011 through 2020. [White Paper]. Population Estimates Program, Economic and Public Policy Research, University of Massachusetts Donahue Institute.
- 2. Resident births.** All data in this publication are resident data unless otherwise stated. Resident data include all events that occur to residents of the Commonwealth, including resident births that occur in other U.S. States and territories.
- 3. Race and Ethnicity.** In the text, the race categories, White, Black, American Indian/Alaska Native, Asian, and Hispanic are mutually exclusive. For example, when we refer to White mothers, this means White Non-Hispanic mothers. See "Technical Notes" for detailed information on the multiple-race reporting area and methods used to bridge responses for those who report more than one race to a single race. Please note that trend data on minority groups such as Native Americans, Hispanics, Blacks, and Asians may not be comparable as these groups will show increases in the number of births solely related to the methods used for re-classification of multiple races into single race categories. **Please use caution in interpreting these numbers.**
- 4. Breastfeeding.** Beginning in 2016, statistics on breastfeeding indicate whether the infant was being breastfed during the hospital stay. In earlier birth reports, statistics on breastfeeding reported on breastfeeding at the time of discharge. **Please use caution when comparing breastfeeding data before and after 2016.**
- 5. Tables/Figures Based on Mothers.** Please note that Tables 18-19 and Figures 7-11 are based on mothers and not births.

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Massachusetts Births 2019 Boston, MA: Registry of Vital Records and Statistics, Massachusetts Department of Public Health. February 2022.

Selected Takeaways

- In 2019, there were 69,117 births to Massachusetts resident mothers, an increase of 0.02% from 69,098 in 2018 and a decline of 25.3% since 1990 (Table 1). The number of births to mothers age 30 and older increased (for the 9th year in a row) by 13.0% (2010: 39,548; 2019: 44,670). Since 2008, the number of births to mothers under 30 decreased by 32.3% percent (2008: 36,117; 2019: 24,447) (Figure 1).
- Between 2018 and 2019, the number of births to Black Non-Hispanic, Asian Non-Hispanic and Hispanic mothers increased by 0.5%, 0.7%, and 2.3% respectively while births to White Non-Hispanic mothers decreased by 1.2%, (Table 1).
- In 2019, the Massachusetts teen birth rate remained the same after declining for 10 years in a row. The teen birth rate was 20.1 births per 1,000 women age 15-19 in 2008, while in 2019 the rate was 7.1 births per 1,000 women age 15-19 (Table 1). Between 2018 and 2019, the percentage of births to mothers less than 20 years old decreased for all races/ethnicities. However, disparities persisted, and the percentage of teen births to Hispanic women remained over five times higher than the percentage of teen births to White Non-Hispanic women and the percentage of teen births to American Indian Non-Hispanic over three times higher than that of White Non-Hispanic (Table 2, Figure 2).
- In 2019, 31.4% of births were cesarean deliveries (Table 1). Among White Non-Hispanic, Black Non-Hispanic, Hispanic, and Asian Non-Hispanic births, Black Non-Hispanics had the highest percentage of cesarean deliveries (34.8%), while Asian Non-Hispanics had the lowest percentage (28.6%) (Table 2).
- In 2019, the percentage of births to mothers affected by gestational diabetes increased to 7.1% from 7.0% in 2018 (Table 1).
- For the second year in a row the percentage of low birthweight infants (less than 2,500 grams or 5.5 pounds) has increased. The percentage of low birthweight infants increased in 2019 to 7.7% from 7.6% in 2018 (Table 1).
- From 2018 to 2019, the percentage of preterm births (births occurring at less than 37 weeks of gestation) increased slightly from 8.9% to 9.0% (Table 1). The percentage of preterm births from 2018 to 2019 increased for Asian Non-Hispanics from 7.8% to 8.3%, and for Hispanics from 9.8% to 10.1%. In contrast, this percentage decreased for White Non-Hispanic from 8.3% to 8.2% while percentages for Black Non-Hispanic remained the same (Table 10).
- From 2018 to 2019, the percentage of births to mothers who received adequate prenatal care increased from 86.1% to 82.7% (Table 1, Figure 3). In 2019, the percentage of births with adequate prenatal care was higher among those with private insurance (88.3%) than public insurance (74.9%) (Table 16p2).
- The percentage of births to mothers whose prenatal care was covered through public insurance decreased slightly from 38.5% in 2018 to 38.1% in 2019 (Table 1).
- The percentage of multiple births in 2019 remained the same at 3.5%. The percentage of multiple births to mothers under 35 years old decreased slightly from 3.1% in 2018 to 3.0% in 2019, and the corresponding percentage for multiple births to mothers 35 and older increased from 4.8% to 4.9% (Table 4).
- Smoking during pregnancy continued to decline in 2019. The percentage of infants whose mothers reported smoking during pregnancy decreased from 4.4% in 2018 to 4.1% in 2019 (Figure 11).

- In Massachusetts, the number of women who used fertility treatment in 2019 increased to 3,802 from 3,570 in 2018. The percentage of mothers who used assisted reproductive technology (ART) among all mothers who used infertility treatment increased from 73.5% in 2018 to 74.9% in 2019. The percentage of mothers who used ART fertility treatment was much higher among White Non-Hispanic mothers at 77.9% than among Black Non-Hispanic, Asian Non-Hispanic, and Hispanic mothers at 3.6%, 11.8%, and 6.1%, respectively (Table 21).

Table 1. Trends in Birth Characteristics, Massachusetts: 1990, 2005-2019

Characteristic	1990	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Births¹	92,461	76,824	77,670	77,934	76,969	74,966	72,835	73,169	72,457	71,618	71,867	71,484	71,319	70,704	69,098	69,117	
	n²	62.1	55.6	56.9	57.2	56.5	55.1	53.7	54.1	53.3	52.5	52.1	52	52	51.2	48.8	48.9
Race of Mother																	
White Non-Hispanic	n	72,483	53,469	52,975	52,620	51,760	49,759	48,466	45,973	45,032	44,432	44,128	43,255	42,448	40,989	39,956	39,461
	%⁴	78.4	69.6	68.2	67.5	67.2	66.4	66.5	62.8	62.1	62.0	61.4	60.5	59.5	58	57.8	57.1
Black Non-Hispanic	n	7,158	6,077	6,452	6,462	6,652	6,945	6,794	6,999	6,892	7,016	7,071	6,949	7,095	7,251	7,142	7,181
	%⁴	7.7	7.9	8.3	8.3	8.6	9.3	9.3	9.6	9.5	9.8	9.8	9.7	9.9	10.3	10.3	10.4
Asian Non-Hispanic	n	3,349	5,251	5,469	5,758	5,958	5,939	5,817	6,022	6,530	6,220	6,426	6,473	6,647	6,338	6,411	6,457
	%⁴	3.6	6.8	7.0	7.4	7.7	7.9	8.0	8.2	9.0	8.7	8.9	9.1	9.3	9	9.3	9.3
Hispanic	n	8,406	10,061	10,696	10,861	10,895	10,986	10,588	12,777	13,088	12,315	12,670	12,927	13,100	13,516	13,748	14,067
	%⁴	9.1	13.1	13.8	13.9	14.2	14.7	14.5	17.5	18.1	17.2	17.6	18.1	18.4	19.1	19.9	20.4
Teen Births (Ages 15-19)	n	7,258	4,539	4,722	4,944	4,583	4,477	3,907	3,480	3,219	2,732	2,402	2,140	1,931	1,827	1,639	1,538
	Rate³	35.4	21.7	21.3	22.0	20.1	19.5	17.1	15.4	14.0	12.0	10.6	9.4	8.5	8.1	7.1	7.1
Births to Unmarried	n	22,837	23,170	24,977	26,010	26,146	26,029	25,220	25,349	24,900	24,014	23,853	23,913	23,566	23,309	22,467	22,386
	%	24.7	30.2	32.2	33.4	34.0	34.7	34.6	34.8	34.5	33.7	33.3	33.6	33.2	33.1	32.6	32.5
Cesarean Deliveries	n	20,615	24,732	25,901	26,240	26,240	25,067	24,244	23,062	22,900	22,508	22,691	22,431	22,302	22,290	21,710	21,656
	%	22.3	32.3	33.4	33.7	34.3	33.6	33.3	32.5	31.7	31.5	31.6	31.4	31.3	31.6	31.5	31.4
Gestational Diabetes⁵	n	2,666	2,925	3,279	3,086	3,445	3,368	3,698	4,070	3,784	3,867	4,287	4,005	4,575	4,812	4,885	
	%	3.5	3.8	4.2	4.0	4.7	4.7	5.1	5.6	5.3	5.4	6	5.6	6.5	7.0	7.1	
Low Birthweight⁶	n	5,388	6,073	6,150	6,147	5,955	5,804	5,650	5,458	5,491	5,495	5,394	5,321	5,341	5,261	5,243	5,273
	%	5.8	7.9	7.9	7.9	7.8	7.8	7.8	7.6	7.6	7.7	7.5	7.5	7.5	7.6	7.7	
Preterm⁷	n	5,899	6,925	6,954	6,980	6,750	6,516	6,234	5,992	6,107	6,300	6,161	6,001	6,167	6,272	6,167	6,200
	%	6.5	9.0	9.0	9.0	8.8	8.7	8.6	8.4	8.6	8.8	8.6	8.4	8.7	8.9	8.9	9.0
Late Preterm⁸	n	3,977	4,808	4,918	4,945	4,753	4,602	4,361	4,206	4,422	4,518	4,394	4,305	4,492	4,680	4,489	4,570
	%	4.4	6.3	6.3	6.4	6.2	6.2	6.0	5.9	6.2	6.3	6.1	6	6.3	6.6	6.5	6.6
Prenatal Care																	
Public Pay Prenatal Care⁹	%	25.1	31.9	33.5	34.9	34.5	35.3	35.8	38.8	39.7	38.9	42.9	38.3	38.6	39.2	38.5	38.1
APNCU Index¹⁰	%	84.0	83.1	82.8	82.1	84.3	84.9	82.8	83.4	83.7	82.6	81.8	82.1	80.6	76.1	81.6	
Adjusted APNCU Index¹⁰	%																

NOTE: All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated. 1. Births presented in all tables are resident live births unless otherwise specified. 2. Differences in numbers of births from previous publications are the result of updated files. 3. Birth rates represent the total number of births to women ages 15-44 years per 1,000 females ages 15-44; teen birth rates refer to number of births per 1,000 females ages 15-19. Population data for computing 2008 birth rates at the state level were provided by the US Census Bureau. See the "Population Denominators" section of the "Technical Notes" for further information. 4. Percentages are calculated based on births, including those to mothers of unknown race. 5. Gestational diabetes is defined as glucose intolerance found during pregnancy for the first time. It excludes cases with pre-existing diabetes. 6. Low birthweight: less than 2,500 grams or 5.5 pounds. 7. Preterm: <37 weeks gestation. 8. Late preterm: 34-36 weeks gestation. 9. Government programs including Commonwealth, Healthy Start, Medicaid/MassHealth, and Medicare (may also be HMO or managed care), or free care; other: Worker's Compensation and other sources. 10. Beginning with Births 2001, the APNCU Index has replaced the Kessner Index as the standard measurement of adequacy of prenatal care (see Technical Notes for more information).

Table 2. Birth Characteristics by Maternal Race/Hispanic Ethnicity and Birthplace, Massachusetts: 2019

Race and Hispanic Ethnicity (by mother's birthplace)	Births		Teen Births				Birthweight				Prenatal Care				Cesarean Deliveries		Breastfeeding ⁵	
			<18 Years		<20 Years		Very Low ²		Low ³		Adequate ⁴		1 st Trimester					
	n	% ¹	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
State Total	69,117	100.0	381	0.6	1,559	2.3	785	1.1	5,273	7.7	55,705	82.7	54,386	80.1	21,656	31.4	59,733	86.7
US inc. DC	46,032	66.6	236	0.5	1,020	2.2	464	1.0	3,407	7.4	38,201	85.3	37,689	83.4	14,098	30.7	38,693	84.4
US Territories ⁷	1,375	2.0	24	1.7	96	7.0	27	2.0	155	11.3	1,070	79.3	1,036	75.8	418	30.4	1,137	83.1
Non-US-born ⁸	21,657	31.3	116	0.5	436	2.0	288	1.3	1,697	7.8	16,404	77.2	15,625	73.2	7,129	32.9	19,881	92.1
White Non-Hispanic	39,461	57.1	64	0.2	389	1.0	316	0.8	2,535	6.4	33,227	86.3	32,899	84.7	12,281	31.1	33,879	86.0
US inc. DC	34,994	88.7	59	0.2	353	1.0	280	0.8	2,249	6.4	29,728	87.2	29,448	85.5	10,845	31.0	29,690	85.0
US Territories ⁷	10	0.0	0	0.0	-6	-6	0	0.0	-6	-6	9	90.0	7	70.0	-6	10	100.0	
Non-US-born ⁸	4,445	11.3	5	0.1	35	0.8	35	0.8	281	6.3	3,483	79.6	3,435	78.0	1,433	32.2	4,178	94.1
Black Non-Hispanic	7,181	10.4	41	0.6	187	2.6	156	2.2	800	11.2	5,059	72.2	4,776	67.6	2,497	34.8	6,360	88.9
US inc. DC	3,073	42.8	33	1.1	144	4.7	72	2.4	420	13.7	2,308	76.7	2,237	73.6	975	31.7	2,552	83.4
US Territories ⁷	6	0.1	0	0.0	0	0.0	0	0.0	0	0.0	5	83.3	5	83.3	0	0.0	5	83.3
Non-US-born ⁸	4,099	57.1	8	0.2	43	1.0	82	2.0	377	9.2	2,745	68.8	2,532	63.1	1,522	37.1	3,802	93.0
Hispanic	14,067	20.4	260	1.8	917	6.5	209	1.5	1,199	8.5	10,688	77.6	10,167	73.3	4,454	31.7	12,092	86.2
US inc. DC	5,654	40.2	133	2.4	483	8.5	80	1.4	506	9.0	4,379	79.2	4,264	76.4	1,669	29.5	4,575	81.1
US Territories ⁷	1,351	9.6	24	1.8	95	7.0	27	2.0	153	11.3	1,050	79.2	1,017	75.8	415	30.7	1,115	82.9
Non-US-born ⁸	7,031	50.0	100	1.4	334	4.8	102	1.5	536	7.6	5,238	76.0	4,863	70.4	2,363	33.6	6,382	91.0
Asian Non-Hispanic	6,457	9.3	6	0.1	26	0.4	63	1.0	542	8.4	5,410	84.7	5,248	81.8	1,846	28.6	5,860	90.9
US inc. DC	1,276	19.8	5	0.4	17	1.3	12	0.9	119	9.4	1,099	87.6	1,060	83.9	336	26.3	1,103	86.6
US Territories ⁷	-6	-6	0	0.0	0	0.0	0	0.0	-6	-6	-6	-6	-6	-6	0	0.0	-6	-6
Non-US-born ⁸	5,178	80.2	-6	-6	9	0.2	51	1.0	422	8.2	4,309	84.0	4,186	81.3	1,510	29.2	4,754	92.0
American Indian Non-Hispanic⁹	232	0.3	0	0.0	5	2.2	-6	-6	14	6.0	179	78.5	176	76.5	70	30.2	182	78.4
US inc. DC	215	92.7	0	0.0	5	2.3	-6	-6	13	6.0	167	79.1	162	76.1	64	29.8	165	76.7
US Territories ⁷	0	0.0	0	-6	-6	-6	0	0	0	0	0	0	0	0	0	0	0	0
Non-US-born ⁸	17	7.3	0	0.0	0	0.0	0	0.0	-6	-6	12	70.6	14	82.4	6	35.3	17	100.0
Other Non-Hispanic¹⁰	600	0.9	-6	-6	11	1.8	9	1.5	57	9.5	407	71.2	397	68.4	223	37.2	521	87.3
US inc. DC	129	21.5	-6	-6	5	3.9	-6	-6	15	11.7	91	75.2	93	76.2	38	29.7	112	87.5
US Territories ⁷	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Non-US-born ⁸	471	78.5	0	0.0	6	1.3	7	1.5	42	8.9	316	70.1	304	66.4	185	39.3	409	87.2
Unknown	1,119	1.6	9	0.8	24	2.1	30	3.0	126	12.4	735	79.5	723	77.3	285	28.1	839	83.5

NOTE: All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated.

1. In the column "Births %," the percentages of the race/Hispanic groups (bolded) are based on the state total (including births of unknown race/ethnicity), and the birthplace percentage for the race/ethnicities are based on the total number in race/Hispanic ethnicity category. For all other categories, percentages are based on row totals. 2. Very low birthweight: less than 1,500 grams or 3.3 pounds. 3. Low birthweight: less than 2,500 grams or 5.5 pounds. 4. Based on Adequacy of Prenatal Care Utilization (APNCU) Index. 5. Infant was being breastfed during the hospital stay. 6. Calculations based on 1-4 events are excluded. 7. The category "US Territories" includes women born in Puerto Rico, the US Virgin Islands, and Guam. Approximately 95% of the births in this category were to women born in Puerto Rico. 8. The category "Non-US-born" includes women born outside of the 50 US states, District of Columbia, and the US territories. 9. Mothers who selected American Indian/Alaska Native as their race. 10. Mothers who indicated "Other" as their race.

Table 3. Birth Characteristics by Maternal Ancestry, Massachusetts: 2019

Maternal Ancestry	Births ¹		Teen Births				Low Birthweight ²		Prenatal Care				Late Preterm ⁴		Cesarean Section		Breast-feeding ⁵		Gestational Diabetes ⁶	
			<18 years		<20 Years				Adequate ³		1 st Trimester									
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
State Total	69,117	100.0	381	0.6	1,559	2.3	5,273	7.7	54,000	81.6	54,386	80.1	4,570	6.6	2,165	3.1	59,733	86.7	4,885	7.1
American	31,766	46.0	97	0.3	493	1.6	2,040	6.4	26,958	86.6	26,546	84.8	2,025	6.4	9,786	30.8	27,429	86.5	2,073	6.5
European	8,748	12.7	7	0.1	53	0.6	510	5.8	7,521	87.3	7,451	86.1	540	6.2	2,589	29.6	8,090	92.6	541	61.9
Puerto Rican	4,630	6.7	110	2.4	412	8.9	468	10.1	3,566	78.7	3,441	75.1	391	8.4	1,418	30.6	3,620	78.5	335	7.2
Dominican	3,308	4.8	45	1.4	195	5.9	289	8.8	2,521	77.9	2,395	73.7	241	7.3	1,238	37.4	2,916	88.4	219	6.6
African American	3,304	4.8	42	1.3	157	4.8	439	13.3	2,458	76.2	2,367	72.6	292	8.8	1,074	32.5	2,720	82.6	189	5.7
Brazilian	2,313	3.3	17	0.7	51	2.2	171	7.4	1,723	75.6	1,662	72.7	143	6.2	992	42.9	2,146	92.9	157	6.8
African	1,995	2.9	--7	--7	9	0.5	154	7.7	1,396	71.5	1,275	65.0	112	5.6	743	37.2	1,872	94.1	156	7.8
Chinese	1,992	2.9	--7	--7	--7	--7	129	6.5	1,711	86.4	1,671	84.2	100	5.0	409	20.5	1,833	92.2	183	9.2
Asian Indian	1,988	2.9	0	0.0	--7	--7	205	10.3	1,658	84.6	1,625	82.4	166	8.4	725	36.5	1,884	94.8	279	14.0
Portuguese	1,911	2.8	13	0.7	70	3.7	137	7.2	1,601	85.2	1,525	80.6	115	6.0	634	33.2	1,399	73.3	158	8.3
Haitian	1,548	2.2	--7	--7	24	1.6	166	10.8	1,012	66.9	952	62.9	97	6.3	557	36.0	1,412	91.5	126	8.1
Cape Verdean	1,426	2.1	13	0.9	75	5.3	132	9.3	1,045	74.5	998	70.9	93	6.5	422	29.6	1,289	90.4	95	6.7
Salvadoran	1,236	1.8	21	1.7	73	5.9	84	6.8	980	80.6	882	72.3	77	6.2	299	24.2	1,132	91.9	74	6.0
Guatemalan	1,235	1.8	41	3.3	121	9.8	93	7.5	849	70.9	759	63.1	92	7.4	289	23.4	1,047	84.9	78	63.4
Other	1,101	1.6	--7	--7	11	1.0	81	7.4	894	82.5	852	78.4	69	6.3	366	33.3	973	88.5	72	6.5
Middle Eastern	1,100	1.6	--7	--7	9	0.8	84	7.7	836	77.0	835	76.7	78	7.1	357	32.5	1,026	93.4	85	7.7
Vietnamese	698	1.0	0	0.0	6	0.9	48	6.9	574	83.3	538	78.0	42	6.0	194	27.8	603	86.6	107	15.3
Russian	644	0.9	0	0.0	6	0.9	42	6.5	520	82.1	520	81.6	34	5.3	162	25.2	615	95.5	61	9.5
Mexican	614	0.9	--7	--7	19	3.1	48	7.8	473	78.2	442	72.7	42	6.9	174	28.3	564	92.0	44	7.2
Other South American	566	0.8	6	1.1	19	3.4	26	4.6	428	77.0	421	75.7	32	5.7	172	30.4	541	95.6	29	5.1
West Indian Caribbean	565	0.8	--7	--7	9	1.6	62	11.0	393	70.8	387	69.4	46	8.1	170	30.1	528	93.6	37	6.5
Cambodian	558	0.8	--7	--7	13	2.3	59	10.6	445	82.4	426	77.0	36	6.5	153	27.4	358	64.4	55	9.9
Honduran	512	0.7	14	2.7	39	7.6	50	9.8	346	68.9	323	64.2	42	8.2	125	24.4	470	92.5	25	4.9
Colombian	468	0.7	--7	--7	9	1.9	35	7.5	384	82.9	366	78.4	44	9.4	140	29.9	432	92.5	20	4.3
Korean	353	0.5	0	0.0	--7	--7	18	5.1	295	84.5	282	80.6	15	4.2	94	26.6	332	94.1	29	8.2
Native American	350	0.5	0	0.0	12	3.4	27	7.7	262	77.1	257	74.9	23	6.6	104	29.7	282	80.6	23	6.6

NOTE: All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated. Women may select more than one ancestry groups, therefore totals of all ancestries is greater than the number of births. Since 2009, certain ancestry groups were combined: Lebanese, Iranian, Israeli, and Other Middle Eastern ancestries were combined into "Middle Eastern"; and Nigerian and Other African were combined into "African." 1. In the column "Births," percentages are based on column total (state total of births, including births for which maternal ethnicity is unknown and other). For all other categories, percentages are based on row totals. 2. Low birthweight: less than 2,500 grams or 5.5 pounds. 3. Based on Adequacy of Prenatal Care Utilization (APNCU) Index. 4. Late preterm: 34-36 weeks gestation. 5. Infant was being breastfed during the hospital stay. 6. Gestational diabetes is defined as glucose intolerance found during pregnancy for the first time. It excludes cases with pre-existing diabetes. 7. Calculations based on 1-4 events are excluded.

Figure 1. Trends in the Number of Births by Mother's Age Group, Massachusetts: 1981-2019

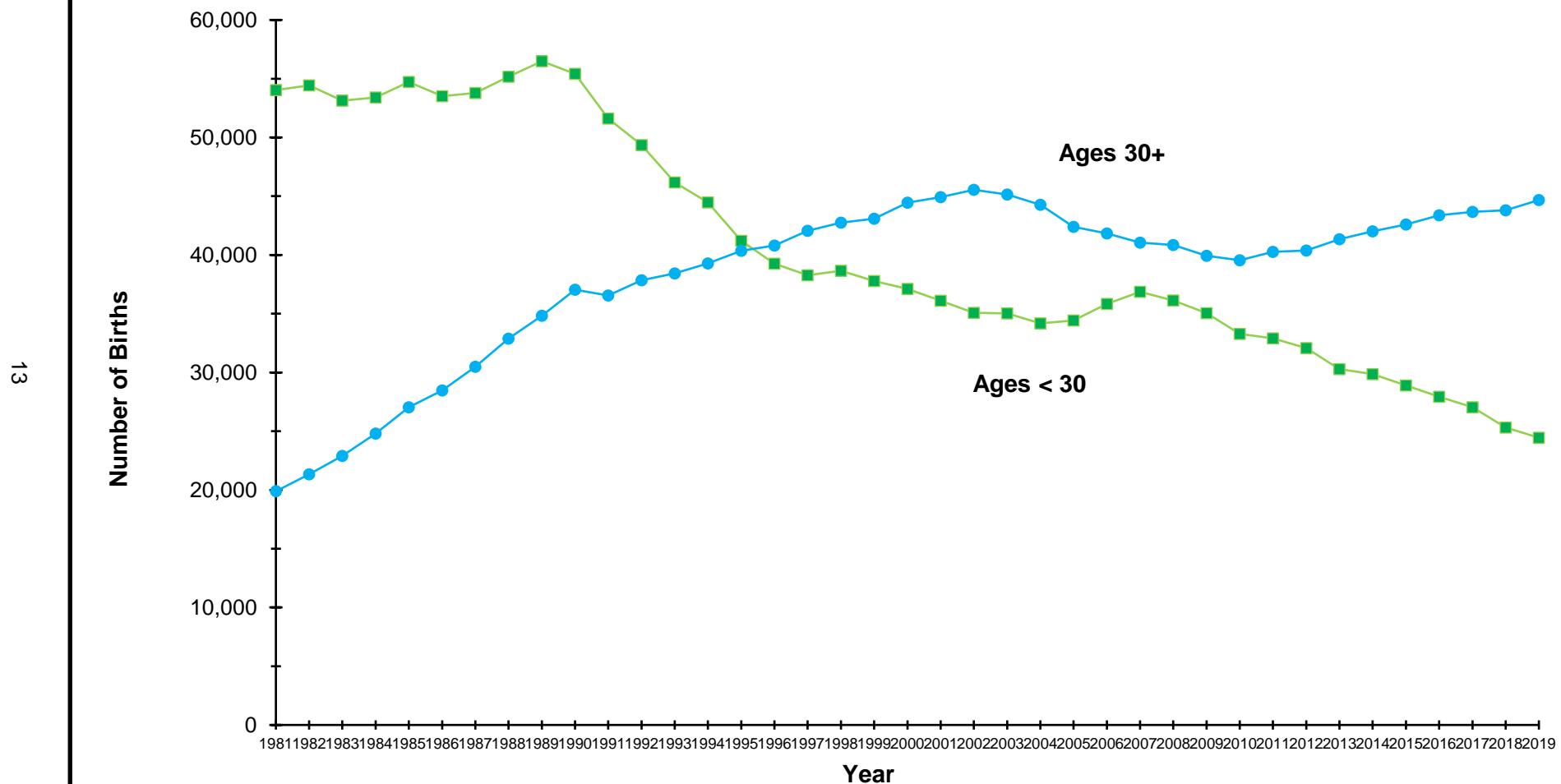


Table 4. Trends in Number and Percent Distribution of Births by Plurality and Maternal Age, Massachusetts: 2005-2019

Age Group	Year	Singletons		Multiples ¹				Total births ²	
		n	%	Twins		Triplets or more		Total Multiples	
				n	%	n	%	n	%
All Ages									
2005	73,258	95.4	3,375	4.4	190	0.2	3,565	4.6	76,824 100.0
2006	74,146	95.5	3,375	4.3	149	0.2	3,524	4.5	77,670 100.0
2007	74,498	95.6	3,310	4.2	126	0.2	3,436	4.4	77,934 100.0
2008	73,475	95.5	3,365	4.4	129	0.2	3,494	4.5	76,969 100.0
2009	71,423	95.3	3,386	4.5	157	0.2	3,543	4.7	74,966 100.0
2010	69,508	95.4	3,220	4.4	107	0.1	3,327	4.6	72,835 100.0
2011	69,933	95.6	3,135	4.3	100	0.1	3,235	4.4	73,169 100.0
2012	69,272	95.6	3,093	4.3	90	0.1	3,183	4.4	72,457 100.0
2013	68,363	95.5	3,164	4.4	91	0.1	3,255	4.5	71,618 100.0
2014	68,800	95.7	2,984	4.2	83	0.1	3,067	4.3	71,867 100.0
2015	68,756	96.2	2,671	3.7	57	0.1	2,728	3.8	71,484 100.0
2016	68,660	96.3	2,569	3.6	90	0.1	2,659	3.7	71,319 100.0
2017	68,134	96.4	2,523	3.6	47	0.1	2,570	3.6	70,704 100.0
2018	65,469	96.5	2,304	3.4	63	0.1	2,367	3.5	67,836 100.0
2019	66,699	96.5	2,349	3.4	68	0.1	2,417	3.5	69,117 100.0
Ages <35									
2005	56,380	96.3	2,086	3.6	102	0.2	2,188	3.7	58,569 100.0
2006	57,237	96.3	2,116	3.6	89	0.1	2,205	3.7	59,442 100.0
2007	57,977	96.3	2,144	3.6	87	0.1	2,231	3.7	60,208 100.0
2008	57,080	96.3	2,111	3.6	78	0.1	2,189	3.7	59,269 100.0
2009	55,906	96.1	2,202	3.8	80	0.1	2,282	3.9	58,188 100.0
2010	54,369	96.3	2,018	3.6	58	0.1	2,076	3.7	56,445 100.0
2011	54,837	96.4	2,014	3.5	59	0.1	2,073	3.6	56,910 100.0
2012	54,069	96.4	1,961	3.5	57	0.1	2,018	3.6	56,089 100.0
2013	52,995	96.2	2,025	3.7	54	0.1	2,079	3.8	55,074 100.0
2014	53,166	96.5	1,890	3.4	50	0.1	1,940	3.5	55,106 100.0
2015	52,640	96.9	1,665	3.1	45	0.1	1,710	3.1	54,350 100.0
2016	52,043	96.9	1,601	3.0	47	0.1	1,648	3.1	53,691 100.0
2017	51,258	96.8	1,653	3.1	18	0.0	1,671	3.2	52,929 100.0
2018	48,492	97.0	1,491	3.0	27	0.1	1,518	3.0	50,010 100.0
2019	48,856	97.0	1,446	2.9	47	0.1	1,493	3.0	50,350 100.0
Ages 35+									
2005	16,874	92.5	1,289	7.1	88	0.5	1,377	7.5	18,251 100.0
2006	16,901	92.8	1,257	6.9	60	0.3	1,317	7.2	18,218 100.0
2007	16,519	93.2	1,166	6.6	39	0.2	1,205	6.8	17,724 100.0
2008	16,392	92.6	1,254	7.1	51	0.3	1,305	7.4	17,697 100.0
2009	15,513	92.5	1,184	7.1	77	0.5	1,261	7.5	16,774 100.0
2010	15,136	92.4	1,200	7.3	49	0.3	1,249	7.6	16,385 100.0
2011	15,092	92.8	1,121	6.9	41	0.3	1,162	7.1	16,255 100.0
2012	15,202	92.9	1,132	6.9	33	0.2	1,165	7.1	16,367 100.0
2013	15,367	92.9	1,139	6.9	37	0.2	1,176	7.1	16,543 100.0
2014	15,634	93.3	1,094	6.5	33	0.2	1,127	6.7	16,761 100.0
2015	16,115	94.1	1,005	5.9	12	0.1	1,017	5.9	17,132 100.0
2016	16,617	94.3	968	5.5	43	0.2	1,011	5.7	17,628 100.0
2017	16,875	94.9	870	4.9	29	0.2	899	5.1	17,774 100.0
2018	16,976	95.2	813	4.6	36	0.2	849	4.8	17,825 100.0
2019	17,842	95.1	903	4.8	21	0.1	924	4.9	18,766 100.0

1. Numbers of multiples (n) represent individual infants rather than sets of infants. 2. Differences in the number of births from previous publications are the result of updated files.

Table 5. Summary of Selected Teen Birth Characteristics, Massachusetts: 2019

	Ages 15-17		Ages 18-19		Combined Ages 15-19	
	N	% ^{1,2}	N	% ^{1,2}	N	% ^{1,2}
State Total	360	23.4%	1,178	76.6%	1,538	100.0%
White Non-Hispanic	60	17.0%	325	27.9%	385	25.4%
Black Non-Hispanic	39	11.1%	146	12.6%	185	12.2%
Asian Non-Hispanic	6	1.7%	20	1.7%	26	1.7%
Hispanic	246	69.9%	657	56.5%	903	59.6%
American Indian and Other	--6	--6	15	1.3%	16	1.1%
Birthplace						
US States / D.C.	220	61.1%	784	66.6%	1,004	65.3%
Puerto Rico / US Terr.	24	6.7%	72	6.1%	96	6.2%
Non-US-born	116	32.2%	322	27.3%	438	28.5%
Prenatal Care Funding						
Public	311	88.4%	964	83.0%	1,275	84.2%
Private, other	41	11.6%	198	17.0%	239	15.8%
Pregnancy-Related Factors						
Adequacy of Prenatal Care³						
Adequate Total ⁴	229	63.6%	772	65.5%	1,001	65.1%
Adequate Intensive	95	26.4%	357	30.3%	452	29.4%
Adequate Basic	134	37.2%	415	35.2%	549	35.7%
Intermediate	23	6.4%	107	9.1%	130	8.5%
Inadequate/None	98	27.2%	260	22.1%	358	23.3%
Unknown	10	2.8%	39	3.3%	49	3.2%
Parity⁵						
1	346	96.1%	1,008	85.6%	1,354	88.0%
2	13	3.6%	152	12.9%	165	10.7%
3+	--6	--6	18	1.5%	19	1.2%
Smoking during Pregnancy						
Yes	6	1.7%	55	4.9%	61	4.2%
No	341	98.3%	1,061	95.1%	1,402	95.8%
Birth Outcomes						
Birthweight						
< 500 g	--6	--6	--6	--6	5	0.3%
500-1,499 g	9	2.5%	14	1.2%	23	1.5%
1,500-2,499 g	29	8.1%	84	7.1%	113	7.4%
LBW (<2,499 g)	41	11.4%	100	8.5%	141	9.2%
2,500-3,999 g	311	86.4%	1,019	86.6%	1,330	86.5%
4000+ g	8	2.2%	58	4.9%	66	4.3%
Gestational Age						
< 28 weeks	7	1.9%	7	0.6%	14	0.9%
Preterm (< 37 weeks)	34	9.4%	99	8.4%	133	8.6%
37-42 weeks	326	90.6%	1,079	91.6%	1,405	91.4%
Plurality						
Singleton	356	98.9%	1,168	99.2%	1,524	99.1%
Multiple birth	--6	--6	10	0.8%	14	0.9%

NOTE: All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated.

1. For state total row, percentages are based on total births to females ages 15-19. For the rest of the table, percentages are based on births for a given age group and characteristic. 2. Percentages are based on state total of the age group. 3. Based on Adequacy of Prenatal Care Utilization (APNCU) Index. 4. Adequate Total = Adequate Basic + Adequate Intensive. 5. Number of live births including the current birth. 6. Calculations based on 1-4 events are excluded.

Table 6. Number and Teen Birth Rates by Race/Hispanic Ethnicity for Selected Communities, Massachusetts: 2019

Municipality ¹	Teen Births		White Non-Hispanic		Black Non-Hispanic		Hispanic	
	N	Rate (95%CI) ^{2,3}	N	Rate (95%CI) ^{2,3}	N	Rate (95%CI) ^{2,3}	N	Rate (95%CI) ^{2,3}
State Total	1,538	6.7 (6.3, 7)	385	2.6 (2.3, 2.8)	185	10 (8.6, 11.5)	903	24.8 (23.2, 26.4)
Lawrence	105	32.8 (26.5, 39.1)	--4	--4	--4	--4	103	35.6 (28.7, 42.4)
Chelsea	31	28.8 (19.2, 40.2)	--4	--4	--4	--4	28	31.4 (21.4, 43.3)
Springfield	174	28.3 (24.1, 32.5)	14	13.8 (7.5, 22)	21	18.2 (10.8, 27.4)	139	38.7 (32.3, 45.1)
Holyoke	36	27 (17.8, 38.1)	--4	--4			32	32.8 (22.5, 44.9)
New Bedford	81	26.7 (17.6, 37.8)	20	14.1 (7.8, 22.4)	--4	--4	53	50.1 (37.2, 64.9)
Lynn	74	23.7 (15.2, 34.2)	--4	--4	--4	--4	64	37.6 (26.5, 50.5)
Fall River	51	20.7 (12.7, 30.5)	21	14 (7.6, 22.2)	--4	--4	22	39.8 (28.4, 53.1)
Brockton	60	18.9 (11.4, 28.3)	6	10.1 (4.9, 17.2)	33	17.5 (10.3, 26.6)	17	38.6 (27.4, 51.7)
Milford	14	17.9 (10.6, 27.1)	--4	--4	--4	--4	12	82.4 (65.6, 101.1)
Chicopee	26	15.9 (9.1, 24.6)	10	10.9 (5.4, 18.3)	--4	--4	11	20 (12.2, 29.7)
Haverhill	26	14.9 (8.3, 23.4)	12	11.6 (5.9, 19.1)	--4	--4	13	24.8 (16, 35.4)
Fitchburg	22	14.2 (7.8, 22.5)	8	9.5 (4.5, 16.5)	--4	--4	12	22.6 (14.3, 32.9)
Leominster	16	14.1 (7.7, 22.4)	6	9.1 (4.2, 15.9)	--4	--4	10	30.4 (20.6, 42.2)
West Springfield	11	14.1 (7.7, 22.3)	5	9.6 (4.5, 16.5)	--4	--4	--4	--4
Lowell	53	13.8 (7.5, 22)	9	6.6 (2.6, 12.5)	--4	--4	27	25.7 (16.8, 36.6)
Worcester	100	13.5 (10.9, 16.2)	24	7.8 (3.3, 14.2)	11	9.1 (4.2, 15.9)	63	26.3 (17.3, 37.3)
Marlborough	13	12.2 (6.4, 20)	5	7.3 (3, 13.4)	--4	--4	7	26.5 (17.4, 37.5)
Framingham	28	11.2 (5.6, 18.6)	--4	--4	--4	--4	24	50.1 (37.2, 64.8)
Attleboro	13	10.5 (5.1, 17.7)	9	10.6 (5.2, 17.9)	--4	--4	--4	--4
Taunton	17	10.4 (5.1, 17.6)	11	10 (4.8, 17)	--4	--4	5	21.6 (13.4, 31.6)
Everett	14	9.4 (4.4, 16.4)	--4	--4	--4	--4	10	17.8 (10.5, 26.9)
Revere	15	8.7 (3.9, 15.4)	--4	--4	--4	--4	12	12.8 (6.7, 20.7)
Salem	12	7.7 (3.3, 14)	--4	--4	--4	--4	--4	--4
Boston	169	6.8 (5.8, 7.9)	6	0.6 (0, 2.7)	50	9.4 (4.4, 16.3)	111	20.7 (16.9, 24.6)
Waltham	12	5 (1.6, 10.3)	--4	--4	--4	--4	11	22.1 (13.9, 32.2)

NOTE: The total number of Asian Non-Hispanic teen births in MA in 2019 was 26 for a rate of 1.4/1,000 significantly lower than the state rate of 6.7. Lowell had the largest number of Asian Non-Hispanic teen births at 13 births. The Asian Non-Hispanic teen birth rate in this community was slightly higher than the state.

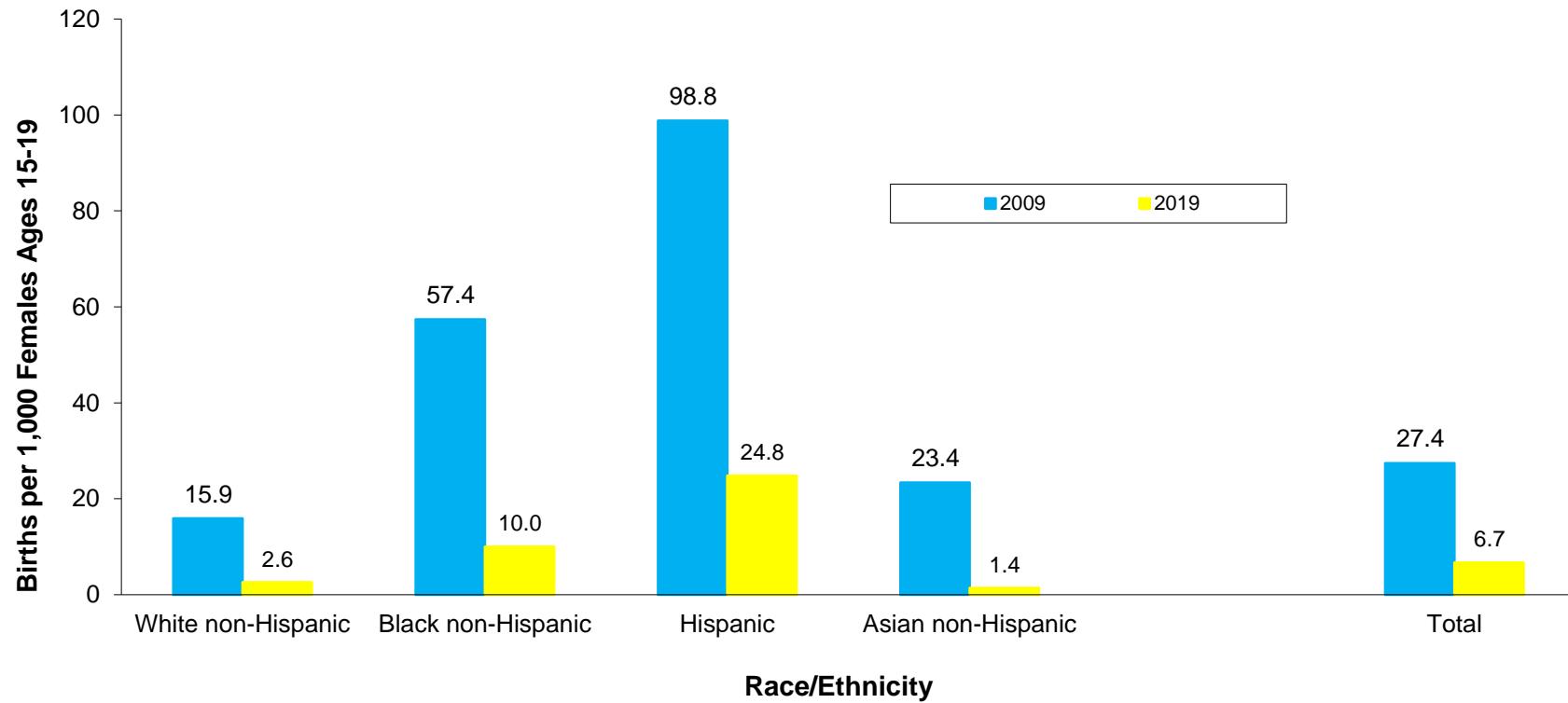
1. Selected communities include the 25 Massachusetts cities and towns with the greatest number of teen births. 2. Rates are per 1,000 females ages 15-19 per city/town. 3. Birth rates for cities and towns were calculated using the Massachusetts Department of Public Health Race Allocated Census 2010 Estimates file (MRACE 2010), which is the most up-to-date information available on the number of persons by age, race, and sex at the sub-state level. **If the population in your community increased from 2010 to 2018, the rates listed may overestimate the actual rate. If the population in your community declined from 2010 to 2018, the rates given in the publication may underestimate the actual rate.** 4. Counts and rates based on counts of 1-4 births are excluded.

**Table 7. Trends in Teen Birth Rates for Selected Communities, Ranked by 2019 Teen Birth Rate,
Massachusetts: 2009, 2018-2019**

2019 Rank	Municipality ¹	2009		2018		2019	
		# Births 15-19	Birth Rate ²	# Births 15-19	Birth Rate ^{2,3}	# Births 15-19	Birth Rate ^{2,3}
	State Total	4,477	19.5	1,624	7.0	1,538	7.1
1	Lawrence	239	79.0	106	32.4	105	32.8
2	Chelsea	76	76.0	44	40.1	31	28.8
3	Springfield	438	72.1	174	28.0	174	28.3
4	Holyoke	146	96.8	45	32.9	36	27.0
5	New Bedford	173	58.5	88	29.1	81	26.7
6	Lynn	172	55.8	62	19.5	74	23.7
7	Fall River	129	45.6	63	25.3	51	20.7
8	Brockton	137	37.7	57	18.2	60	18.9
9	Milford	11	14.1	9	11.5	14	17.9
10	Chicopee	72	41.4	22	13.2	26	15.9
11	Haverhill	70	36.7	26	14.8	26	14.9
12	Fitchburg	64	40.9	25	15.9	22	14.2
13	Leominster	41	32.7	13	11.2	16	14.1
14	West Springfield	27	32.1	18	7.5	11	14.1
15	Lowell	210	53.0	63	16.1	53	13.8
16	Worcester	219	31.1	94	12.6	100	13.5
17	Marlborough	22	21.8	15	14.0	13	12.2
18	Framingham	50	25.6	17	6.8	28	11.2
19	Attleboro	39	34.4	13	10.4	13	10.5
20	Taunton	70	42.9	17	10.4	17	10.4
21	Everett	37	34.9	14	9.5	14	9.4
22	Revere	56	53.2	12	7.1	15	8.7
23	Salem	20	13.0	9	5.7	12	7.7
24	Boston	521	26.4	162	6.5	169	6.8
25	Waltham	22	9.4	18	7.5	12	5.0

1. Selected communities include the 25 Massachusetts cities and towns with the greatest number of teen births in 2019. Ranking is by 2019 teen birth rate. 2. Rates are per 1,000 females ages 15-19 per city/town. 3. Birth rates for cities and towns were calculated using the Massachusetts Department of Public Health Race Allocated Census 2010 Estimates file (MRACE 2010), which is the most up-to-date information available on the number of persons by age, race, and sex at the sub-state level. **If the population in your community increased from 2010 to 2018, the rates listed may overestimate the actual rate. If the population in your community declined from 2010 to 2018, the rates given in the publication may underestimate the actual rate.** 4. Birth rates for select cities and towns were calculated using the Massachusetts Department of Public Health Race Allocated Census 2004 Estimates file (MRACE 2004), which is the most up-to-date information available prior to 2010 on the number of persons by age, race, and sex at the sub-state level. 5. Counts and rates based on counts of 1-4 births are excluded.

Figure 2. Teen Birth Rates among Females Ages 15-19 Years by Mother's Race/Hispanic Ethnicity, Massachusetts: 2009 and 2019



NOTE: Teen birth rate is number of births to females ages 15-19 per 1,000 females ages 15-19. 2009 birth rates are based upon the 2009 population estimates from the National Center for Health Statistics. 2018 birth rates are based upon UMass Donahue Institute population estimates for 2019

Table 8. Births by Birthweight, Race/Hispanic Ethnicity, Massachusetts: 2019

Birthweight (in grams)	Total		White Non-Hispanic		Black Non-Hispanic		Hispanic		Asian Non-Hispanic		Other Non-Hispanic		Unknown Race/Ethnicity	
	n	% ¹	n	% ¹	n	% ¹	n	% ¹	n	% ¹	n	% ¹	n	% ¹
State Total	69,117	100.0	40,989	100.0	7,181	100.0	14,067	100.0	6,457	100.0	832	100.0	1,119	100.0
<500	94	0.1	27	0.1	22	0.3	29	0.2	5	0.1	--2	--2	10	1.0
500-999	279	0.4	102	0.3	56	0.8	82	0.6	25	0.4	6	0.7	8	0.8
1,000-1,499	412	0.6	187	0.5	78	1.1	98	0.7	33	0.5	--2	--2	12	1.2
1,500-1,999	1,052	1.5	517	1.3	168	2.3	224	1.6	98	1.5	21	2.5	24	2.4
2,000-2,499	3,436	5.0	1,702	4.3	476	6.6	766	5.5	381	5.9	39	4.7	72	7.1
2,500-2,999	12,398	18.0	6,101	15.5	1,529	21.3	2,854	20.3	1,559	24.2	173	20.8	182	18.0
3,000-3,499	26,595	38.6	14,876	37.8	2,726	38.1	5,619	40.0	2,701	41.9	324	39.0	349	34.5
3,500-3,999	18,745	27.2	11,866	30.1	1,637	22.9	3,392	24.1	1,381	21.4	197	23.7	272	26.9
4,000-4,499	5,144	7.5	3,509	8.9	403	5.6	858	6.1	247	3.8	51	6.1	76	7.5
4,500-4,999	702	1.0	483	1.2	63	0.9	119	0.8	17	0.3	12	1.4	8	0.8
>=5,000	53	0.1	38	0.1	6	0.1	7	0.0	0	0.0	--2	--2	0	0.0
Unknown birthweight	207	0.3	53	0.1	17	0.2	19	0.1	10	0.2	--2	--2	106	9.5
VLBW³ (0-1,499 g)	785	1.1	316	0.8	156	2.2	209	1.5	63	1.0	11	1.3	30	3.0
LBW⁴ (0-2,499 g)	5,273	7.7	2,535	6.2	800	11.2	1,199	8.5	542	8.4	71	8.6	126	12.4
<p>NOTE: Percentages for detailed birthweight rows ("<500" through "Unknown birthweight") are calculated based on births including those with unknown birthweight. Percentages for VLBW and LBW rows are calculated based on births with known birthweight only.</p>														
<p>1. Percentages are based on column totals. 2. Calculations based on values of 1-4 are excluded. 3. Very Low Birthweight (VLBW): less than 1,500 grams (3.3 lbs.). 4. Low Birthweight (LBW): less than 2,500 grams (5.5 lbs.).</p>														

Table 9. Low Birthweight by Plurality and Maternal Age, Massachusetts: 2009-2019

Maternal Age Group (years)	Year	Singleton				Multiples								Total Births							
		Twin		Triplets or more		Total Multiples		VLBW ¹		LBW ²		VLBW ¹		LBW ²		VLBW ¹		LBW ²			
		VLBW ¹	LBW ²	VLBW ¹	LBW ²	VLBW ¹	LBW ²	n	%	n	%	n	%	n	%	n	%	n	%		
All Ages	2009	677	1.0	3,886	5.5	276	8.2	1,771	52.7	61	38.9	147	93.6	337	9.6	1,918	54.5	1,014	1.4	5,804	7.8
	2010	643	0.9	3,882	5.6	288	8.9	1,668	51.8	30	28.8	100	96.2	318	9.6	1,768	53.2	961	1.3	5,650	7.8
	2011	629	0.9	3,824	5.6	286	9.2	1,541	49.8	41	41.0	93	93.0	327	10.2	1,634	51.2	956	1.3	5,458	7.6
	2012	585	0.8	3,810	5.5	252	8.2	1,592	51.6	41	45.6	89	98.9	300	7.5	1,731	43.5	878	1.2	5,491	7.6
	2013	596	0.9	3,727	5.5	318	10.1	1,686	53.5	23	25.8	82	92.1	351	8.6	1,825	45.0	937	1.3	5,495	7.7
	2014	605	0.9	3,690	5.4	270	9.1	1,624	54.5	19	22.9	80	96.4	297	7.6	1,763	45.2	894	1.2	5,394	7.5
	2015	627	0.9	3,849	5.6	219	8.2	1,419	53.4	19	34.5	53	96.4	241	6.8	1,528	43.2	865	1.2	5,321	7.5
	2016	596	0.9	3,904	5.7	208	8.1	1,351	52.7	38	42.2	86	95.6	258	6.8	1,514	39.7	842	1.2	5,341	7.5
	2017	575	0.8	3,878	5.7	183	7.3	1,342	53.4	16	34	41	87.2	206	5.9	1,443	41.2	774	1.1	5,261	7.5
	2018	583	0.9	3,860	5.8	210	8.9	1,318	55.9	36	52.9	65	95.6	258	7.5	1,468	42.5	829	1.2	5,243	7.6
	2019	587	0.9	3,952	5.9	184	7.9	1,256	53.8	14	21.2	65	98.5	208	6	1,395	40.4	785	1.1	5,273	7.7
Ages < 35	2009	525	0.9	3,093	5.6	174	7.9	1,187	54.2	36	45.0	76	95.0	210	9.2	1,263	55.6	735	1.3	4,356	7.5
	2010	489	0.9	3,071	5.7	206	10.2	1,059	52.5	22	40.0	51	92.7	228	11.0	1,110	53.5	717	1.3	4,181	7.4
	2011	475	0.9	2,964	5.5	189	9.5	1,034	52.0	31	52.5	54	91.5	220	10.8	1,088	53.2	695	1.2	4,052	7.2
	2012	437	0.8	2,964	5.5	185	9.5	1,066	54.6	34	59.6	57	100	226	8.4	1,168	43.5	656	1.2	4,087	7.3
	2013	433	0.8	2,852	5.4	225	11.2	1,101	54.6	17	32.7	48	92.3	250	9.1	1,202	43.7	675	1.2	4,001	7.3
	2014	460	0.9	2,828	5.3	186	9.8	1,076	57.0	14	28.0	48	96.0	207	7.9	1,173	44.7	660	1.2	3,952	7.2
	2015	476	0.9	2,922	5.6	142	8.6	902	54.5	16	36.4	43	97.7	160	6.7	990	41.8	634	1.2	3,867	7.1
	2016	443	0.9	2,952	5.7	145	9.1	865	54.1	22	46.8	47	100.0	178	6.9	977	37.8	610	1.1	3,864	7.2
	2017	446	0.9	2,920	5.7	122	7.4	924	56.1	3	16.7	14	77.8	132	5.4	992	40.9	571	1.1	3,858	7.3
	2018	396	0.8	2,798	5.7	157	10.3	859	56.6	20	57.1	35	100	188	8	967	40.9	573	1.1	3,692	7.3
	2019	435	0.9	2,878	5.9	134	9.3	830	57.7	10	21.3	46	97.9	152	6.6	935	40.6	579	1.2	3,754	7.5
Ages 35+	2009	152	1.0	792	5.1	102	8.7	584	49.9	25	32.5	71	92.2	127	10.2	655	52.5	279	1.7	1,447	8.7
	2010	154	1.0	810	5.4	82	6.8	609	50.8	8	16.3	49	100	90	7.2	658	52.8	244	1.5	1,468	9.0
	2011	154	1.0	860	5.8	97	8.8	507	45.9	10	24.4	39	95.1	107	9.3	546	47.6	261	1.6	1,406	8.8
	2012	148	1.0	846	5.6	67	5.9	526	46.5	7	21.2	32	97.0	74	5.7	563	43.5	222	1.4	1,404	8.6
	2013	163	1.1	875	5.7	93	8.2	585	51.6	6	16.2	34	91.9	101	7.7	623	47.6	262	1.6	1,494	9.1
	2014	145	0.9	862	5.5	84	7.7	548	50.2	5	15.2	32	97.0	90	7.1	590	46.3	234	1.4	1,442	8.6
	2015	151	0.9	927	5.8	77	7.7	517	51.7	3	27.3	10	90.9	81	7.0	538	46.3	231	1.4	1,454	8.5
	2016	153	0.9	952	5.7	63	6.5	486	50.3	16	37.2	39	90.7	80	6.5	537	43.8	232	1.3	1,477	8.4
	2017	129	0.8	958	5.7	61	7	418	48.3	13	44.8	27	93.1	74	6.9	451	41.8	203	1.1	1,403	7.9
	2018	187	1.1	1,061	6.1	53	6.3	457	54.5	16	48.5	30	90.9	70	6.4	499	45.7	256	1.4	1,548	8.5
	2019	152	0.9	1,074	6	50	5.6	426	47.5	4	21.1	19	100	56	4.9	460	40	206	1.1	1,519	8.1

NOTE: Very Low Birthweight (VLBW) births are a subset of Low Birthweight (LBW) births. All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated. 1. Very Low Birthweight (VLBW): less than 1,500 grams (3.3 lbs.). 2. Low Birthweight (LBW): less than 2,500 grams (5.5 lbs.).

Table 10. Births by Gestational Age, Race/Hispanic Ethnicity, Massachusetts: 2019

Gestational Age ¹ (weeks completed)	Total		White Non-Hispanic		Black Non-Hispanic		Hispanic		Asian Non-Hispanic		Other Non-Hispanic ³		Unknown
	n	% ²	n	% ²	n	% ²	n	% ²	n	% ²	n	% ²	n
State Total	69,117	100.0	39,461	100.0	7,181	100.0	14,067	100.0	6,457	100.0	832	100.0	1,119
<20	20	0.03	5	0.01	--4	--4	9	0.06	--4	--4	0	0.00	--4
20-23	93	0.13	24	0.1	22	0.3	31	0.2	--4	--4	--4	--4	11
24-27	255	0.34	91	0.2	51	0.7	76	0.5	26	0.4	--4	--4	7
28-31	556	0.74	265	0.7	90	1.3	142	1.0	38	0.6	8	1.0	13
32-33	706	0.93	401	1.0	102	1.4	121	0.9	53	0.8	12	1.4	17
34-36	4,570	5.73	2,442	6.2	523	7.3	1,041	7.4	416	6.4	61	7.3	87
37-38	16,955	22.56	8,962	22.7	1,914	26.7	3,834	27.3	1,774	27.5	214	25.8	257
39	24,439	20.20	14,157	35.9	2,398	33.4	4,966	35.3	2,342	36.3	295	35.5	281
40	15,198	13.39	9,127	23.1	1,460	20.3	2,846	20.2	1,360	21.1	168	20.2	237
41	5,958	4.14	3,795	9.6	593	8.3	975	6.9	433	6.7	65	7.8	97
42	208	0.15	152	0.4	21	0.3	22	0.2	7	0.1	--4	--4	--4
43	--4	--4	--4	--4	--4	--4	0	0.0	--4	--4	0	0.0	0
44+	--4	--4	--4	--4	0	0.0	0	0.0	0	0.0	0	0.0	0
Preterm⁵ (<37)	6,200	9.0	3,228	8.2	792	11.0	1,420	10.1	538	8.3	86	10.4	136
Very Early ⁶ (<28)	368	0.5	120	0.3	77	1.1	116	0.8	31	0.5	5	0.6	19
(28-33)	1,262	1.8	666	1.7	192	2.7	263	1.9	91	1.4	20	2.4	30
Late (34-36)	4,570	6.6	2,442	6.2	523	7.3	1,041	7.4	416	6.4	61	7.3	87
Term (>=37)	62,765	91.0	36,198	91.8	6,387	89.0	12,643	89.9	5,917	91.7	744	89.6	876
Early Term (37-38)	16,955	24.6	8,962	22.7	1,914	26.7	3,834	27.3	1,774	27.5	214	25.8	257
(39-41)	45,595	66.0	27,079	68.7	4,451	62.0	8,787	62.5	4,135	64.1	528	63.6	615
(>=42)	215	0.3	157	0.4	22	0.3	22	0.2	8	0.1	--4	--4	--4
Unknown⁷	152		35		--4		--4		--4		--4		107

NOTE: Percentages are calculated based on births with known gestational age only.

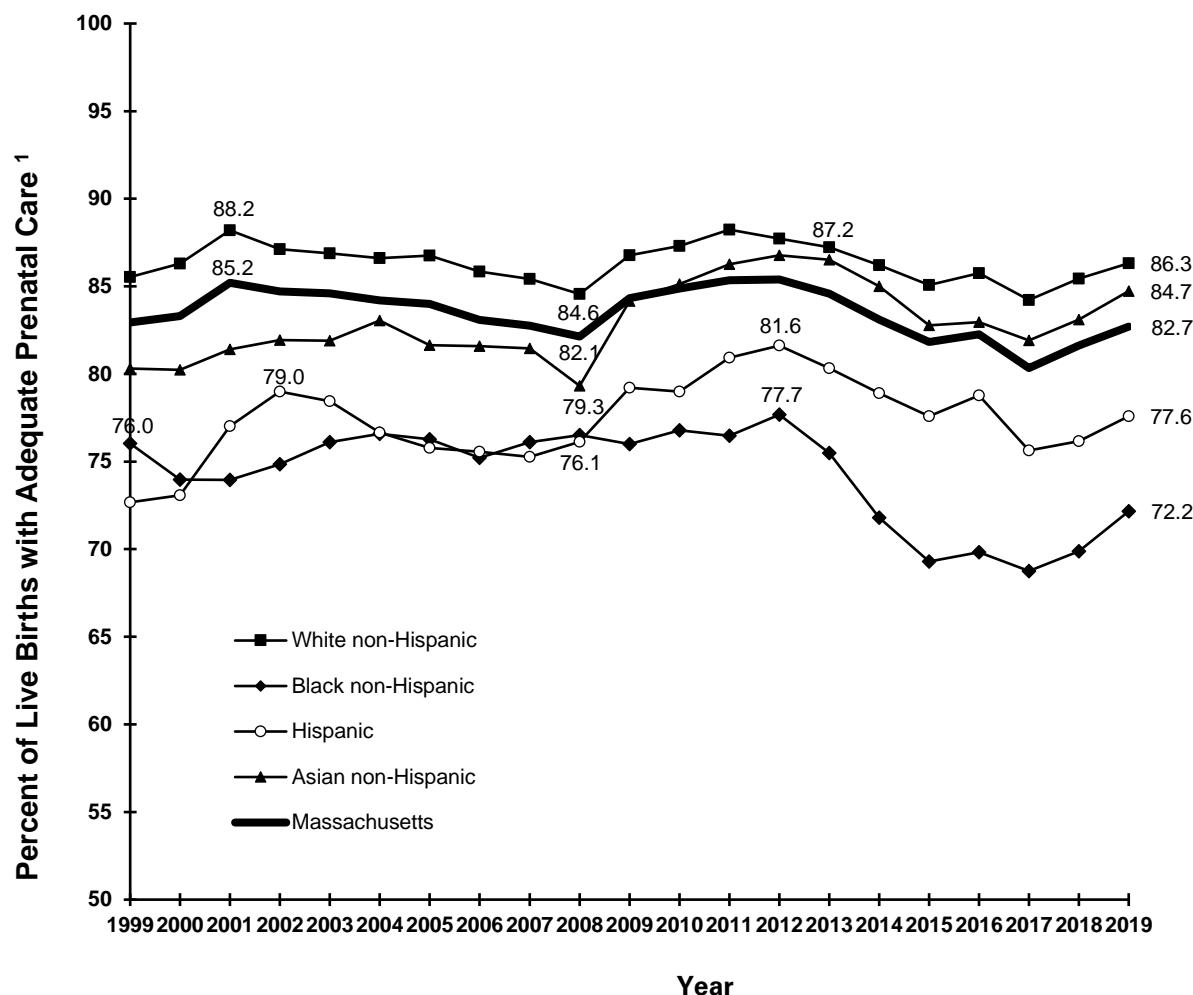
1. A clinical estimate of the number of weeks of pregnancy completed; as estimated by the attendant at birth or the postnatal physician. 2. Percentages are based on column total. 3. Other races include American Indian and others not specified. 4. Calculations based on values of 1-4 are excluded. 5. Also known as early gestational age, premature delivery, or preterm delivery. 6. Also known as extremely premature delivery or extremely preterm delivery. 7. Estimate of gestational age not provided and excluded from percentage calculations.

**Table 11. Percent Preterm and Term Births by Gestational Age Category,
Massachusetts: 2003-2019**

Year	Preterm ¹			Term ²	
	Very Early Preterm (<28 wks)	Moderate Preterm (28-33 wks)	Late Preterm (34-36 wks)	Early Term (37-38 wks)	Full Term (37+ wks)
2003	0.7	2.1	6.0	20.8	91.3
2004	0.6	2.2	6.4	22.3	90.8
2005	0.6	2.1	6.3	22.3	91.0
2006	0.6	2.0	6.3	22.7	91.0
2007	0.6	2.0	6.4	22.6	91.0
2008	0.6	2.0	6.2	22.6	91.2
2009	0.7	1.9	6.2	20.8	91.3
2010	0.6	2.0	6.0	21.1	91.4
2011	0.6	1.9	5.9	21.8	91.6
2012	0.6	1.7	6.2	21.5	91.4
2013	0.6	1.9	6.3	21.0	91.2
2014	0.5	1.8	6.1	21.7	91.4
2015	0.6	1.9	6.0	22.5	91.6
2016	0.6	1.8	6.3	22.8	91.3
2017	0.6	1.8	6.6	23.2	91.1
2018	0.5	1.9	6.5	23.4	91.1
2019	0.5	1.8	6.6	24.6	91.1

1. Also known as early gestational age, premature delivery, or preterm delivery. Preterm: <37 weeks gestation. 2. Full term and early term are not mutually exclusive.

Figure 3. Trends in Adequacy of Prenatal Care^{2,3} by Race/Hispanic Ethnicity, Massachusetts: 1999-2019



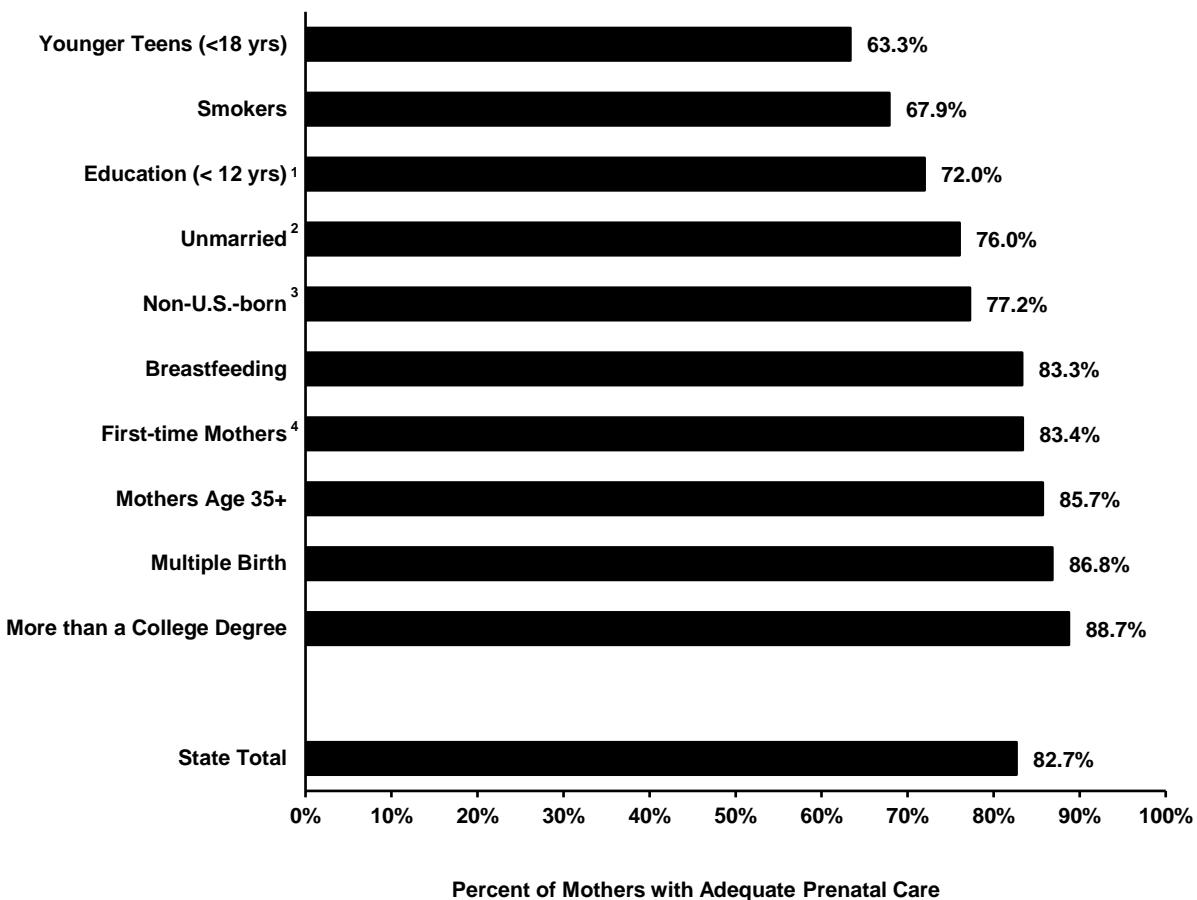
NOTE: FOR PURPOSES OF VISUAL REPRESENTATION THE VERTICAL SCALE OF GRAPH REPRESENTS A SMALL INTERVAL (from 50% to 100%).

1. All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated.

2. Adequacy of Prenatal Care Utilization (APNCU) Index is an assessment of the timing and number of prenatal care visits and not an evaluation of the quality of care delivered. Data from Metro West hospital are not included in years 2011 and 2012 because of reporting problems. Data from Newton Wellesley, Saint Vincent, and Winchester hospitals are not included in years 2011-2017 because of reporting problems.

3. Please use caution in interpreting this figure. The birth facility is responsible for collecting prenatal care data reported on the birth certificate. If prenatal care was obtained at a different location, the birth facility may be unable to obtain complete prenatal care data. Missing prenatal care data will impact the APNCU Index.

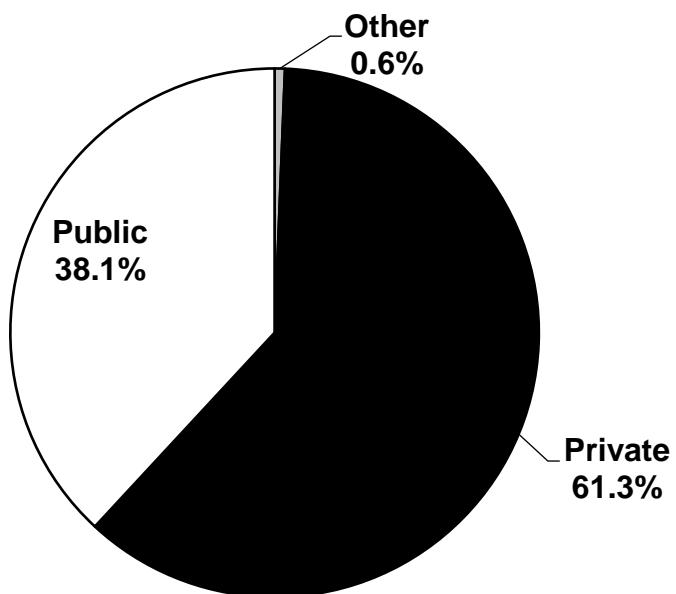
Figure 4. Adequacy of Prenatal Care by Selected Maternal Characteristics, Massachusetts: 2019



NOTE: All percentages are calculated based on the Adequacy of Prenatal Care Utilization (APNCU) Index. Characteristics of interest are not mutually exclusive, except as noted.

1. Women 20 years of age and older. 2. Marital status at time of birth. 3. Non-US-born includes women born outside of the 50 U.S. states, District of Columbia, and U.S. territories (Puerto Rico, U.S. Virgin Islands, Guam). 4. Infant was being breastfed during the hospital stay.

Figure 5. Distribution of Prenatal Care Payment Source, Massachusetts: 2019



NOTE: Sources of Prenatal Care Payment include private: Commercial indemnity plan, commercial managed care (HMO, PPO, IPP, IPA, and other), or other private insurance; public: Government programs including CommonHealth, Healthy Start, Medicaid/MassHealth, and Medicare (may also be HMO or managed care), or free care; and other: self-pay.

Table 12. Resident Birth Characteristics, 30 Largest Municipalities, Massachusetts: 2019

Mother's Race and Ethnicity ⁴									
Municipality ¹	Rank ³	Population	Crude	White	Black	Hispanic	Asian	Very Low Birthweight	Low Birthweight
			Birth rate ²	Non-Hispanic	Non-Hispanic		or Other	(<1500 gms.)	(<2500 gms.)
					%	%	%	%	%
STATE TOTAL		6,964,383	9.9	57.1	10.4	20.4	10.5	1.1	7.7
Arlington	29	45,827	10.4	70.1	1.9	3.8	23.2	0.4	6.7
Attleboro	28	46,517	10.4	70.8	8.3	14.9	4.3	1.5	7.3
Boston	1	692,958	10.5	39.9	22.9	24.6	10.6	1.6	9.0
Brockton	9	99,226	15.0	17.6	59.3	16.2	5.8	1.2	8.6
Brookline	18	64,727	9.0	62.7	4.3	6.9	23.9	0.3	7.1
Cambridge	5	111,989	10.1	49.7	10.9	9.9	28.0	0.8	7.7
Chicopee	23	56,710	9.5	54.3	6.7	35.9	2.6	3.0	9.6
Everett	27	48,552	12.9	23.5	17.6	45.6	12.0	1.9	8.0
Fall River	11	89,317	12.5	61.9	10.2	20.5	6.9	1.4	8.3
Framingham	14	74,398	11.9	44.6	9.1	32.7	11.2	1.8	7.6
Haverhill	17	65,939	12.0	55.1	5.1	34.7	3.3	1.1	8.6
Lawrence	12	87,731	16.3	4.7	2.5	90.5	2.1	1.5	8.5
Lowell	4	116,143	12.7	30.5	13.0	28.6	27.0	1.8	9.6
Lynn	7	100,824	15.0	18.6	10.1	57.1	8.9	1.4	9.6
Malden	15	67,654	12.2	28.8	16.5	18.8	33.5	0.5	8.3
Medford	21	60,761	10.3	58.7	7.8	11.2	20.5	0.5	5.5
Methuen	26	53,837	10.0	43.6	6.5	43.9	5.2	2.2	8.6
New Bedford	8	99,980	12.1	44.7	12.4	37.1	5.3	1.3	9.9
Newton	10	91,690	6.3	63.6	2.9	8.6	22.4	0.7	4.5
Peabody	25	55,967	9.9	68.4	6.3	16.1	3.8	1.3	6.1
Plymouth	19	62,729	8.6	87.1	2.2	6.7	3.7	0.9	7.8
Quincy	6	101,531	11.4	41.4	9.8	7.1	40.4	1.0	6.2
Revere	20	60,849	11.9	33.0	7.5	44.2	12.0	0.8	7.6
Salem	30	45,021	10.2	61.9	3.9	21.2	4.8	1.8	8.6
Somerville	13	75,646	10.3	59.7	5.0	16.3	16.9	0.9	6.3
Springfield	3	156,245	12.9	17.4	19.0	59.4	3.7	2.0	11.2
Taunton	22	57,573	11.0	61.4	19.8	13.8	4.4	0.8	9.1
Waltham	16	66,447	11.3	46.2	8.4	25.6	18.8	0.3	6.8
Weymouth	24	56,177	11.8	68.1	7.4	8.4	14.9	0.8	7.8
Worcester	2	191,575	12.5	39.8	20.6	31.6	7.7	1.3	8.7

Table 12 (cont'd). Resident Birth Characteristics, 30 Largest Municipalities, Massachusetts: 2019

Births						
Municipality ¹	Gestational Diabetes	Adequate Prenatal Care ⁷	Public Payment for Prenatal Care ⁸	Unmarried	Teen Mothers 15 to 19 years	
	%	%	%	%	N ⁹	Rate
STATE TOTAL	7.1	82.7	38.1	32.5	1,538	8.1
Arlington	4.8	88.9	7.3	8.4	0	0.0
Attleboro	6.6	78.6	16.9	31.9	13	10.5
Boston	4.7	81.1	40.3	35.8	169	6.8
Brockton	8.3	71.0	69.5	55.7	60	18.9
Brookline	4.3	88.3	8.8	5.2	0	0.0
Cambridge	3.8	84.0	15.7	13.6	6	1.7
Chicopee	10.2	80.7	61.5	56.9	26	15.9
Everett	7.8	75.5	66.7	38.7	14	9.4
Fall River	9.8	80.4	75.7	63.0	51	20.7
Framingham	6.2	74.3	49.4	29.9	28	11.2
Haverhill	7.3	81.3	42.9	45.3	26	14.9
Lawrence	6.4	77.0	83.5	59.4	105	32.8
Lowell	7.6	79.0	62.0	51.9	53	13.8
Lynn	4.3	78.1	70.0	48.1	74	23.7
Malden	5.1	81.5	44.2	23.6	11	6.7
Medford	4.8	83.5	20.1	13.4	-6	-6
Methuen	8.2	78.2	50.0	38.2	8	4.5
New Bedford	9.9	79.8	75.7	63.8	81	26.7
Newton	7.9	87.9	8.8	8.1	-6	-6
Peabody	7.0	85.3	30.1	27.1	5	3.8
Plymouth	5.9	89.0	26.1	31.5	-6	-6
Quincy	7.2	83.4	29.6	24.0	5	2.5
Revere	4.2	78.7	63.8	36.0	15	8.7
Salem	5.3	84.3	36.4	34.9	12	7.7
Somerville	3.7	88.3	22.5	17.8	6	4.0
Springfield	10.5	73.5	80.1	70.2	174	28.3
Taunton	5.2	76.0	49.2	49.8	17	10.4
Waltham	7.7	83.9	32.6	22.1	12	5.0
Weymouth	5.4	89.9	22.2	22.9	8	5.6
Worcester	9.1	79.2	63.3	48.3	100	13.5

1. The 30 largest municipalities are the cities/ towns in Massachusetts with the largest populations. 2. Crude birth rates represent the number of births per 1,000 residents (male and female). 3. Rank is by population size. 4. For the category of Mother's Race/Ethnicity, percentages are calculated based on the state total of resident births, including births for which mother's race/Hispanic ethnicity is unknown. 5. Mothers who designated themselves as Non-Hispanic Asian, American Indian, or Other. 6. Counts and calculations based on 1-4 events are excluded. 7. Based on the Adequacy of Prenatal Care Utilization (APNCU) Index. 8. Public payment sources include CommonHealth, Healthy Start, Medicaid/MassHealth, and Medicare (may be HMO or managed care), or free care. 9. Births per 1,000 female residents ages 15-19; rates for cities and towns were calculated using UMass Donahue Institute (UMDI) estimates for 2019.

Table 13. Birth Characteristics by Facility/Location, Massachusetts: 2019

Hospital ⁽¹⁾	Location	(2) Occurrence Births (n)	(3) Low Birthweight (%)	(4) Public Pay for PNC (%)	(5) Adequate Prenatal Care (%)	(6) Early Term (%)	(7) Late Preterm (%)
State Total		69,919	7.6	37.8	82.5	24.6	6.7
Anna Jaques Hospital	Newburyport	637	4.1	9.6	91.8	23.5	6.6
Baystate Franklin Medical Center	Greenfield	489	4.7	40.7	83.8	20.9	7.4
Baystate Medical Center	Springfield	4,125	12.1	56.2	79.2	26.2	9.7
Berkshire Medical Center	Pittsfield	623	5.6	50.1	85.4	17.2	5.5
Beth Israel Deaconess Hospital - Plymouth	Plymouth	812	3.6	27.6	88.3	22.4	4.3
Beth Israel Deaconess Medical Center	Boston	5,445	12.0	21.3	89.4	25.6	9.1
Beverly Hospital	Beverly	2,182	4.9	29.9	83.0	23.1	5.1
Boston Medical Center	Boston	2,860	8.8	81.3	62.7	27.2	6.3
Brigham and Women's Hospital	Boston	6,259	9.9	23.8	87.7	27.1	9.4
Brockton Hospital	Brockton	1,441	5.2	75.5	77.8	24.8	4.8
Cambridge Birth Center	Cambridge	71	~8	18.3	66.2	25.4	~8
Cambridge Hospital	Cambridge	1,115	3.1	68.6	80.7	21.9	4.1
Cape Cod Hospital	Barnstable	759	4.5	55.6	76.9	17.8	6.2
Charlton Memorial Hospital	Fall River	1,436	6.2	62.1	84.3	22.7	4.6
Cooley Dickinson Hospital	Northampton	563	3.4	36.0	84.8	17.3	2.5
Emerson Hospital	Concord	1,300	4.5	11.2	81.2	20.3	5.8
Fairview Hospital	Great Barrington	140	4.3	42.9	84.2	22.9	~8
Falmouth Hospital	Falmouth	347	3.5	49.3	80.8	17.6	2.3
Good Samaritan Medical Center	Brockton	676	4.9	53.5	57.9	22.6	5.9
Healthalliance - Clinton Hospital, Leominster	Leominster	564	3.5	62.7	81.0	20.6	3.9
Heywood Hospital	Gardner	388	5.4	65.0	80.0	16.5	3.9
Holyoke Medical Center	Holyoke	346	4.0	63.4	66.7	24.9	4.6
Lawrence General Hospital	Lawrence	1,367	6.4	78.5	81.1	25.7	5.9
Lowell General Hospital	Lowell	2,175	6.7	51.7	82.4	29.5	6.9
Martha's Vineyard Hospital	Oak Bluffs	149	~8	51.0	87.6	12.1	~8
Massachusetts General Hospital	Boston	3,854	8.9	22.9	82.9	24.2	6.5
Melrose-Wakefield Hospital	Melrose	795	4.7	30.9	88.6	24.1	4.0
Mercy Medical Center	Springfield	982	4.5	63.9	79.6	26.9	4.2
Metrowest Med Ctr - Framingham Union Hospital	Framingham	1,144	6.1	58.0	71.9	28.8	6.2
Milford Regional Medical Center	Milford	892	3.8	36.5	91.6	26.4	3.8
Mt. Auburn Hospital	Cambridge	2,482	3.9	17.1	85.4	20.1	4.2
Nantucket Cottage Hospital	Nantucket	122	~8	50.8	83.6	23.0	4.9
Newton-Wellesley Hospital	Newton	3,743	4.3	2.7	89.3	23.4	5.1
North Shore Birth Center	Beverly	50	~8	34.0	86.0	12.0	~8
North Shore Medical Center - Salem Hospital	Salem	1,192	7.3	57.8	82.2	30.6	5.5
Norwood Hospital	Norwood	426	4.5	17.5	81.0	28.4	5.2
Saint Vincent Hospital	Worcester	1,967	5.0	37.8	88.6	26.4	5.2
South Shore Hospital	Weymouth	3,089	6.5	14.6	89.7	23.6	6.6
St. Elizabeth's Medical Center	Boston	852	18.1	38.3	74.8	26.9	9.9
St. Luke's Hospital	New Bedford	1,520	7.8	67.9	81.3	26.0	6.6
Steward Holy Family Hospital	Methuen	1,027	3.8	52.5	76.4	17.8	4.2
Sturdy Memorial Hospital	Attleboro	636	6.0	13.0	81.4	15.1	2.7

Table 13 (cont'd). Birth Characteristics by Facility/Location, Massachusetts: 2019

Hospital ⁽¹⁾	Location	(2) Occurrence Births (n)	(3) Low Birthweight (%)	(4) Public Pay for PNC (%)	(5) Adequate Prenatal Care (%)	(6) Early Term (%)	(7) Late Preterm (%)
Tobey Hospital	Wareham	350	1.7	56.3	84.5	19.8	3.7
Tufts Medical Center	Boston	1,304	18.5	42.2	84.9	29.1	11.0
UMass Memorial Medical Center	Worcester	4,411	10.8	45.2	77.4	26.5	9.0
Winchester Hospital	Winchester	2,349	5.4	12.9	82.1	22.9	5.3
Other Hospitals		6	~8	~8	~8	~8	~8
Home, Enroute & Dr. Off.		457	8.6	25.9	63.2	19.7	6.0

NOTE: All percentages are calculated based on only those occurrence births with known values for the characteristic(s) of interest.

1. A licensed maternity facility is a medical unit licensed by the Commonwealth for the care of women during pregnancy and childbirth.
2. Occurrence births are births that occurred at the facility, regardless of where the mother was a resident.
3. Less than 2,500 grams (5.5 lbs.)
4. Public payment for prenatal care (PNC) includes Medicaid/MassHealth, CommonHealth, Medicare, Healthy Start, other government programs, and free care.
5. Based on the APNCU Index.
6. Birth at 37 or 38 weeks of gestation.
7. Birth at 34 to 36 weeks of gestation.
8. Calculations based on 1-4 events are excluded.

Table 14. Resident Teen Birth Characteristics, 30 Largest Municipalities, Massachusetts: 2019

Municipality ¹	Total Population Rank	Female Population, ages 15-19	Number of Teen Births (Ages 15-19)	Teen Birth Rate ²	Mother's Race/Hispanic Ethnicity (% of teen births)			
					White Non-Hispanic	Black Non-Hispanic	Hispanic	Asian or Other Non-Hispanic ³
State Total		230,303	1,538	6.7	25.4	12.2	59.6	2.8
Arlington	29	1,238	--4	--4	--4	--4	--4	--4
Attleboro	28	1,243	13	10.5	69.2	--4	--4	0.0
Boston	1	24,682	169	6.8	3.6	29.8	66.1	--4
Brockton	9	3,176	60	18.9	10.0	55.0	28.3	--4
Brookline	18	1,795	--4	--4	--4	--4	--4	--4
Cambridge	5	3,452	6	1.7	--4	--4	--4	0.0
Chicopee	23	1,636	26	15.9	38.5	--4	42.3	--4
Everett	27	1,482	14	9.4	--4	--4	71.4	--4
Fall River	11	2,466	51	20.7	42.0	--4	44.0	--4
Framingham	14	2,504	28	11.2	--4	0.0	85.7	--4
Haverhill	17	1,742	26	14.9	48.0	0.0	52.0	0.0
Lawrence	12	3,200	105	32.8	0.0	--4	98.1	0.0
Lowell	4	3,843	53	13.8	17.3	--4	51.9	25.0
Lynn	7	3,118	74	23.7	--4	--4	90.1	--4
Malden	15	1,635	11	6.7	--4	--4	--4	--4
Medford	21	1,627	--4	4.5	--4	0.0	--4	--4
Methuen	26	1,768	8	26.7	24.7	7.4	65.4	--4
New Bedford	8	3,031	81	--4	--4	0.0	0.0	0.0
Newton	10	4,925	--4	3.8	0.0	--4	--4	0.0
Peabody	25	1,303	5	--4	--4	0.0	--4	0.0
Plymouth	19	1,731	--4	2.5	--4	0.0	--4	--4
Quincy	6	1,970	5	8.7	--4	--4	80.0	0.0
Revere	20	1,720	15	7.7	--4	--4	--4	0.0
Salem	30	1,561	12	4.0	--4	0.0	--4	0.0
Somerville	13	1,487	6	28.3	8.0	12.1	79.9	0.0
Springfield	3	6,143	174	10.4	64.7	--4	29.4	0.0
Taunton	22	1,639	17	5.0	0.0	--4	91.7	0.0
Waltham	16	2,381	12	5.6	--4	--4	75.0	0.0
Weymouth	24	1,440	8	13.5	24.0	11.0	63.0	--4
Worcester	2	7,382	100	0.0	0.0	0.0	0.0	0.0

Table 14 (cont'd). Resident Teen Birth Characteristics, 30 Largest Municipalities, Massachusetts: 2019

Municipality ¹	Public Payment for Prenatal Care ⁵ (%)	Unmarried (%)	Low Birthweight ⁶ (%)	Preterm ⁷ (%)	Adequacy of Prenatal Care ⁸ (% of teen births)			
					Adequate Intensive	Adequate Basic	Intermediate	Inadequate ⁹
State Total	84.2	91.9	9.2	8.6	30.4	36.9	8.7	24.0
Arlington	--4	--4	--4	--4	--4	--4	--4	--4
Attleboro	50.0	91.7	--4	--4	66.7	--4	0.0	--4
Boston	89.0	94.7	9.5	7.1	26.5	39.8	11.4	22.3
Brockton	79.7	91.7	8.3	10.0	30.5	33.9	--4	32.2
Brookline	--4	--4	--4	--4	--4	--4	--4	--4
Cambridge	--4	100.0	--4	--4	--4	--4	0.0	--4
Chicopee	80.8	80.8	--4	--4	--4	34.6	--4	38.5
Everett	64.3	71.4	--4	0.0	35.7	--4	0.0	35.7
Fall River	91.8	87.2	15.7	11.8	45.8	39.6	--4	12.5
Framingham	92.6	89.3	17.9	--4	22.2	29.6	22.2	25.9
Haverhill	65.4	100.0	19.2	--4	24.0	40.0	--4	28.0
Lawrence	94.3	87.6	8.6	6.7	24.8	42.9	12.4	20.0
Lowell	82.7	90.6	13.2	9.4	37.5	29.2	--4	27.1
Lynn	87.5	90.5	13.5	13.5	31.9	31.9	8.7	27.5
Malden	100.0	90.9	--4	--4	--4	--4	--4	45.5
Medford	0.0	--4	0.0	0.0	0.0	0.0	0.0	--4
Methuen	--4	87.5	0.0	--4	--4	--4	--4	--4
New Bedford	91.3	96.2	11.1	7.4	34.6	38.3	7.4	19.8
Newton	0.0	--4	0.0	0.0	0.0	--4	0.0	0.0
Peabody	100.0	--4	0.0	--4	0.0	--4	0.0	--4
Plymouth	0.0	--4	--4	--4	--4	0.0	0.0	--4
Quincy	--4	--4	0.0	--4	0.0	--4	0.0	--4
Revere	93.3	100.0	--4	--4	33.3	40.0	0.0	--4
Salem	100.0	100.0	--4	--4	--4	41.7	--4	--4
Somerville	100.0	83.3	0.0	0.0	--4	--4	0.0	--4
Springfield	93.0	94.2	8.0	8.6	23.8	44.6	7.7	23.8
Taunton	75.0	100.0	--4	--4	--4	38.5	--4	0.0
Waltham	91.7	100.0	0.0	--4	--4	41.7	0.0	50.0
Weymouth	87.5	100.0	--4	--4	--4	62.5	0.0	0.0
Arlington	87.0	93.0	10.0	9.0	36.0	36.0	12.0	16.0

NOTE: All percentages are calculated based on only those births with known values for the characteristic(s) of interest, unless otherwise stated.

1. The 30 largest municipalities are the cities and towns in Massachusetts with the largest populations according to the 2010 Census. 2. Birth rates represent the number of births per 1,000 females ages 15-19. Birth rates for cities and towns were calculated using UMASS Donahue Institute (UMDI) population estimates for 2019. 3. Mothers who designated themselves as Non-Hispanic Asian, American Indian, or Other. 4. Counts and calculations based on values of 1-4 are excluded. 5. Government programs including CommonHealth, Healthy Start, Medicaid/MassHealth, and Medicare (may also be HMO or managed care), or free care; other: Worker's Compensation and other sources. 6. Less than 2,500 grams or 5.5 pounds. 7. Less than 37 weeks of gestational age. 8. Based on Adequacy of Prenatal Care Utilization (APNCU) Index. 9. Inadequate includes those mothers with no prenatal care.

Table 15. Adequacy of Prenatal Care Utilization: Summary and Component Indices, Massachusetts: 2019

	Adequate Total ¹		Adequate Intensive		Adequate Basic		Intermediate		Inadequate		Unknown
	n	%	n	%	n	%	n	%	n	%	n
<u>Summary Index</u>											
Adequacy of Prenatal Care Utilization	54,912	82.6	25,957	39.0	28,955	43.6	4,075	6.1	7,491	11.3	1,419
<u>Component Indices</u>											
Adequacy of Initiation	59,413	89.4	20,635	31.0	38,778	58.3	3,782	5.7	3,283	4.9	1,419
Adequacy of Received Services (Visits)	61,061	91.9	30,867	46.4	30,194	45.4	4,581	6.9	836	1.3	1,419

NOTE: All percentages are calculated based on the Adequacy of Prenatal Care Utilization (APNCU) Index.

1. Adequate Total is the sum of Adequate Intensive and Adequate Basic categories.

Table 16. Birth Characteristics by Race/Hispanic Ethnicity and Source of Prenatal Care Payment, Massachusetts: 2019

Race/Ethnicity and Payment Source	Births ¹		Teen Births ²				Birthweight			
			<18 Years		<20 Years		Very Low ³		Low ⁴	
	n	%	n	%	n	%	n	%	n	%
STATE TOTAL⁵	69,117	100.0	381	0.6	1,559	2.3	785	1.1	5,273	7.7
Public	26,103	37.9	328	1.3	1,292	4.9	370	1.4	2,325	8.9
Medicaid ⁶	22,629	32.9	297	1.3	1,182	5.2	321	1.4	2,039	9.0
Other Public ⁷	3,474	5.0	31	0.9	110	3.2	49	1.4	286	8.2
Private⁸	41,981	61.0	42	0.1	236	0.6	380	0.9	2,799	6.7
White Non-Hispanic	39,461	100.0	64	0.2	389	1.0	316	0.8	2,535	6.4
Public	8,897	22.6	46	0.5	271	3.0	91	1.0	708	8.0
Medicaid ⁶	7,405	18.8	43	0.6	249	3.4	79	1.1	612	8.3
Other Public ⁷	1,492	3.8	-- ⁹	-- ⁹	22	1.5	12	0.8	96	6.4
Private⁸	30,092	76.5	16	0.1	111	0.4	214	0.7	1,759	5.8
Black Non-Hispanic	7,181	100.0	41	0.6	187	2.6	156	2.2	800	11.1
Public	4,457	62.2	32	0.7	147	3.3	88	2.0	476	10.7
Medicaid ⁶	3,850	53.8	28	0.7	134	3.5	78	2.0	417	10.8
Other Public ⁷	607	8.5	-- ⁹	-- ⁹	13	2.1	10	1.6	59	9.7
Private⁸	2,578	36.0	8	0.3	37	1.4	60	2.3	289	11.2
Hispanic	14,067	100.0	260	1.8	917	6.5	209	1.5	1,199	8.5
Public	10,290	73.3	238	2.3	820	8.0	159	1.5	905	8.8
Medicaid ⁶	9,218	65.7	215	2.3	752	8.2	139	1.5	804	8.7
Other Public ⁷	1,072	7.6	23	2.1	68	6.3	20	1.9	101	9.4
Private⁸	3,614	25.8	15	0.4	77	2.1	43	1.2	275	7.6
Asian Non-Hispanic	6,457	100.0	6	0.1	26	0.4	63	1.0	542	8.4
Public	1,562	24.2	-- ⁹	-- ⁹	20	1.3	19	1.2	147	9.4
Medicaid ⁶	1,388	21.5	-- ⁹	-- ⁹	19	1.4	16	1.2	131	9.4
Other Public ⁷	174	2.7	0	0.0	-- ⁹	-- ⁹	-- ⁹	-- ⁹	16	9.2
Private⁸	4,824	74.8	-- ⁹	-- ⁹	6	0.1	42	0.9	383	7.9
Other Non-Hispanic⁹	832	100.0	--⁹	--⁹	16	1.9	11	1.3	71	8.5
Public	493	60.2	-- ⁹	-- ⁹	14	2.8	6	1.2	46	9.3
Medicaid ⁶	396	48.4	-- ⁹	-- ⁹	10	2.5	-- ⁹	-- ⁹	34	8.6
Other Public ⁷	97	11.8	0	0.0	-- ⁹	-- ⁹	-- ⁹	-- ⁹	12	12.4
Private⁸	293	35.8	0	0.0	-- ⁹	-- ⁹	-- ⁹	-- ⁹	19	6.5

Race/Ethnicity and Payment Source	Prenatal Care									
	Adequate ¹¹		Began 1st Trimester		Cesarean Delivery		Breastfeeding ¹ ²		Smoking ¹³	
	n	%	n	%	n	%	n	%	n	%
STATE TOTAL⁵	55,705	82.7	54,386	80.1	21,656	31.4	59,733	86.7	2,694	4.1
Public	19,147	74.9	18,142	70.5	8,200	31.4	21,402	82.2	2,006	8.1
Medicaid ⁶	16,593	74.9	15,685	70.3	7,096	31.4	18,550	82.2	1,785	8.3
Other Public ⁷	2,554	74.6	2,457	71.4	1,104	31.8	2,852	82.2	221	6.5
Private⁸	36,251	88.3	35,935	86.8	13,195	31.4	37,736	90.0	594	1.5
White Non-Hispanic	33,227	86.3	32,899	84.7	12,281	31.1	33,879	86.0	2,025	5.3
Public	6,733	77.2	6,469	73.6	2,773	31.2	6,823	76.8	1,430	16.6
Medicaid ⁶	5,599	77.1	5,349	73.1	2,335	31.5	5,665	76.7	1,267	17.6
Other Public ⁷	1,134	77.6	1,120	75.9	438	29.4	1,158	77.6	163	11.2
Private⁸	26,305	89.5	26,243	88.5	9,393	31.2	26,785	89.1	515	1.8
Black Non-Hispanic	5,059	72.2	4,776	67.6	2,497	34.8	6,360	88.9	170	2.4
Public	2,935	67.5	2,734	62.4	1,491	33.5	3,877	87.2	138	3.2
Medicaid ⁶	2,528	67.5	2,354	62.3	1,261	32.8	3,329	86.7	121	3.2
Other Public ⁷	407	67.6	380	63.0	230	37.9	548	90.3	17	2.8
Private⁸	2,092	82.4	2,006	78.5	955	37.1	2,372	92.5	28	1.1
Hispanic	10,688	77.6	10,167	73.3	4,454	31.7	12,092	86.2	406	3.0
Public	7,641	75.6	7,205	70.9	3,178	30.9	8,678	84.6	363	3.7
Medicaid ⁶	6,859	75.8	6,474	71.1	2,835	30.8	7,787	84.8	330	3.8
Other Public ⁷	782	73.9	731	68.8	343	32.0	891	83.5	33	3.1
Private⁸	3,004	85.0	2,920	82.0	1,230	34.0	3,304	91.6	35	1.0
Asian Non-Hispanic	5,410	84.7	5,248	81.8	1,846	28.6	5,860	90.9	37	0.6
Public	1,224	79.7	1,142	73.8	468	30.0	1,281	82.2	25	1.7
Medicaid ⁶	1,091	80.0	1,015	73.8	413	29.8	1,132	81.7	23	1.7
Other Public ⁷	133	77.3	127	73.4	55	31.6	149	85.6	-- ⁹	-- ⁹
Private⁸	4,162	87.0	4,082	85.1	1,357	28.1	4,521	93.9	12	0.3
Other Non-Hispanic¹⁰	586	73.3	573	70.7	293	35.3	703	84.8	50	6.3
Public	343	71.3	328	67.6	181	36.7	419	85.2	45	9.6
Medicaid ⁶	269	69.9	253	65.2	150	37.9	343	86.8	39	10.5
Other Public ⁷	74	77.1	75	77.3	31	32.0	76	78.4	6	6.4
Private⁸	227	80.2	229	79.5	95	32.4	254	86.7	-- ⁹	-- ⁹

Table 16 (cont'd). Birth Characteristics by Race/Hispanic Ethnicity and Source of Prenatal Care Payment, Massachusetts: 2019

**Table 17. Birth Characteristics: Occurrence and Resident Births,
Massachusetts Municipalities: 2019**

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
STATE TOTAL	69,919	69,117	5,273	6,200	1,538
Abington	1	184	10	12	--
Acton	2	169	15	17	0
Acushnet	0	85	5	8	--
Adams	1	68	5	7	0
Agawam	2	257	19	23	--
Alford	0	0	0	0	0
Amesbury	1	153	15	19	0
Amherst	1	157	9	11	--
Andover	1	269	20	32	0
Aquinnah (Formerly Gay Head)	0	3	0	0	0
Arlington	2	478	32	40	0
Ashburnham	2	44	--	--	0
Ashby	1	25	0	0	--
Ashfield	0	11	0	0	0
Ashland	1	210	17	14	--
Athol	0	110	8	8	--
Attleboro	641	483	35	34	13
Auburn	0	155	8	11	--
Avon	0	57	7	7	0
Ayer	0	94	7	8	--
Barnstable	767	405	17	33	11
Barre	0	50	--	6	0
Becket	0	11	0	0	0
Bedford	0	101	15	16	0
Belchertown	0	118	13	15	5
Bellingham	2	170	9	12	--
Belmont	2	207	11	9	0
Berkley	1	43	0	--	--
Berlin	1	33	--	--	0
Bernardston	0	25	--	--	--
Beverly	2,234	396	25	30	--
Billerica	2	436	39	51	--
Blackstone	2	89	10	6	--
Blandford	0	8	0	0	0
Bolton	1	52	--	6	--
Boston	20,622	7,283	655	724	169
Bourne	1	147	--	7	--
Boxborough	0	37	0	--	0
Boxford	0	63	--	--	0
Boylston	2	43	6	6	0
Braintree	3	410	31	35	0
Brewster	0	56	5	7	0
Bridgewater	2	247	16	29	--
Brimfield	0	29	6	--	--
Brockton	2,134	1,491	128	144	60
Brookfield	1	26	--	--	0
Brookline	1	581	41	46	0
Buckland	0	13	--	--	0

Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births, Massachusetts Municipalities: 2019

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Burlington	2	275	22	24	--
Cambridge	3,671	1,136	87	102	6
Canton	2	241	18	26	--
Carlisle	1	30	--	--	0
Carver	1	84	--	9	--
Charlemont	0	7	0	0	0
Charlton	0	97	8	8	--
Chatham	0	15	0	--	0
Chelmsford	1	334	20	31	--
Chelsea	4	607	57	60	31
Cheshire	0	26	--	--	--
Chester	0	11	--	0	0
Chesterfield	0	10	0	--	0
Chicopee	3	540	52	66	26
Chilmark	0	6	0	0	0
Clarksburg	1	10	--	--	0
Clinton	5	162	11	10	--
Cohasset	1	70	6	5	0
Colrain	0	7	--	--	0
Concord	1,304	116	--	6	0
Conway	0	11	--	--	0
Cummington	1	4	--	0	0
Dalton	0	29	0	--	--
Danvers	1	243	12	14	0
Dartmouth	2	173	11	9	--
Dedham	2	290	22	25	--
Deerfield	1	39	0	--	0
Dennis	1	91	--	--	--
Dighton	2	77	8	11	--
Douglas	3	83	7	7	0
Dover	1	41	--	--	0
Dracut	0	317	27	24	--
Dudley	0	100	7	11	0
Dunstable	0	26	--	--	0
Duxbury	1	129	7	9	0
East Bridgewater	2	144	9	12	--
East Brookfield	0	22	--	--	--
East Longmeadow	0	126	6	7	0
Eastham	0	27	--	--	0
Easthampton	2	134	11	11	--
Easton	1	192	12	15	--
Edgartown	1	55	--	5	--
Egremont	3	8	--	--	0
Erving	0	20	--	--	0
Essex	1	25	0	0	0
Everett	3	625	50	69	14
Fairhaven	1	109	9	8	--
Fall River	1,442	1,113	92	90	51
Falmouth	350	180	12	9	--
Fitchburg	3	475	37	41	22

Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births, Massachusetts Municipalities: 2019

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Florida	0	4	0	0	0
Foxborough	2	175	13	13	0
Framingham	1,147	883	67	75	28
Franklin	2	303	11	19	--
Freetown	0	68	--	--	0
Gardner	390	231	23	19	9
Georgetown	1	77	--	8	--
Gill	0	11	--	--	0
Gloucester	1	254	21	20	6
Goshen	0	3	0	0	0
Gosnold	0	0	0	0	0
Grafton	2	187	14	17	0
Granby	1	38	6	--	0
Granville	0	6	0	--	0
Great Barrington	143	32	--	--	0
Greenfield	492	160	15	21	--
Groton	0	69	--	--	--
Groveland	0	51	5	5	--
Hadley	0	31	--	--	0
Halifax	0	61	9	12	0
Hamilton	1	84	--	--	0
Hampden	0	25	--	--	0
Hancock	0	5	0	0	0
Hanover	2	142	--	8	0
Hanson	0	97	--	9	0
Hardwick	0	24	--	--	0
Harvard	1	31	--	--	0
Harwich	1	89	7	8	--
Hatfield	0	15	0	0	0
Haverhill	4	792	68	94	26
Hawley	0	1	0	0	0
Heath	0	2	0	0	0
Hingham	1	199	10	14	0
Hinsdale	0	19	--	5	0
Holbrook	0	126	7	9	--
Holden	0	182	9	18	0
Holland	0	30	9	6	0
Holliston	0	109	--	7	0
Holyoke	347	489	50	59	36
Hopedale	2	55	5	9	--
Hopkinton	1	163	5	5	--
Hubbardston	0	38	--	--	0
Hudson	2	218	6	12	--
Hull	1	56	--	--	0
Huntington	1	18	--	--	0
Ipswich	1	101	7	10	0
Kingston	0	133	9	9	--
Lakeville	1	110	7	5	0
Lancaster	1	57	5	6	0
Lanesborough	0	19	--	0	--

Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births, Massachusetts Municipalities: 2019

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Lawrence	1,368	1,429	122	133	105
Lee	2	27	--	--	0
Leicester	1	89	11	10	0
Lenox	2	17	0	--	--
Leominster	568	422	19	27	16
Leverett	2	17	0	--	0
Lexington	0	147	13	9	0
Leyden	0	7	0	0	0
Lincoln	2	80	--	5	--
Littleton	1	85	--	7	--
Longmeadow	3	118	12	17	0
Lowell	2,178	1,473	141	148	53
Ludlow	0	155	10	17	--
Lunenburg	1	113	7	13	--
Lynn	3	1,508	145	150	74
Lynnfield	0	132	5	9	--
Malden	1	825	68	62	11
Manchester	0	19	0	--	0
Mansfield	0	195	7	14	--
Marblehead	1	134	18	17	--
Marion	0	36	0	--	0
Marlborough	0	496	45	51	13
Marshfield	1	215	13	17	--
Mashpee	0	107	10	13	--
Mattapoisett	0	30	--	--	--
Maynard	3	111	7	10	0
Medfield	2	110	7	5	--
Medford	3	625	34	39	--
Medway	1	120	--	9	--
Melrose	798	358	17	20	--
Mendon	2	45	--	--	0
Merrimac	1	51	--	--	--
Methuen	1,030	537	46	50	8
Middleborough	0	211	15	22	5
Middlefield	0	2	0	0	0
Middleton	0	54	10	7	--
Milford	894	351	22	29	14
Millbury	6	114	13	12	--
Millis	3	81	6	7	0
Millville	0	27	--	--	--
Milton	6	291	20	27	--
Monroe	0	2	--	0	0
Monson	1	44	--	--	--
Montague	1	66	6	7	5
Monterey	0	4	0	0	0
Montgomery	0	8	0	0	0
Mount Washington	1	1	0	0	0
Nahant	0	14	--	--	0
Nantucket	124	137	9	11	--
Natick	2	397	30	38	--

Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births, Massachusetts Municipalities: 2019

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Needham	4	291	16	24	--
New Ashford	0	1	0	0	0
New Bedford	1,524	1,211	120	118	81
New Braintree	0	12	--	--	0
New Marlborough	0	10	0	0	0
New Salem	0	5	0	0	0
Newbury	0	49	--	--	0
Newburyport	637	110	8	9	--
Newton	3,748	580	26	37	--
Norfolk	1	109	6	10	0
North Adams	1	95	10	9	5
North Andover	2	277	15	23	--
North Attleborough	2	275	22	20	--
North Brookfield	0	44	--	--	0
North Reading	2	152	9	11	0
Northampton	566	150	11	10	--
Northborough	2	134	5	5	--
Northbridge	1	131	11	11	--
Northfield	0	27	--	--	0
Norton	2	141	13	12	--
Norwell	1	119	--	6	0
Norwood	428	371	23	25	--
Oak Bluffs	150	50	--	--	--
Oakham	0	14	0	0	0
Orange	0	53	--	--	--
Orleans	0	24	--	--	0
Otis	0	6	0	0	0
Oxford	1	119	17	18	--
Palmer	0	110	--	5	--
Paxton	0	38	--	--	0
Peabody	0	554	34	46	5
Pelham	0	5	0	0	0
Pembroke	0	163	8	9	0
Pepperell	2	108	9	10	--
Peru	0	6	0	0	0
Petersham	0	8	--	0	0
Phillipston	1	15	0	--	0
Pittsfield	626	419	47	50	11
Plainfield	1	5	0	0	0
Plainville	1	82	5	--	--
Plymouth	815	541	42	62	--
Plympton	0	28	--	--	0
Princeton	0	22	--	0	0
Provincetown	0	10	--	--	0
Quincy	6	1,157	72	84	5
Randolph	1	377	37	42	8
Raynham	0	137	9	14	--
Reading	1	252	7	16	0
Rehoboth	1	98	--	--	--
Revere	4	722	55	60	15

Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births, Massachusetts Municipalities: 2019

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Richmond	0	6	--	--	0
Rochester	1	47	--	--	--
Rockland	1	189	17	17	--
Rockport	0	35	--	--	0
Rowe	0	0	0	0	0
Rowley	0	49	--	6	0
Royalston	1	13	0	0	0
Russell	2	23	0	0	0
Rutland	1	85	7	11	--
Salem	1,196	457	39	45	12
Salisbury	0	60	6	8	0
Sandisfield	0	4	0	0	0
Sandwich	1	144	6	12	--
Saugus	1	277	25	30	--
Savoy	1	6	0	0	0
Scituate	0	169	8	18	--
Seekonk	0	139	10	9	--
Sharon	3	140	9	16	0
Sheffield	0	14	0	0	0
Shelburne	0	8	0	--	0
Sherborn	0	33	--	--	0
Shirley	1	67	--	--	--
Shrewsbury	2	354	29	20	--
Shutesbury	1	12	0	0	0
Somerset	0	146	5	12	0
Somerville	3	777	49	63	6
South Hadley	0	127	10	14	--
Southampton	1	50	--	--	--
Southborough	1	100	--	6	0
Southbridge	0	203	17	23	8
Southwick	0	65	--	6	--
Spencer	0	111	12	15	--
Springfield	5,127	2,021	225	252	174
Sterling	1	70	--	--	0
Stockbridge	0	6	0	--	0
Stoneham	1	248	15	20	--
Stoughton	0	319	30	38	--
Stow	0	43	--	--	0
Sturbridge	0	74	6	5	--
Sudbury	2	144	12	19	0
Sunderland	0	14	0	--	--
Sutton	0	75	--	6	0
Swampscott	0	147	7	13	--
Swansea	0	127	--	--	--
Taunton	5	632	57	61	17
Templeton	0	73	--	6	0
Tewksbury	0	309	22	20	--
Tisbury	0	47	--	--	0
Tolland	0	1	0	0	0
Topsfield	0	35	--	--	0

Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births, Massachusetts Municipalities: 2019

Community	Occurrence Births ¹	Resident Births ²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Townsend	0	82	9	15	--
Truro	0	10	--	--	0
Tyngsborough	1	114	5	10	0
Tyngsborough	0	2	0	0	0
Upton	2	85	6	11	--
Uxbridge	3	116	9	9	0
Wakefield	0	332	14	20	--
Wales	1	10	0	0	0
Walpole	3	287	21	29	0
Waltham	1	751	51	58	12
Ware	2	89	9	9	7
Wareham	350	181	14	16	--
Warren	0	37	--	--	--
Warwick	0	2	0	0	0
Washington	0	0	0	0	0
Watertown	3	437	23	28	0
Wayland	2	104	--	--	0
Webster	0	201	12	19	8
Wellesley	0	165	6	10	0
Wellfleet	0	12	0	0	0
Wendell	0	2	0	0	0
Wenham	0	29	--	--	0
West Boylston	1	76	8	11	0
West Bridgewater	0	77	6	8	0
West Brookfield	0	23	0	0	0
West Newbury	0	25	--	0	0
West Springfield	2	287	17	26	11
West Stockbridge	1	4	0	0	0
West Tisbury	1	25	0	0	0
Westborough	1	191	11	12	5
Westfield	0	321	24	30	--
Westford	0	150	5	10	0
Westhampton	0	9	0	0	0
Westminster	0	84	8	10	--
Weston	3	63	--	5	0
Westport	2	110	14	11	0
Westwood	0	130	9	10	0
Weymouth	3,092	665	52	57	8
Whately	0	14	0	--	0
Whitman	3	153	8	12	--
Wilbraham	0	101	6	--	0
Williamsburg	1	13	0	0	0
Williamstown	0	24	--	--	0
Wilmington	0	248	15	26	0
Winchendon	2	72	10	10	--
Winchester	2,351	177	11	12	--
Windsor	0	4	0	0	0
Winthrop	1	181	14	19	--
Woburn	2	479	38	41	5
Worcester	6,390	2,404	209	246	100

**Table 17 (cont'd). Birth Characteristics: Occurrence and Resident Births,
Massachusetts Municipalities: 2019**

Community	Occurrence Births¹	Resident Births²			
		Number of Births	Low Birthweight (Less than 2,500 grams, 5.5 lbs.)	Preterm (<37 weeks gestation)	Teen Births (15-19 years)
Worthington	0	4	0	0	0
Wrentham	0	101	6	8	--
Yarmouth	0	157	5	14	--

1. Births occurring in a geographical place (state, city/town) regardless of the residency of the mother. 2. Births to mothers who report their usual place of residence as a particular geographical place (state, or city/town). See "Note to Readers" for more details.
-- Due to small numbers (n=1-4), exact count not provided.

Table 18. Birth Characteristics: Occurrence and Resident Births by County, Massachusetts: 2019

County	Occurrence Births ¹	Number of Births	Resident Births ²		
			Low Birthweight ³	Preterm ⁴	Teen Births (15-19 Years)
STATE TOTAL	69,919	69,117	5,273	6,200	1,538
BARNSTABLE	1,121	1,474	77	117	21
BERKSHIRE	782	887	83	90	20
BRISTOL	3,626	5,554	437	456	184
DUKES	152	186	5	10	--
ESSEX	6,485	8,490	679	797	255
FRANKLIN	497	536	35	52	13
HAMPDEN	5,488	4,785	447	529	260
HAMPSHIRE	577	982	78	83	24
MIDDLESEX	15,253	16,305	1,129	1,345	184
NANTUCKET	124	137	9	11	--
NORFOLK	3,567	7,260	498	604	45
PLYMOUTH	3,318	5,236	356	473	87
SUFFOLK	20,631	8,793	781	863	216
WORCESTER	8,298	8,491	659	770	224
UNKNOWN	0	1	0	0	0

1. Births occurring in a geographical place (state, city/town) regardless of the residency of the mother. 2. Births to mothers who report their usual place of residence as a particular geographical place (state, or city/town). See "Note to Readers" for more details. 3. Less than 2,500 grams (5.5 lbs.). 4. Less than 37 weeks gestation 5. Due to small numbers (n=1-4), exact count not provided.

Table 19. Birth Characteristics: Occurrence and Resident Births, Massachusetts Community Health Network Areas (CHNAs), Massachusetts: 2019

Community Health Network Area	Occurrence Births ¹	Number of Births	LBW ³	Resident Births ²	
				Preterm ⁴	Teen Births (15-19 Years)
STATE TOTAL	69,919	69,117	5,273	6,200	1,538
1. Community Health Network of Berkshire County	782	887	83	90	20
2. Upper Valley Health Web (Franklin County)	499	682	44	61	14
3. Partnership for Health in Hampshire County (Northampton)	576	964	75	79	24
4. The Community Health Connection (Springfield)	5,137	3,200	295	347	192
5. Community Health Network of Southern Worcester County	-5	1,126	103	118	29
6. Community Partners for Health (Milford)	914	1,650	102	135	28
7. Community Health Network of Greater Metro West (Framingham)	1,176	4,281	283	338	58
8. Community Wellness Coalition (Worcester)	6,404	3,642	311	354	108
9. Fitchburg/Gardner Community Health Network	981	2,609	183	221	66
10. Greater Lowell Community Health Network	2,182	3,159	261	298	62
11. Greater Lawrence Community Health Network	2,401	2,566	213	245	116
12. Greater Haverhill Community Health Network	644	1,480	116	155	31
13. Community Health Network North (Beverly/Gloucester)	2,238	978	63	71	10
14. North Shore Community Health Network	1,202	3,466	287	326	98
15. Greater Woburn/Concord/Littleton Community Health Network	3,665	1,944	142	168	10
16. North Suburban Health Alliance (Medford/Malden/Melrose)	809	3,417	214	257	33
17. Greater Cambridge/Somerville Community Health Network	3,681	3,035	202	242	12
18. West Suburban Health Network (Newton/Waltham)	3,759	2,311	138	172	15
19. Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	20,632	9,374	822	909	216
20. Blue Hills Community Health Alliance (Greater Quincy)	3,545	4,265	292	359	27
21. Four (For) Communities (Holyoke, Chicopee, Ludlow, Westfield)	351	1,534	140	176	67
22. Greater Brockton Community Health Network	2,143	2,990	233	286	74
23. South Shore Community Partners in Prevention (Plymouth)	821	1,782	115	164	11
24. Greater Attleboro-Taunton Health & Education Response	655	2,541	184	205	50
25. Partners for a Healthier Community (Fall River)	1,444	1,496	114	117	53
26. Greater New Bedford Health & Human Services Coalition	1,878	1,940	167	169	88
27. Cape and Islands Community Health Network	1,397	1,797	91	138	26

1. Births occurring in a geographical place (state, city/town) regardless of the residency of the mother. 2. Births to mothers who report their usual place of residence as a particular geographical place (state, city/town). See "Note to Readers" for more details. 3. Less than 2,500 grams (5.5 lbs.). 4. Less than 37 weeks gestation. 5. Due to small numbers (n=1-4), exact count not provided.

Figure 6. Percent of Infants whose Mother Smoked During Pregnancy, Massachusetts: 1990 - 2019

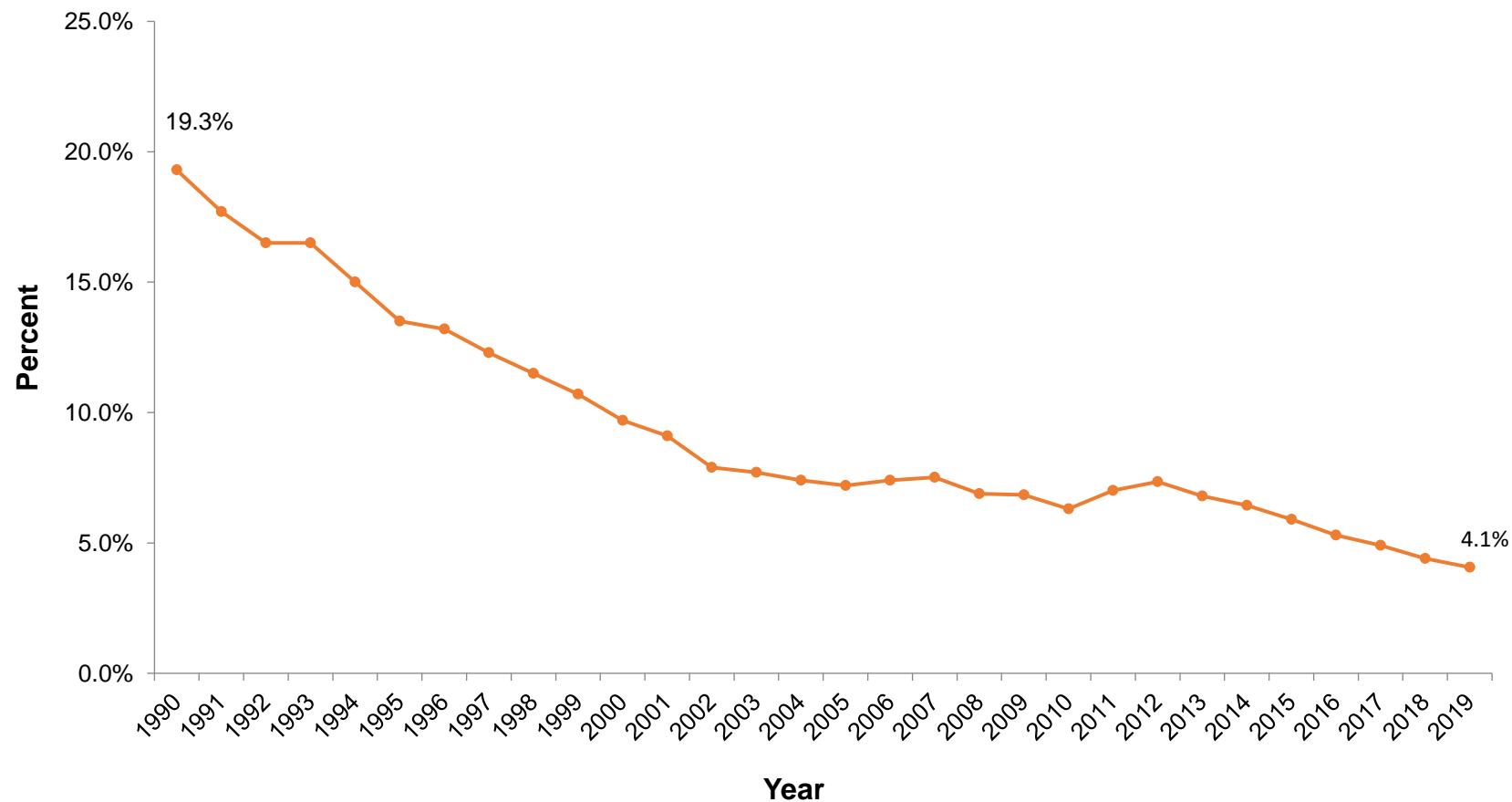


Table 20. Cesarean Deliveries and Vaginal Births after Cesarean (VBACs) by Licensed Maternity Facility¹, All Mothers, Massachusetts: 2019

Facility ²	Occurrence Deliveries ³	Total Cesareans		Primary Cesareans ³		Repeat Cesareans ³		VBACs ³	
		N	% ⁴	N	%	N	%	N	%
State Total	66,703	20,382	30.6	11,459	20.4	8,923	84.7	1,618	15.3
Anna Jaques Hospital	514	172	33.5	90	21.6	82	84.5	15	15.5
Baystate Franklin Medical Center	455	136	29.9	77	20.1	59	81.9	13	18.1
Baystate Medical Center	3,805	1,204	31.6	683	21.7	521	79.1	138	20.9
Berkshire Medical Center	605	152	25.1	90	17.2	62	74.7	21	25.3
Beth Israel Deaconess Hospital - Plymouth	800	248	31.0	146	21.4	102	85.7	17	14.3
Beth Israel Deaconess Medical Center	5,220	1,532	29.3	1,089	22.9	443	93.7	30	6.3
Beverly Hospital	2,132	600	28.1	349	18.8	251	90.6	26	9.4
Boston Medical Center	2,799	868	31.0	467	20.3	401	81.2	93	18.8
Brigham And Women's Hospital	5,838	1,873	32.1	1,065	21.7	808	85.9	133	14.1
Brockton Hospital	1,419	385	27.1	189	16.1	196	80.7	47	19.3
Cambridge Hospital	1,094	312	28.5	165	18.2	147	78.2	41	21.8
Cape Cod Hospital	747	242	32.4	128	20.8	114	86.4	18	13.6
Charlton Memorial Hospital	1,328	434	32.7	223	20.1	211	97.7	5	2.3
Cooley Dickinson Hospital	552	153	27.7	102	21.1	51	73.9	18	26.1
Emerson Hospital	1,252	374	29.9	206	19.8	168	80.4	41	19.6
Fairview Hospital	119	29	24.4	15	14.3	14	100.0	0	0.0
Falmouth Hospital	346	113	32.7	55	19.1	58	100.0	0	0.0
Good Samaritan Medical Center	668	241	36.1	104	20.4	137	87.3	20	12.7
Healthalliance-Clinton Hospital, Leominster	558	138	24.7	60	12.5	78	100.0	0	0.0
Heywood Hospital	375	74	19.7	37	11.4	37	72.5	14	27.5
Holyoke Medical Center	338	99	29.3	76	24.5	23	82.1	5	17.9
Lawrence General Hospital	1,268	470	37.1	195	19.7	275	98.6	4	1.4
Lowell General Hospital	2,007	658	32.8	321	19.6	337	91.1	33	8.9
Martha's Vineyard Hospital	147	55	37.4	38	29.2	17	100.0	0	0.0
Massachusetts General Hospital	3,698	1,087	29.4	668	21.2	419	77.6	121	22.4
Melrose-Wakefield Hospital	772	235	30.4	120	18.3	115	100.0	0	0.0
Mercy Medical Center	953	277	29.1	151	18.6	126	88.7	16	11.3
Metro West Medical Center-Framingham Union Hospital	1,128	397	35.2	194	21.7	203	87.5	29	12.5
Milford Regional Medical Center	844	267	31.6	134	19.3	133	89.9	15	10.1
Mt. Auburn Hospital	2,424	529	21.8	342	16.2	187	60.7	121	39.3
Nantucket Cottage Hospital	120	36	30.0	13	13.4	23	100.0	0	0.0
Newton-Wellesley Hospital	3,657	1,105	30.2	656	21.0	449	83.9	86	16.1

Table 20. Cesarean Deliveries and Vaginal Births after Cesarean (VBACs) by Licensed Maternity Facility¹, All Mothers, Massachusetts: 2019

North Shore Medical Center - Salem Hospital	1,173	345	29.4	187	19.1	158	81.4	36	18.6	
Norwood Hospital	395	143	36.2	68	21.7	75	92.6	6	7.4	
Saint Vincent Hospital	1,900	610	32.1	383	23.5	227	83.2	46	16.8	
South Shore Hospital	3,021	1,042	46	34.5	545	22.4	497	84.7	90	15.3
St. Elizabeth's Medical Center	799	276	34.5	151	23.3	125	83.3	25	16.7	
St. Luke's Hospital	1,480	456	30.8	241	19.3	215	92.7	17	7.3	
Steward Holy Family Hospital	826	318	38.5	158	24.0	160	95.8	7	4.2	
Sturdy Memorial Hospital	577	181	31.4	86	18.3	95	88.8	12	11.2	
Tobey Hospital	341	78	22.9	45	14.6	33	100.0	0	0.0	
Tufts Medical Center	1,248	474	38.0	279	27.8	195	80.2	48	19.8	
UMass Memorial Medical Center-Memorial Campus	4,196	1,263	30.1	670	19.5	593	78.3	164	21.7	
Winchester Hospital	2,196	701	31.9	398	21.4	303	90.4	32	9.6	

NOTE: This table is based on mothers and not births. All percentages are calculated based on only those mothers with known values for the characteristic(s) of interest

1. Birth centers are not included in this table. 2. A licensed maternity facility is a medical unit licensed by the Commonwealth for the care of women during pregnancy and childbirth. 3. The percentages provided in this table are based on occurrence births, and may differ from data that are based on resident births presented elsewhere in this book. 4. The percentage of Cesarean births reported is not adjusted for risk factors such as mother's age, birthweight, or complications of labor and delivery, which would influence the number of procedures in a particular facility. Caution should be used when comparing unadjusted percentages. 5. Calculations based on values of 1-4 are excluded.

Figure 7. Maternal Body Mass Index (BMI) Prior to Pregnancy, All Mothers, Massachusetts: 2019

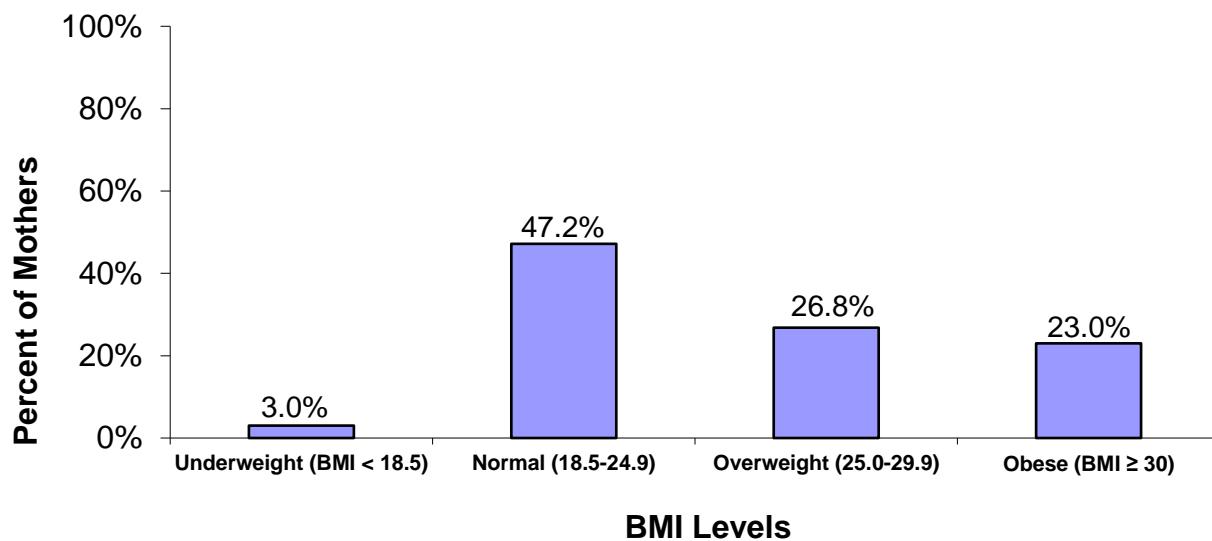
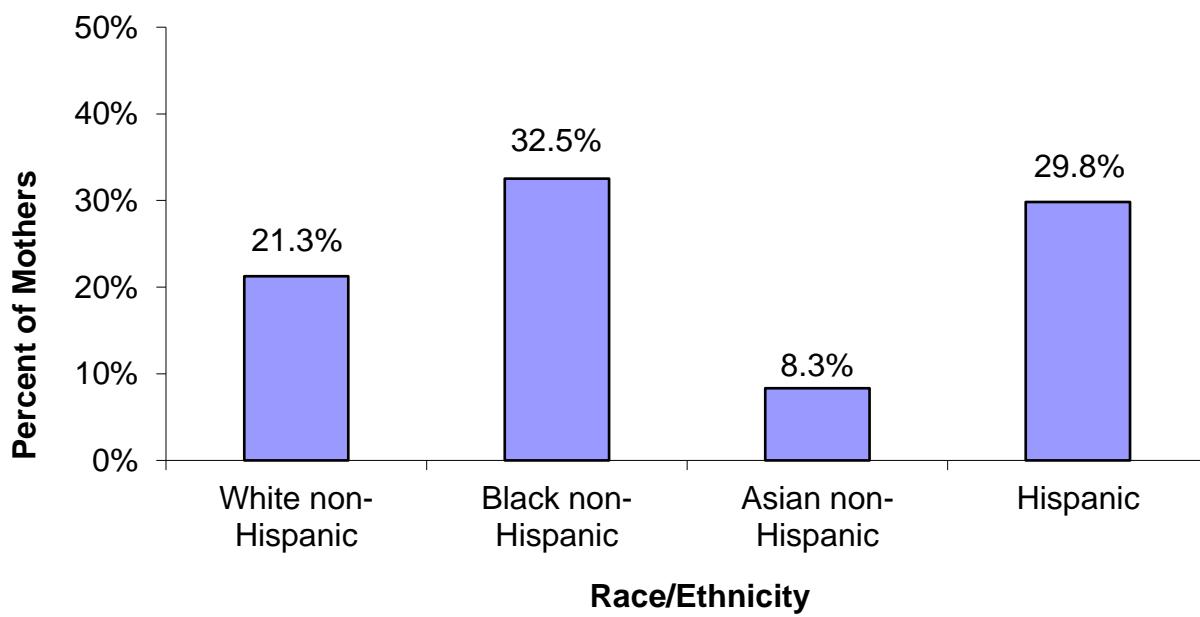


Figure 8. Obesity Prior to Pregnancy by Race/Hispanic Ethnicity, All Mothers, Massachusetts: 2019



NOTE: These figures are based on mothers and not births.

Figure 9. Mothers Who Reported Having Their Teeth Cleaned During Pregnancy by Race/Hispanic Ethnicity, All Mothers, Massachusetts: 2019

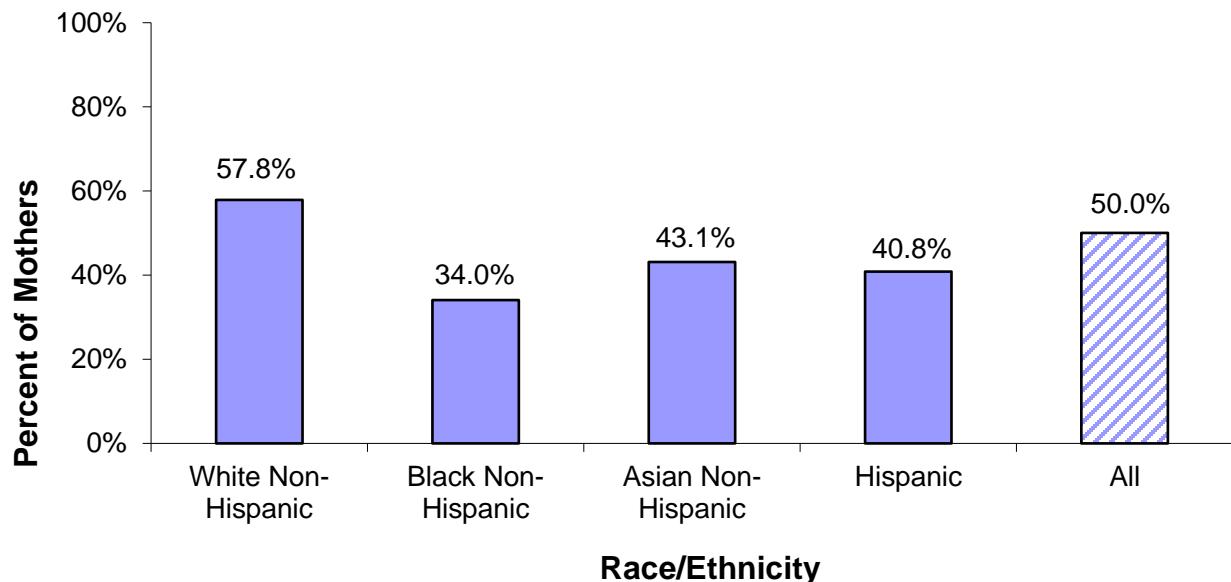
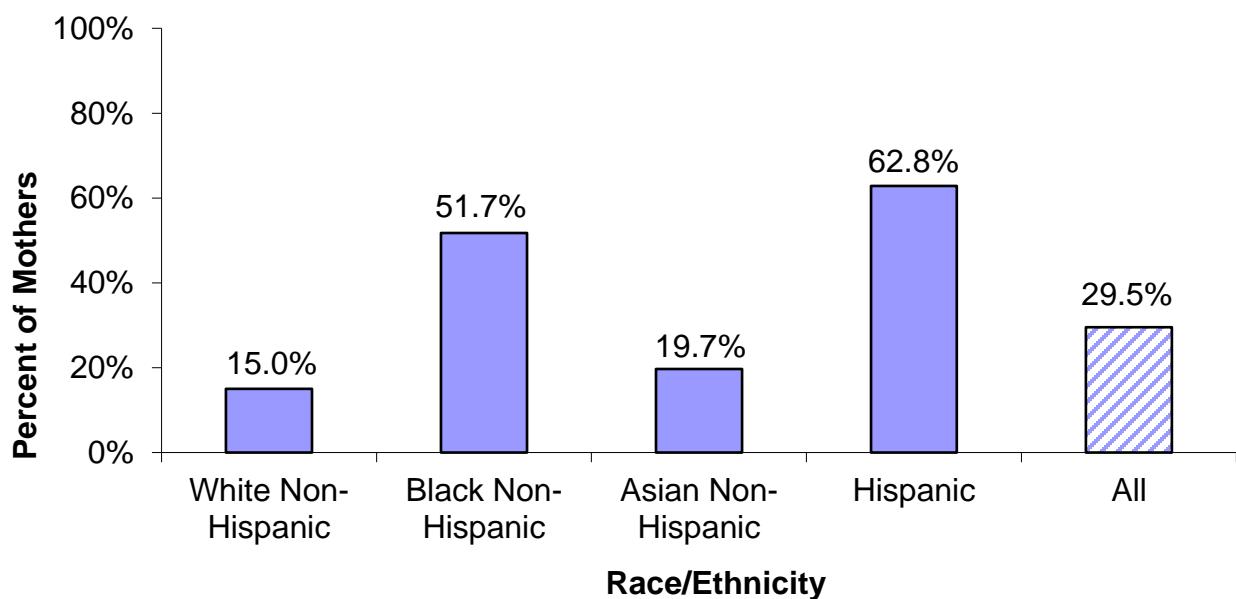
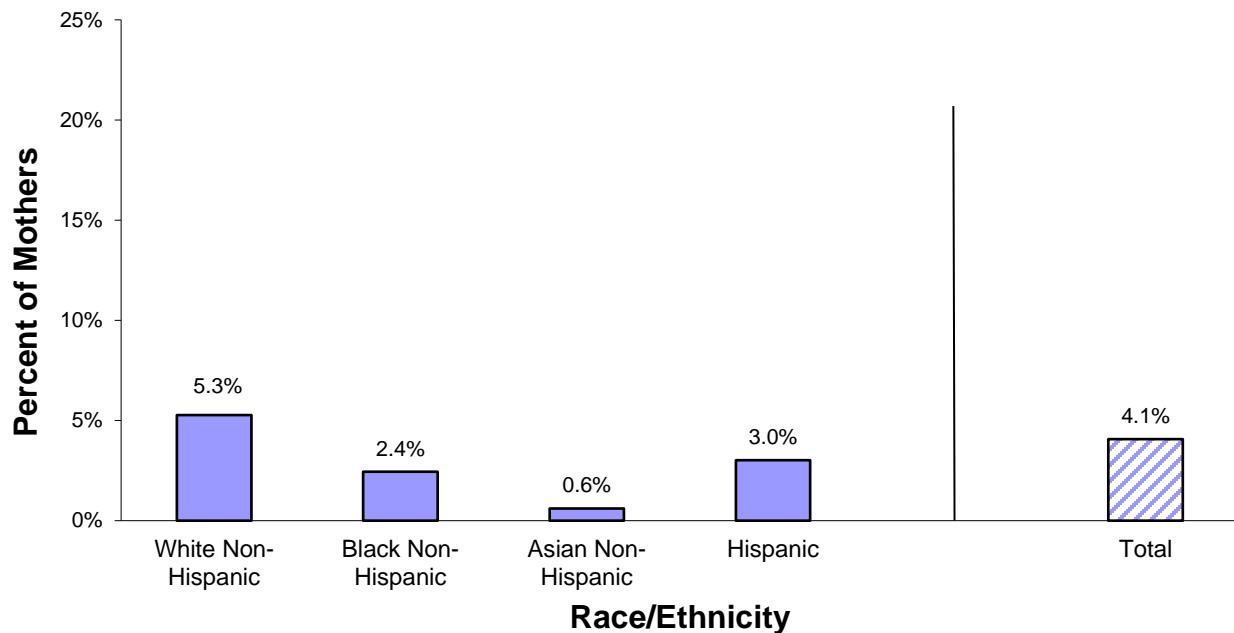


Figure 10. Mothers Who Reported Having Received WIC Food During Pregnancy by Race/Hispanic Ethnicity, All Mothers, Massachusetts: 2019



NOTE: These figures are based on mothers and not births.

Figure 11. Mothers Who Reported Smoking During Pregnancy by Race/Hispanic Ethnicity, All Mothers, Massachusetts: 2019



NOTE: This figure is based on mothers and not births.

Table 21. Mothers Who Used Infertility Treatments, Massachusetts: 2019

	Assisted Reproductive Technology (ART) with or without Artificial Insemination and/or Fertility Drugs ¹		Artificial Insemination with or without Fertility Drugs ²		Fertility Enhancing Drugs Only ³	
	N	% ⁴	N	% ⁴	N	% ⁴
State total	2,849	74.9%	428	11.3%	525	13.8%
Maternal Demographics						
Race/Hispanic Ethnicity	N	%⁵	N	%⁵	N	%⁵
White Non-Hispanic	2,202	77.9%	336	79.2%	378	73.1%
Black Non-Hispanic	101	3.6%	17	4.0%	26	5.0%
Asian Non-Hispanic	334	11.8%	42	9.9%	62	12.0%
Hispanic	172	6.1%	26	6.1%	47	9.1%
American Indian and Other	19	0.7%	--9	--9	--9	--9
Birthplace						
US States / D.C. / US Terr.	2,226	78.1%	346	80.8%	386	73.5%
Non-US-born	623	21.9%	82	19.2%	139	26.5%
Prenatal care funding						
Public	149	5.3%	32	7.5%	70	13.4%
Private, other	2,688	94.7%	395	92.5%	452	86.6%
Age						
20-29	152	5.3%	36	8.4%	102	19.4%
30-34	924	32.4%	183	42.8%	244	46.5%
35-39	1,171	41.1%	164	38.3%	144	27.4%
40+	602	21.1%	45	10.5%	35	6.7%
Pregnancy-Related Factors						
Adequacy of Prenatal Care⁶						
Adequate Total ⁷	2,067	89.9%	325	91.8%	386	90.8%
Adequate Intensive	1,220	53.1%	180	50.8%	219	51.5%
Adequate Basic	847	36.9%	145	41.0%	167	39.3%
Intermediate	93	4.0%	14	4.0%	8	1.9%
Inadequate/None	138	6.0%	15	4.2%	31	7.3%
Parity⁸						
1	1,718	60.3%	311	72.8%	325	61.9%
2	913	32.1%	95	22.2%	151	28.8%
3+	216	7.6%	21	4.9%	49	9.3%
Birth Outcomes						
Gestational age						
<28 weeks (extremely preterm) ¹⁰	22	4.9%	--9	--9	7	0.8%
<37 weeks (preterm) ¹⁰	359	79.4%	47	1.4%	71	7.8%
37+	2,490	550.9%	381	11.5%	454	50.0%
Plurality						
Singleton	2,638	92.6%	390	91.1%	480	91.4%
Multiple birth	211	7.4%	38	8.9%	45	8.6%

NOTE: Beginning in 2014, questions about fertility assistance were asked on both the hospital and mother's worksheets. This table shows combined data from both sources. While asking mothers has increased reporting, it is known that these treatments are still underreported. As such, these numbers should be interpreted with caution. All percentages are calculated based only on mothers with known values for the characteristic(s) of interest, unless otherwise stated. Often women use more than one method of treatment, and the categories presented are mutually exclusive.

NOTE: This table is based on unique mothers and not births. 1. This category includes all women who used ART (typically IVF) and those who used any additional treatments. 2. This category includes women who used artificial insemination (including intrauterine insemination) and those who used fertility drugs in addition. 3. This category includes women who only used fertility drugs. 4. For state total row, percentages are based on total births where infertility treatment was present. 5. Percent is based on state total of the treatment methods. 6. Based on Adequacy of Prenatal Care Utilization (APNCU) Index. 7. Adequate Total = Adequate Basic + Adequate Intensive. 8. Number of live births including the current birth. 9. Numbers and calculations based on 1-4 events are excluded. 10. Categories are not mutually exclusive so percent will add to more than 100%.

Technical Notes

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Data Cautions

Limitations of small numbers:

Cells in some tables in this publication, and particularly those tables specific to individual cities and towns, contain small numbers. Rates and proportions based on fewer than five observations are suppressed, and trends based upon small numbers should be interpreted cautiously.

Differences with previously published data:

Numbers and rates in this publication may differ from those in previous reports because of updated birth data, or release of the most up-to-date population estimates for a given year (see Population Denominators for details on population files).

Self-reported data:

Many statistics reported in this publication, such as maternal smoking, education, and race/ethnicity are *self-reported*, and are subject to the usual limitations of this type of information.

Changes in the Collection of Race/Ethnicity Information

The 2003 revision of the Standard Certificate of Live Birth allows the reporting of more than one race (multiple races) for each parent in accordance with the revised standards issued by the Office of Management and Budget (OMB) in 1997.

The revised standards incorporated two major changes designed to reflect the changing racial and ethnic profile of the United States. First, the revision increased from five to twelve - the minimum set of categories to be used for identification of race. The twelve categories for race specified in the 1997 standards are: American Indian or Alaska Native, Asian, Black, Guamanian or Chamorro, Hispanic/Latino/Black, Hispanic/Latino/White, Hispanic/Latino/Other, Native Hawaiian, Samoan, White, Other Pacific Islander and Other. The revised standards called for reporting of Asians separately from Native Hawaiians, Samoan or Other Pacific Islanders.

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.

The revised standards also require federal data collection programs to allow respondents to select *one or more ancestry categories*. The method used to bridge responses for those who report more than one ancestry is based on a procedure whereby multiple ancestries are assigned to each of the ancestries listed.

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The following table is from the Parent Worksheet for the birth certificate, which is the self-reported information we use to report on mother's race and ancestry.

2003 Revision

Mother/Parent Race

Please indicate your race(s). *You may choose more than one.*

<input type="checkbox"/> American Indian/Alaska Native (specify tribal nation): _____	<input type="checkbox"/> Hispanic/Latina/Other (specify): _____
<input type="checkbox"/> Asian	<input type="checkbox"/> Native Hawaiian
<input type="checkbox"/> Black	<input type="checkbox"/> Samoan
<input type="checkbox"/> Guamanian or Chamorro	<input type="checkbox"/> White
<input type="checkbox"/> Hispanic/Latina/Black	<input type="checkbox"/> Other Pacific Islander (specify): _____
<input type="checkbox"/> Hispanic/Latina/White	<input type="checkbox"/> Other race not listed (specify): _____

Mother/Parent Ethnicity

Please indicate your ethnic background(s). *You may choose more than one.*

<input type="checkbox"/> African (specify): _____	<input type="checkbox"/> Japanese
<input type="checkbox"/> African-American	<input type="checkbox"/> Korean
<input type="checkbox"/> American	<input type="checkbox"/> Laotian
<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Mexican, Mexican American, Chicano
<input type="checkbox"/> Brazilian	<input type="checkbox"/> Middle Eastern (specify): _____
<input type="checkbox"/> Cambodian	<input type="checkbox"/> Native American (specify tribal nation(s)): _____
<input type="checkbox"/> Cape Verdean	<input type="checkbox"/> Portuguese
<input type="checkbox"/> Caribbean Islander (specify): _____	<input type="checkbox"/> Puerto Rican
<input type="checkbox"/> Chinese	<input type="checkbox"/> Russian
<input type="checkbox"/> Colombian	<input type="checkbox"/> Salvadoran
<input type="checkbox"/> Cuban	<input type="checkbox"/> Vietnamese
<input type="checkbox"/> Dominican	<input type="checkbox"/> Other Asian (specify): _____
<input type="checkbox"/> European (specify): _____	<input type="checkbox"/> Other Central American (specify): _____
<input type="checkbox"/> Filipino	<input type="checkbox"/> Other Pacific Islander (specify): _____
<input type="checkbox"/> Guatemalan	<input type="checkbox"/> Other Portuguese (specify): _____
<input type="checkbox"/> Haitian	<input type="checkbox"/> Other South American (specify): _____
<input type="checkbox"/> Honduran	<input type="checkbox"/> Other ethnicity (ies) not listed (specify): _____

1989 Revision

MOTHER'S RACE Please mark the *one* category that *best describes* the mother's race:

White Black Asian/Pacific Islander American Indian Other (specify) _____

MOTHER's ANCESTRY Please mark the *one* category that *best describes* the mother's ancestry of ethnic heritage:

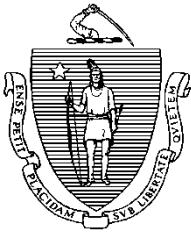
HISPANIC/LATINA		AFRICAN/AFRICAN AMERICAN
1 <input type="checkbox"/> Puerto Rican	7 <input type="checkbox"/> Other Central American (specify) _____	29 <input type="checkbox"/> African-American/ Afro-American
2 <input type="checkbox"/> Dominican	8 <input type="checkbox"/> Other South American (specify) _____	30 <input type="checkbox"/> Nigerian
3 <input type="checkbox"/> Mexican	9 <input type="checkbox"/> Other Hispanic/Latina (specify): _____	31 <input type="checkbox"/> Other African (specify): _____
4 <input type="checkbox"/> Cuban		
5 <input type="checkbox"/> Colombian		
6 <input type="checkbox"/> Salvadoran		
ASIAN/PACIFIC ISLANDER		MIDDLE EASTERN
10 <input type="checkbox"/> Chinese	17 <input type="checkbox"/> Laotian	32 <input type="checkbox"/> Lebanese
11 <input type="checkbox"/> Vietnamese	18 <input type="checkbox"/> Pakistani	33 <input type="checkbox"/> Iranian
12 <input type="checkbox"/> Cambodian	19 <input type="checkbox"/> Thai	34 <input type="checkbox"/> Israeli
13 <input type="checkbox"/> Asian Indian	20 <input type="checkbox"/> Hawaiian	35 <input type="checkbox"/> Other Middle Eastern (specify): _____
14 <input type="checkbox"/> Korean	21 <input type="checkbox"/> Other Asian/Pacific Islander (specify) _____	
15 <input type="checkbox"/> Filipino		AMERICAN ANCESTRY
16 <input type="checkbox"/> Japanese		36 <input type="checkbox"/> Native American/ American Indian (specify tribe/affiliation): _____
PORTUGUESE SPEAKING		37 <input type="checkbox"/> American
22 <input type="checkbox"/> Cape Verdean	24 <input type="checkbox"/> Other Portuguese (specify): _____	EUROPEAN and OTHER ancestries
23 <input type="checkbox"/> Brazilian		38 <input type="checkbox"/> European (specify): _____
WEST INDIAN/CARIBBEAN ISLANDER		39 <input type="checkbox"/> Other (specify): _____
25 <input type="checkbox"/> Haitian	28 <input type="checkbox"/> Other West Indian/Caribbean Islander (specify): _____	
26 <input type="checkbox"/> Jamaican		
27 <input type="checkbox"/> Barbadian		

Table A1. 2019 Massachusetts Population Estimates by Age Group, Gender, Race/Hispanic Ethnicity (mutually exclusive)

Age Group	Total ¹	White Non-Hispanic	Black Non-Hispanic	Native American Non-Hispanic	Asian Non-Hispanic	Hispanic ²
Female						
<1	35,022	20,247	3,150	55	2,389	7,679
1 to 4	139,996	83,011	12,843	238	10,247	29,700
5 to 9	180,866	102,688	16,839	353	12,724	35,343
10 to 14	195,246	119,587	16,962	313	13,575	35,174
15 to 19	230,303	149,822	18,420	359	18,086	36,376
20 to 24	256,989	166,453	21,718	446	23,549	38,510
25 to 29	253,658	165,526	22,876	640	25,918	39,603
30 to 34	237,349	158,580	20,018	385	25,899	33,170
35 to 39	222,487	144,863	17,940	309	23,566	31,833
40 to 44	208,500	136,935	16,841	291	19,953	29,264
45 to 49	223,427	157,366	16,246	300	18,088	26,267
50+	1,398,991	1,151,159	78,223	2,144	63,554	89,383
All Females	3,582,833	2,556,237	262,076	5,833	257,549	432,303
Male						
<1	36,936	21,178	3,227	68	2,668	8,082
1 to 4	146,577	87,391	13,050	277	10,935	30,772
5 to 9	188,592	106,904	17,303	338	13,525	36,680
10 to 14	203,177	125,768	17,182	313	13,794	36,433
15 to 19	231,607	151,723	18,566	350	16,443	37,648
20 to 24	254,744	164,642	21,022	444	20,944	41,347
25 to 29	261,438	169,405	24,456	682	25,163	43,134
30 to 34	236,446	158,061	20,110	461	22,730	35,376
35 to 39	218,336	142,790	17,846	341	20,932	32,826
40 to 44	199,688	133,226	15,791	257	17,360	28,402
45 to 49	209,772	149,759	15,192	303	16,382	23,319
50+	1,194,236	988,437	63,406	1,975	54,432	72,774
All Males	3,381,549	2,399,284	247,152	5,810	235,309	426,792
State Total						
<1	71,958	41,425	6,376	123	5,057	15,761
1 to 4	286,573	170,402	25,893	515	21,182	60,472
5 to 9	369,458	209,592	34,142	691	26,249	72,023
10 to 14	398,423	245,355	34,144	626	27,369	71,607
15 to 19	461,910	301,545	36,987	709	34,529	74,024
20 to 24	511,733	331,096	42,740	891	44,494	79,857
25 to 29	515,096	334,931	47,332	1,322	51,081	82,737
30 to 34	473,795	316,640	40,128	846	48,630	68,546
35 to 39	440,823	287,653	35,786	650	44,498	64,659
40 to 44	408,189	270,161	32,633	548	37,314	57,665
45 to 49	433,199	307,126	31,438	603	34,470	49,585
50+	2,593,227	2,139,596	141,628	4,119	117,986	162,157
State Total	6,964,383	4,955,521	509,228	11,644	492,858	859,095

1. Population estimates were calculated using UMass Donahue Institute (UMDI) estimates for 2019.

2. Persons of Hispanic ethnicity are NOT included in the race categories. These estimates are used to calculate **statewide population based rates** published in this report.



The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
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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,

A handwritten signature in black ink that reads "Margret R. Cooke".

Margret R. Cooke
Commissioner
Department of Public Health

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

CHARLES D. BAKER
GOVERNOR

KARYN POLITICO
LT. GOVERNOR



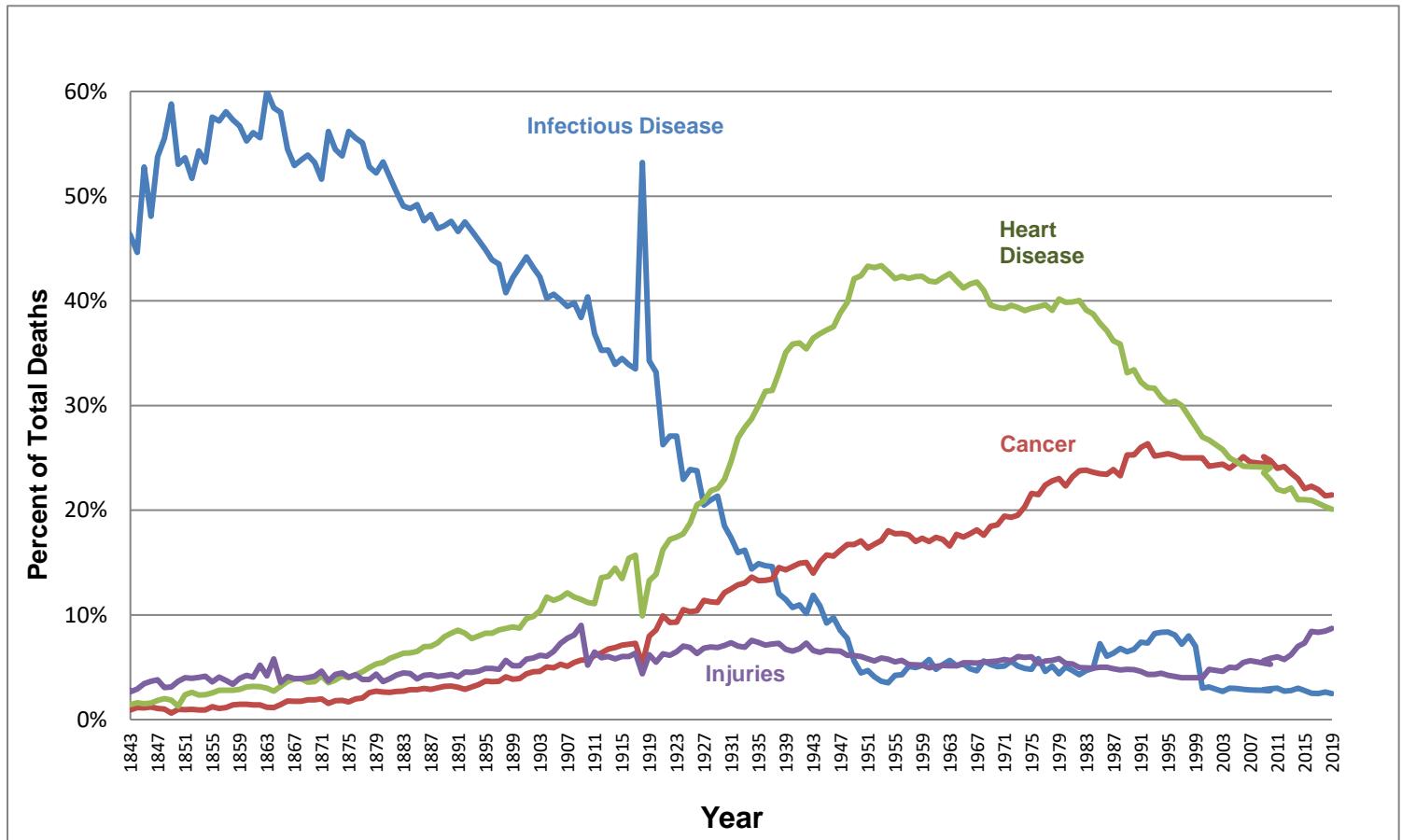
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Massachusetts Deaths 2019

February 2022

Massachusetts Deaths 2019



Office of Population Health

Massachusetts Department of Public Health

February 2022

Massachusetts Deaths 2019



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Massachusetts Department of Public Health

February 2022

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To obtain additional copies of this report, contact:

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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 events¹. 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 decedent⁶												
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**

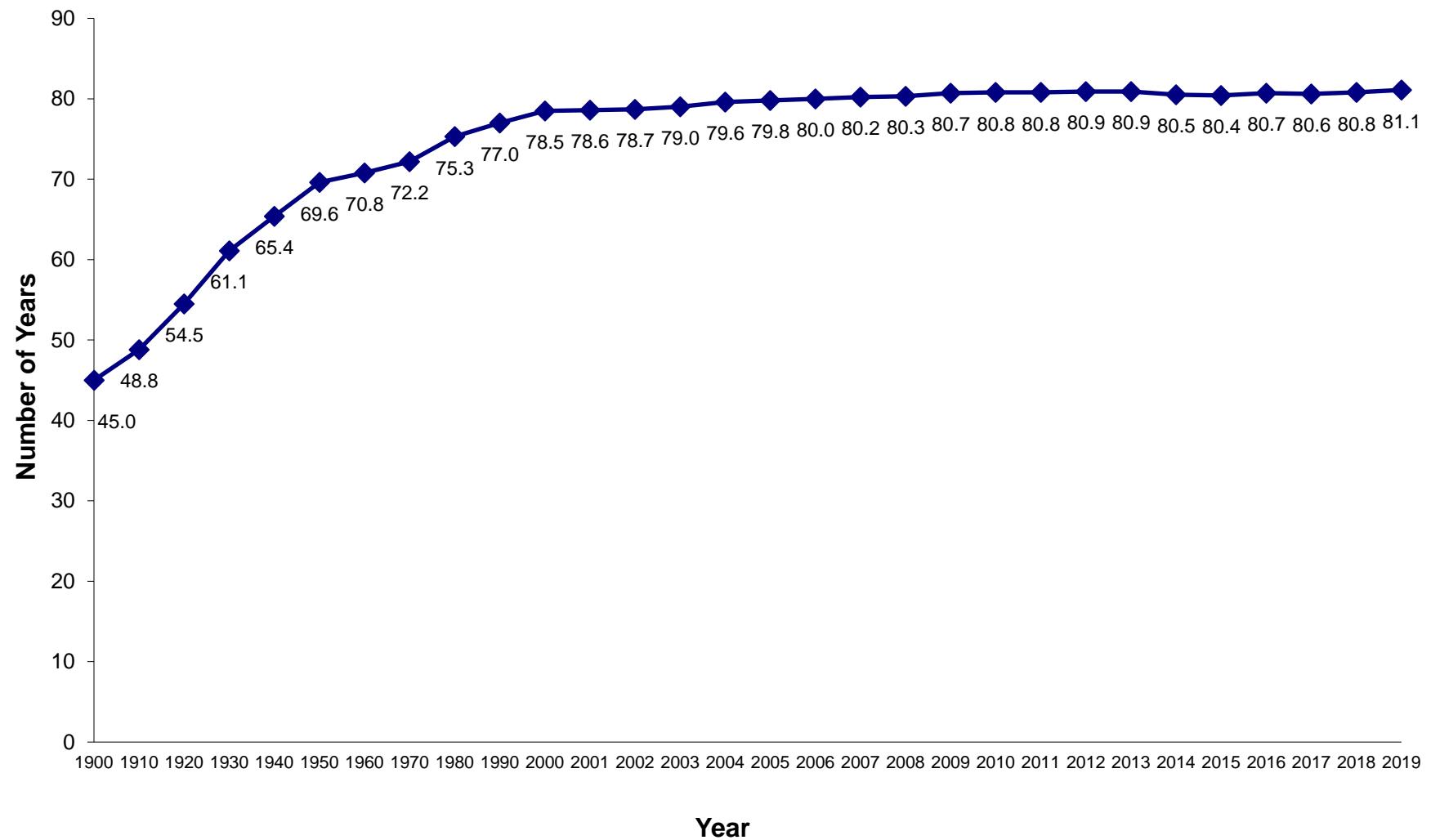
Year	Age-Adjusted Rates ^{1,2}	Heart Disease		Cancer		Stroke	
		MA	US ³	MA	US ³	MA	US ³
2003	Rate	196.6	232.3	193.0	190.1	45.0	53.5
	% of Total	26.0	28.0	24.1	22.7	6.0	6.5
2004	Rate	182.8	217.0	188.4	185.8	42.5	50.0
	% of Total	25.3	27.2	24.5	23.1	6.0	6.3
2005	Rate	172.2	211.0	184.9	183.8	38.1	46.6
	% 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 % of Total	26.0 3.6	22.0 2.7	20.1 2.5	37.3 4.3	772.6	832.7
2004	Rate % of Total	24.9 3.6	19.8 2.5	19.4 2.5	37.7 4.7	739.3	800.8
2005	Rate % of Total	24.2 3.6	20.3 2.6	27.4 3.5	39.1 4.8	720.6	798.8
2006	Rate % of Total	22.0 3.3	17.7 2.3	31.4 4.1	38.5 4.8	717.6	776.4
2007	Rate % of Total	19.4 2.9	16.2 2.3	30.5 4.0	40.0 4.9	704.4	760.2
2008	Rate % of Total	20.0 3.0	16.9 2.2	28.6 3.8	38.8 5.1	703.5	758.3
2009	Rate % of Total	16.8 2.6	16.2 2.2	28.5 3.9	37.0 4.8	675.1	741.0
2010	Rate % of Total	15.9 2.5	15.1 2.0	28.3 3.9	37.1 4.8	672.7	746.2
2011	Rate % of Total	16.9 2.6	15.7 2.0	30.0 4.1	39.4 4.9	674.0	740.6
2012	Rate % of Total	16.3 2.6	14.4 2.0	30.0 4.1	39.1 5.0	669.2	732.8
2013	Rate % of Total	18.0 2.8	15.9 2.2	34.0 4.6	39.4 5.0	664.1	731.9
2014	Rate % of Total	15.7 2.5	15.1 2.1	39.4 5.2	40.5 5.2	662.5	724.6
2015	Rate % of Total	17.1 2.6	15.1 2.1	45.5 5.8	40.5 5.2	684.6	724.6
2016	Rate % of Total	14.1 2.2	13.5 1.9	53.6 6.8	47.4 5.9	668.9	728.8
2017	Rate % of Total	15.8 2.4	14.3 2.0	52.6 6.7	49.4 6.0	675.7	731.9
2018	Rate % of Total	15.8 2.4	14.9 2.1	52.8 6.7	48 5.9	662.8	723.6
2019	Rate	13.1	17.8	53.7	49.3	654.0	844.0

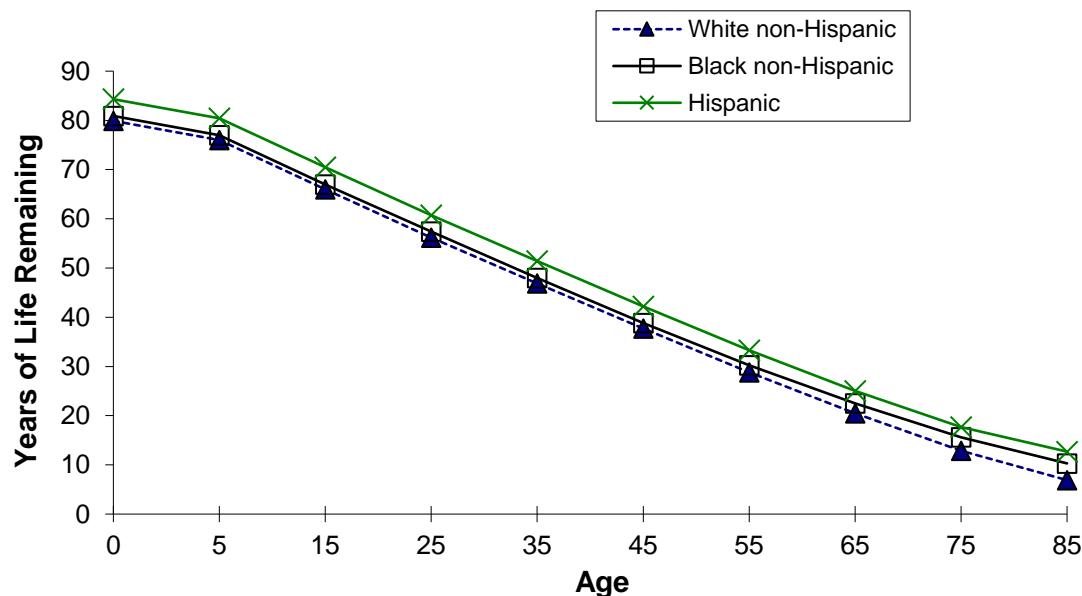
	% of Total	2.1	2.1	7.0	6.1		
Note: Cause of death: the disease or injury that initiated the events leading to death or the circumstances of the unintentional or intentional injury that resulted in the death.							
1. Data coded according to ICD-10. ICD-10 codes used in this publication are listed in 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 Remaining¹ at Different Ages by Race and Hispanic Ethnicity², Massachusetts: 2019



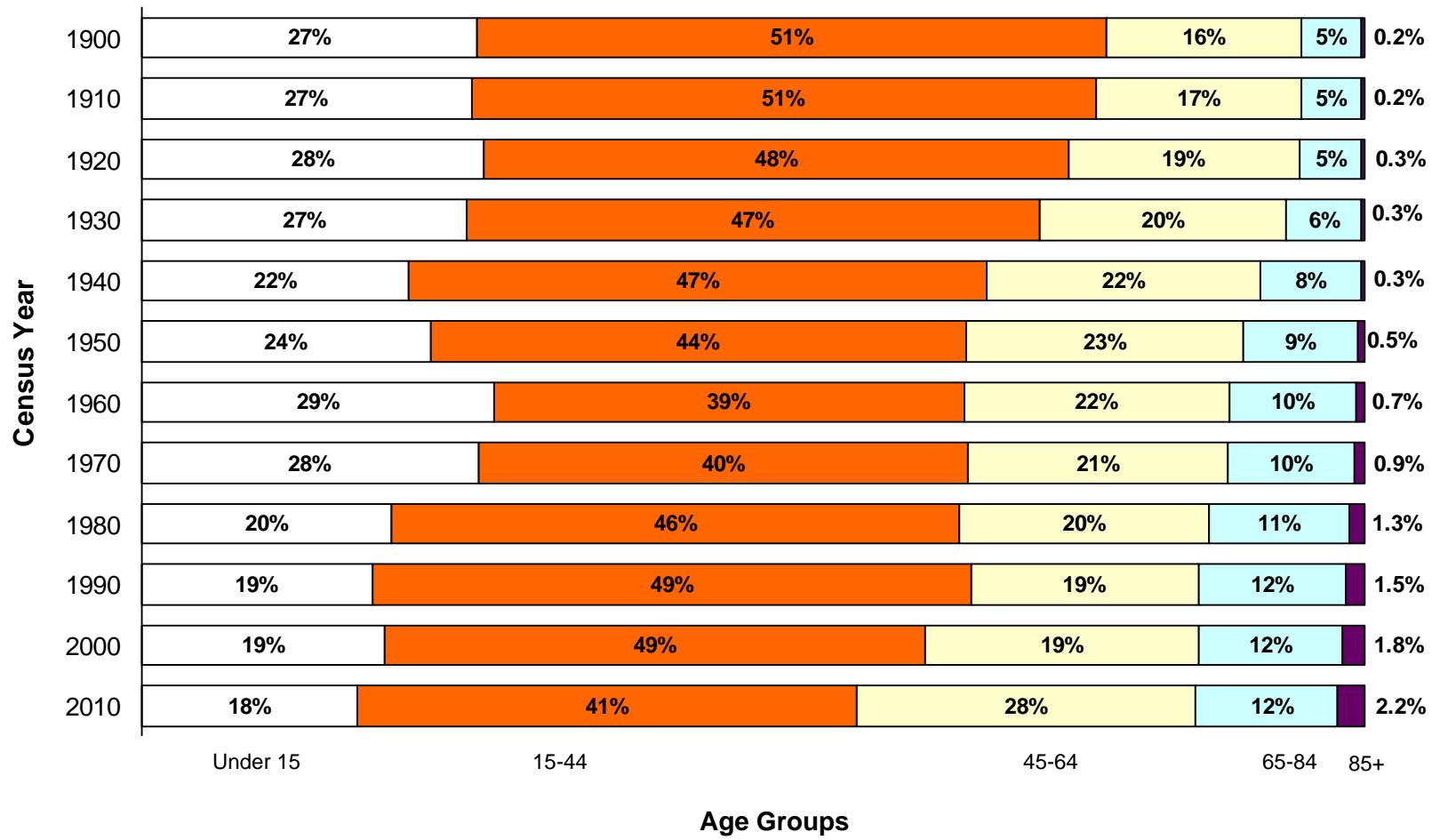
1. Years of Life Remaining calculated using the Greville Abridged Life Table Method (source: Dublin LI. Length of Life - A Study of the Life Table. Ronald Press Co. New York. 1949). 2. Population estimates are from 2018 bridged population file, MARS (Modified Age, Race/Ethnicity, and Sex) file. Please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

Table 3. Years of Life Remaining¹ by Race and Hispanic Ethnicity² 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

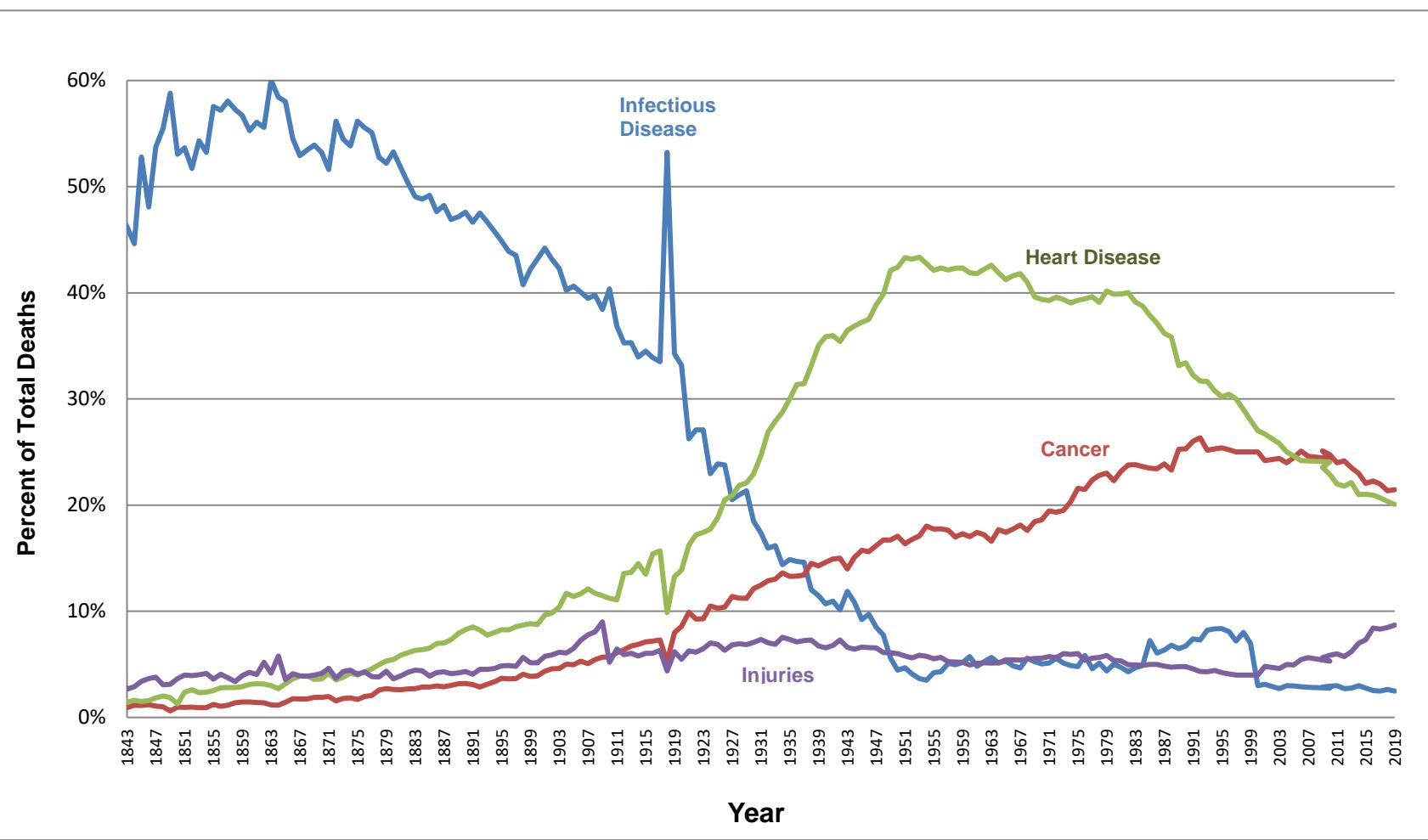
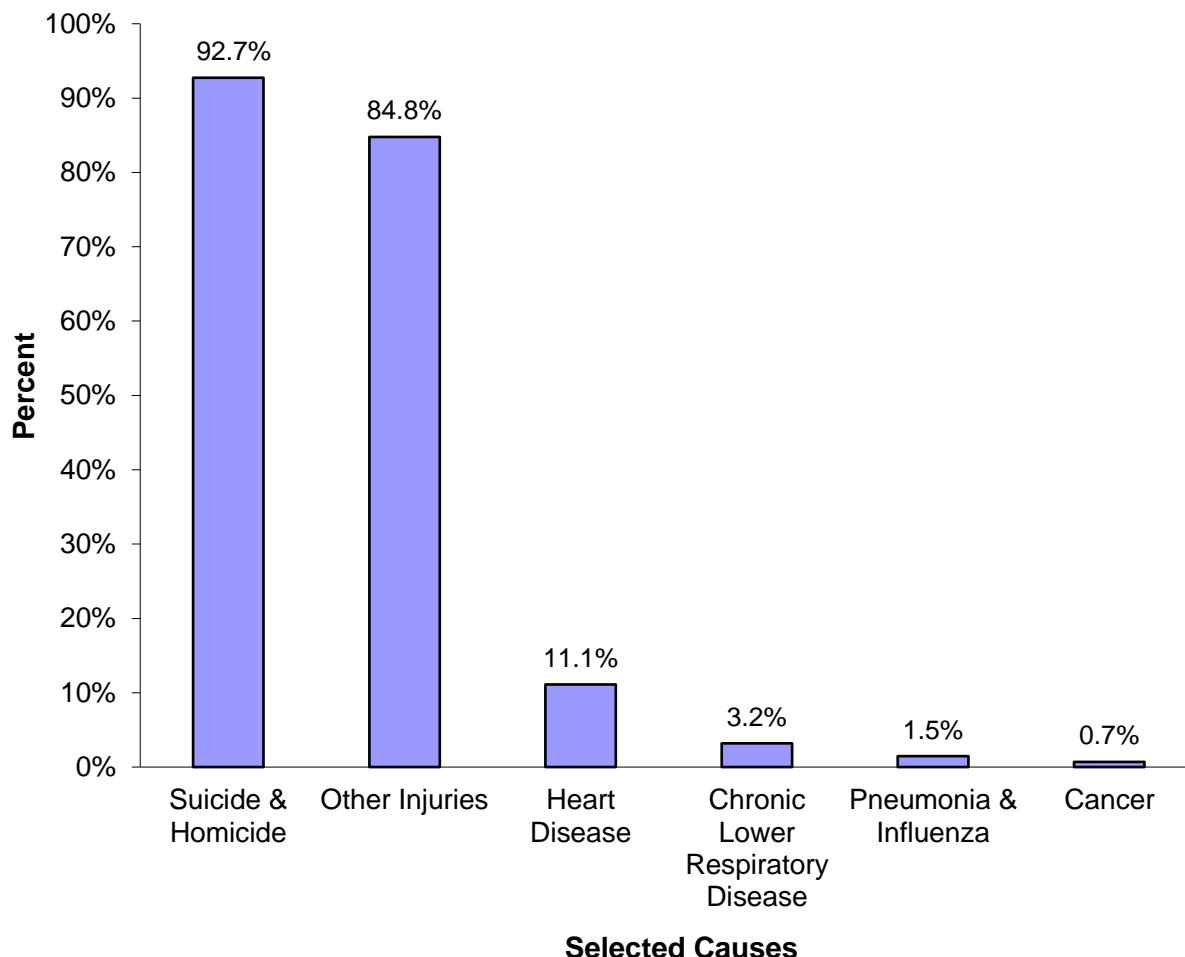


Table 4. Distribution of Deaths by Place of Occurrence, Massachusetts: 2015-2019

Type of Place where Death Occurred	2015		2016		2017		2018		2019	
	Number	Percent								
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%

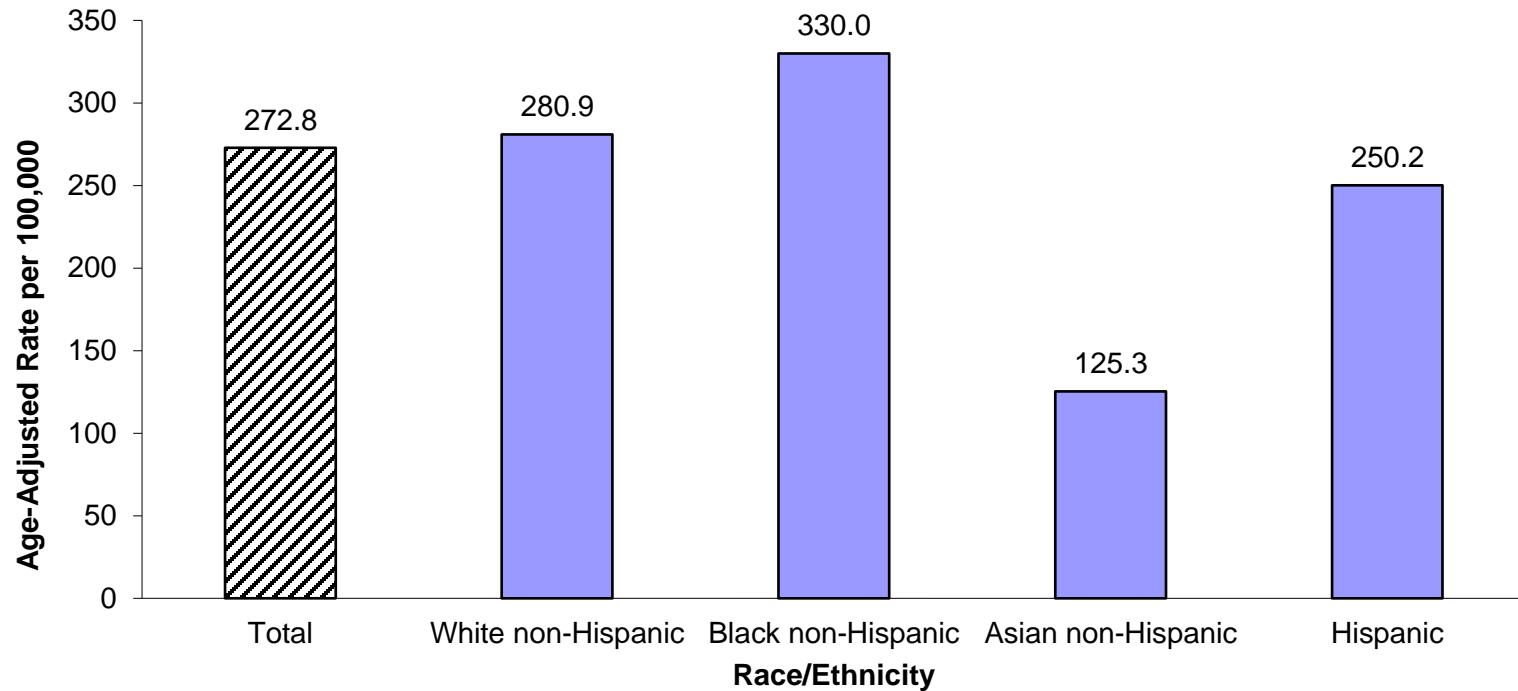
Figure 5. Proportion of Deaths Certified by Medical Examiner for Selected Causes of Death, Massachusetts: 2019



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.

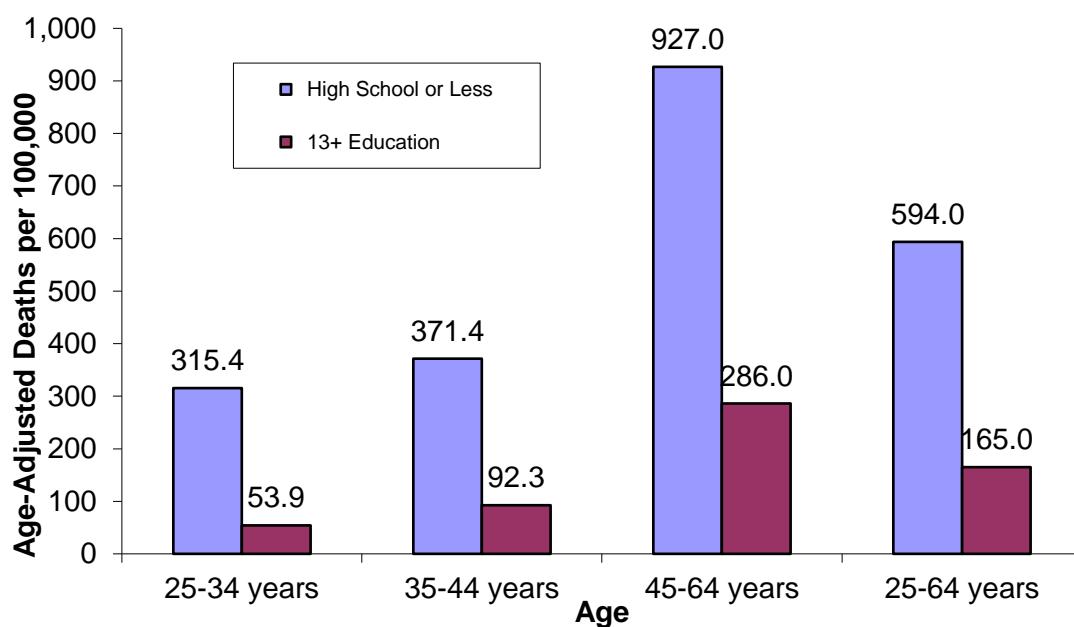
Figure 6. Premature Mortality Rate (PMR) by Race and Hispanic Ethnicity, Massachusetts: 2019



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

Years of School Completed	Age-Specific Rates			Age-Adjusted Rates
	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:

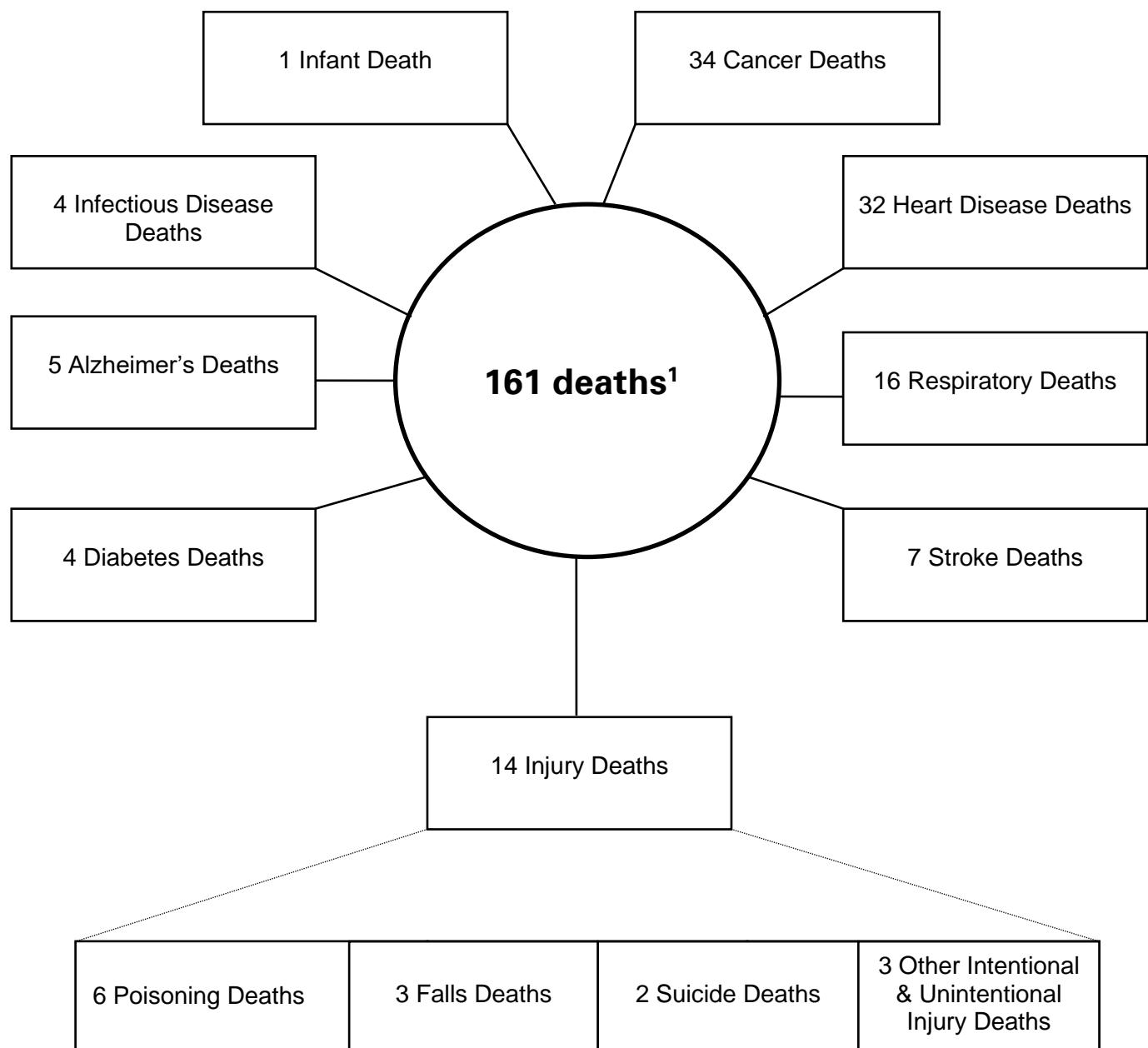


Table 6. Top Ten Leading Underlying Causes of Death by Age, Massachusetts: 2019

	Age Groups (number of deaths)									
<u>Rank</u>	<1 year	1-14 years	15-24 years	25-44 years	45-64 years	65-74 years	75-84 years	85+ years	All	
25	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)	
	Congenital malformations (56)	Cancer (17)	Suicide (67)	Cancer (241)	Heart Disease (1585)	Heart Disease (1786)	Heart Disease (2581)	Cancer (2641)	Heart Disease (11779)	
	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 Injuries³ (4094)	
	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 Disease⁵ (2842)	
	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)	
	Respiratory distress (8)	III-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)	
	Bacterial sepsis of newborn (7)	Influenza & Pneumonia (4)	Diabetes (6)	III-defined conditions-signs and symptoms ⁴ (37)	Suicide (281)	Nephritis (221)	Diabetes (358)	Influenza & Pneumonia (612)	Diabetes (1386)	
	Necrotizing enterocolitis (6)	Suicide (3)	Influenza & Pneumonia (4)	Diabetes (29)	Stroke (212)	Septicemia (181)	Nephritis (339)	Nephritis (553)	Nephritis (1280)	
	Circulatory System (5)	Septicemia (2)	III-defined conditions-signs and symptoms ⁴ (4)	Stroke (29)	Septicemia (171)	Chronic liver disease (180)	Parkinsons (285)	Diabetes (381)	Influenza & Pneumonia (1217)	
	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)	III-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. III-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

Age	Cause of Death ¹	<u>Total</u>		<u>Female</u>		<u>Male</u>	
		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**

Age	Cause of Death ¹	Total		Female		Male	
		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.

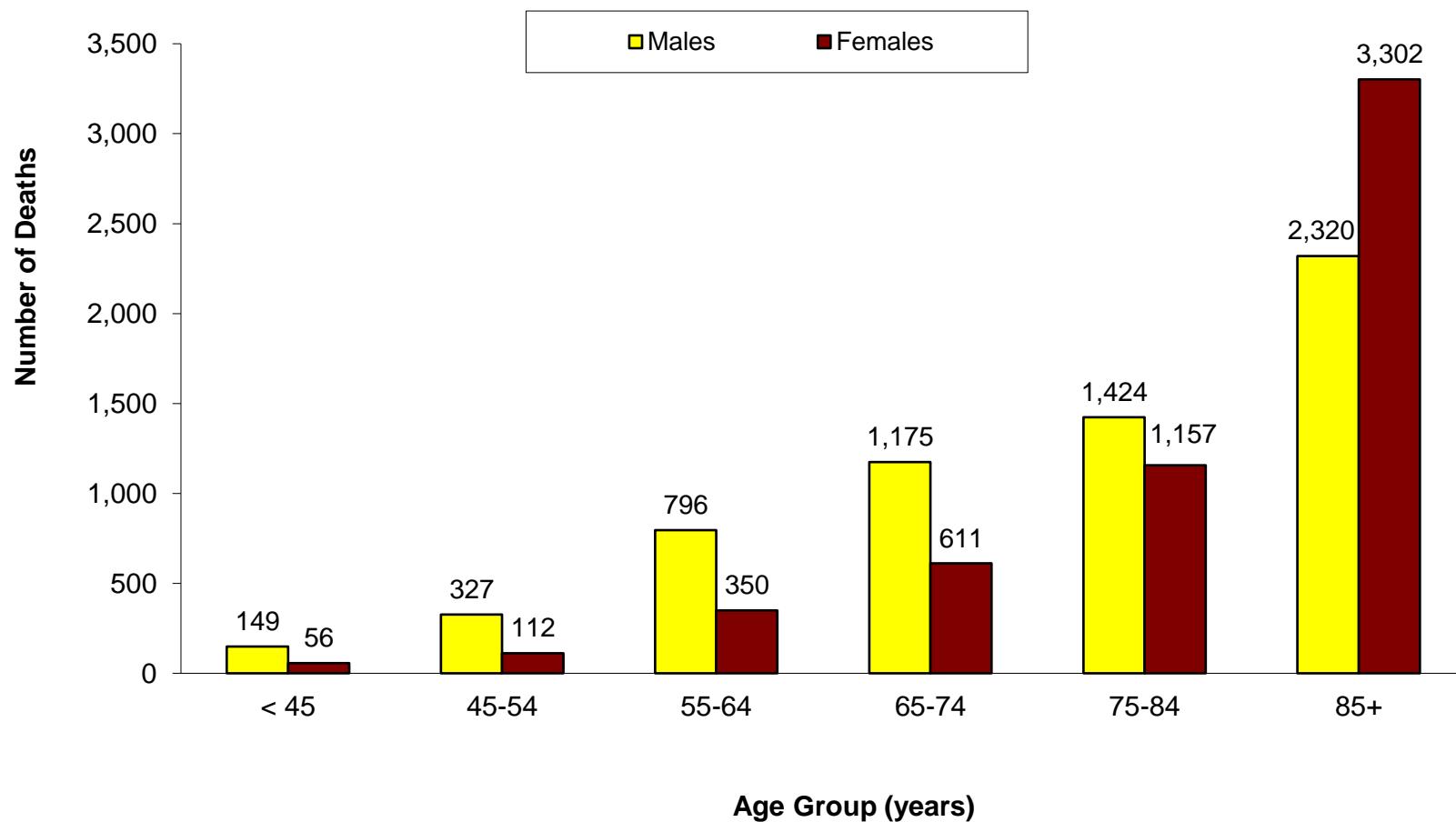
Table 9. Leading Causes of Death¹ and Age-Adjusted Rates by Race and Hispanic Ethnicity, Massachusetts: 2019

<u>White non-Hispanic²</u>			<u>Black non-Hispanic²</u>			<u>Asian non-Hispanic²</u>			<u>Hispanic²</u>		
<u>Cause³</u>	#	Rate ⁴	<u>Cause³</u>	#	Rate ⁴	<u>Cause³</u>	#	Rate ⁴	<u>Cause³</u>	#	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

<u>Total</u>		
<u>Cause³</u>	#	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

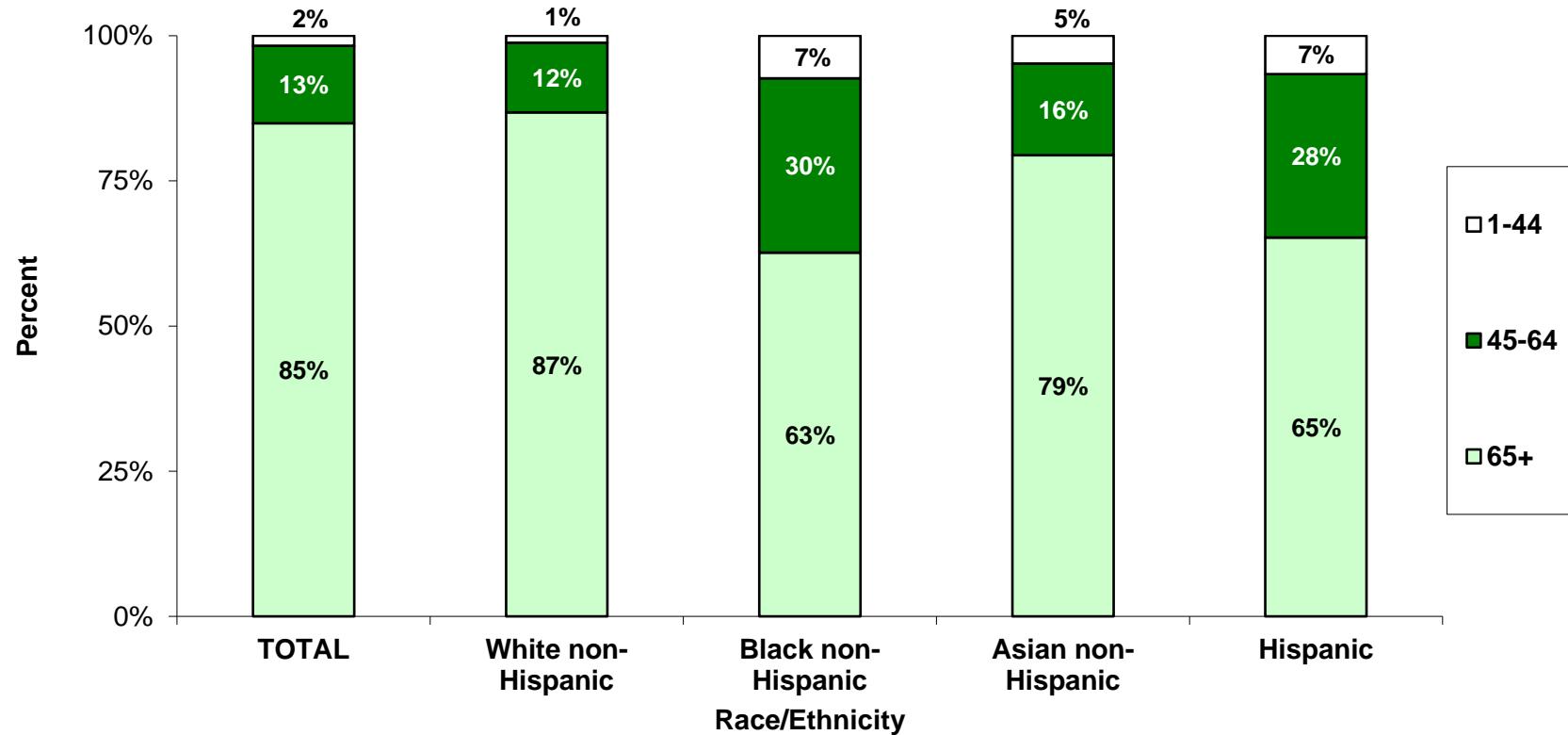
1. Ranking based on number of deaths. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the technical notes for more information on race and ethnicity. 3. Underlying Cause of Death based 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



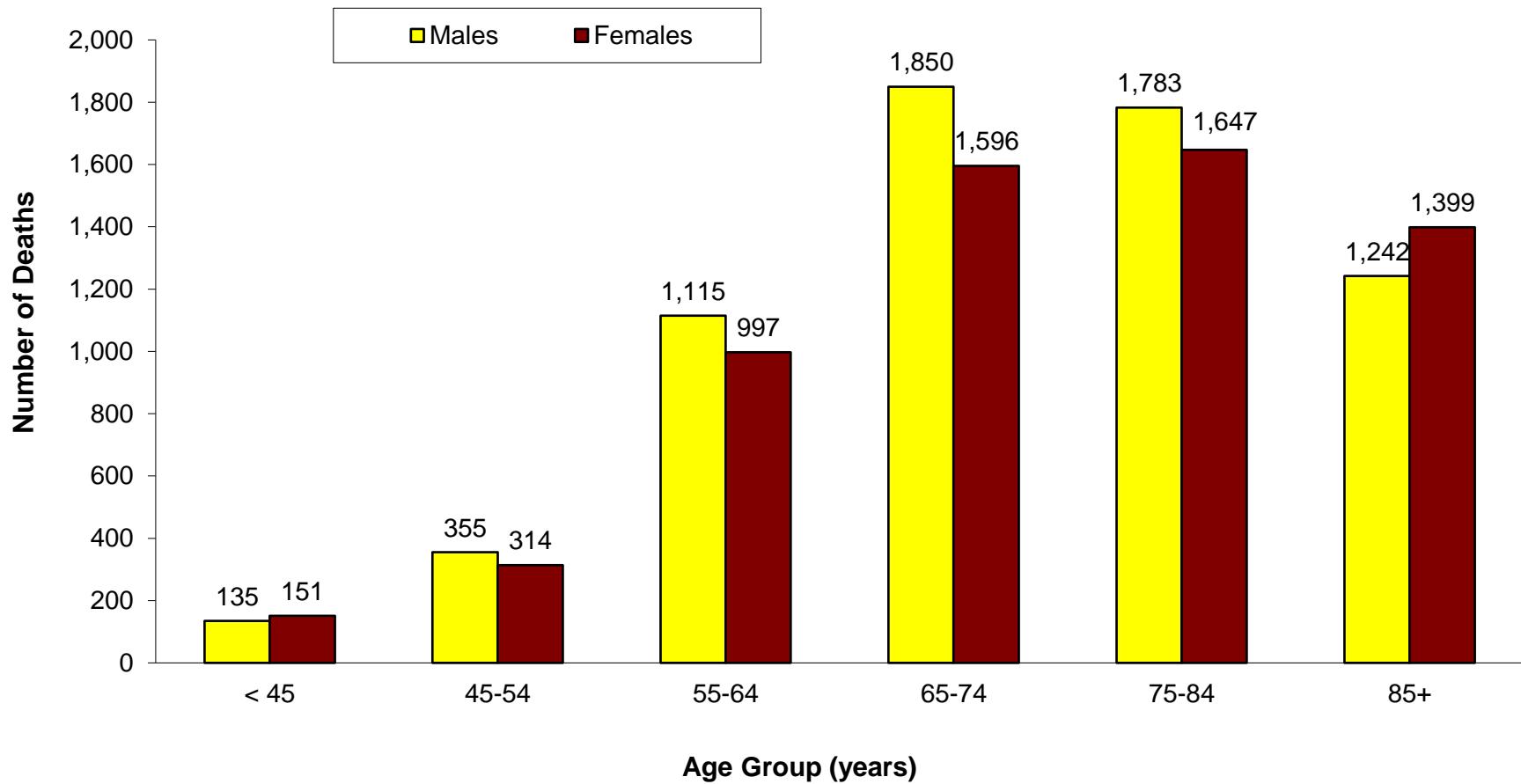
Note: The ICD-10 codes used for heart disease deaths were I00-I09, I11, I13, and I20-I51.

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



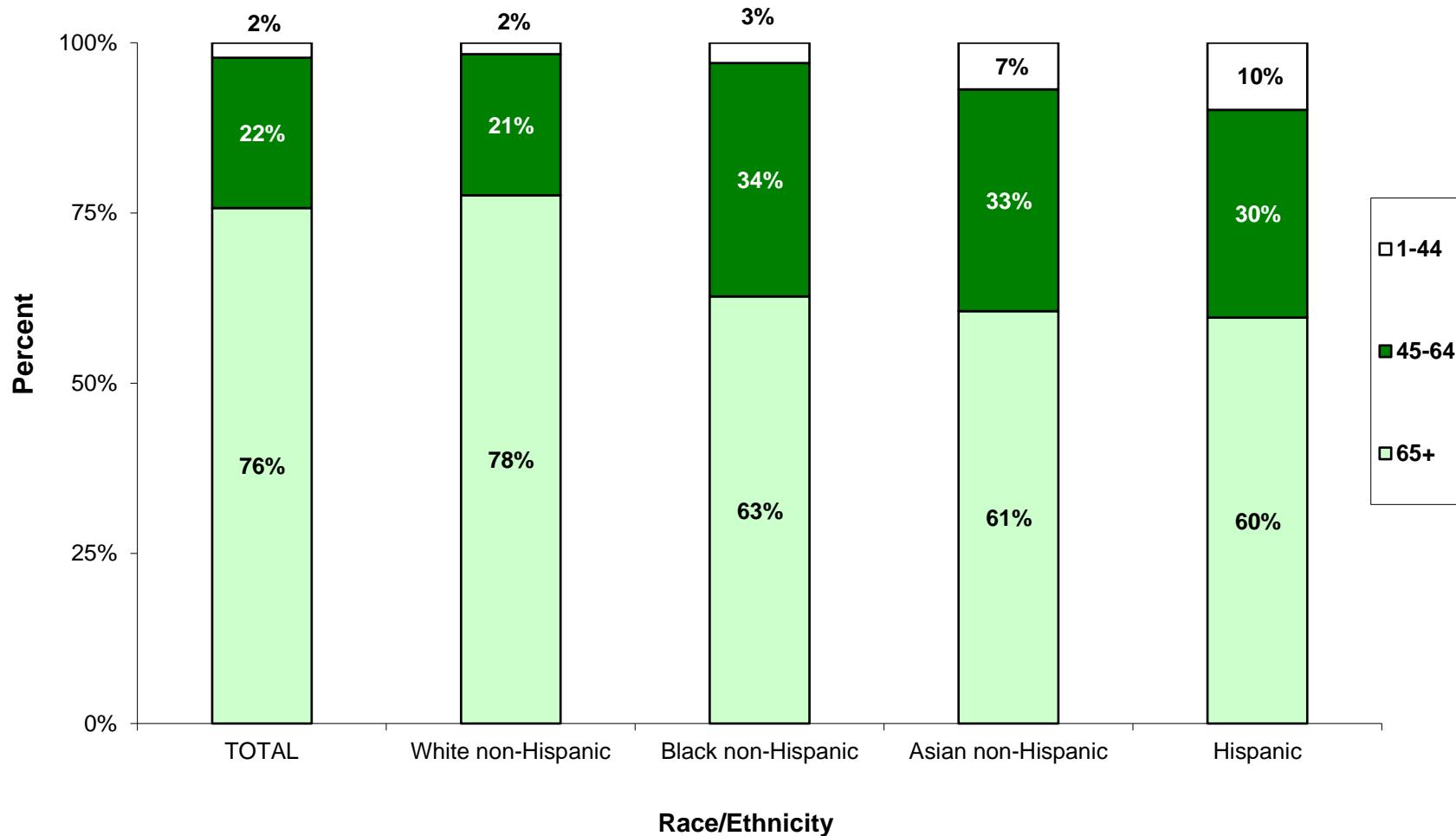
Note: The ICD-10 codes used for heart disease deaths were I00-I09, I11, I13, and I20-I51. Please see the technical notes for more information on race and ethnicity

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 Rates¹, Massachusetts: 2005-2019

Year	Heart Disease						
	<u>White non-Hispanic²</u>			<u>Black non-Hispanic²</u>			
	Male	Female	Total	Male	Female	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	
33	<u>Asian non-Hispanic²</u>			<u>Hispanic²</u>			
	Year	Male	Female	Total	Male	Female	
	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

Year	Cancer					
	<u>White non-Hispanic²</u>			<u>Black non-Hispanic²</u>		
	Male	Female	Total	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
<u>Asian non-Hispanic²</u>						
Year	<u>Asian non-Hispanic²</u>			<u>Hispanic²</u>		
	Male	Female	Total	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
15 – 24 years	Non-Hodgkin's lymphoma	C82-C85	1	-.3
	Total		27	2.8
	Brain and nervous system	C70-C72	5	0.5
	Non-Hodgkin's lymphoma	C82-C85	4	-.3
25 – 44 years	Leukemia	C91-C95	3	-.3
	Colorectal	C18-C21	1	-.3
	Total		241	13.1
	Brain and nervous system	C70-C72	35	1.9
45 – 64 years	Female breast ⁴	C50	32	3.5
	Colorectal	C18-C21	30	1.6
	Lung	C33, C34	14	0.8
	Total		2,781	150.3
65 + years	Lung	C33, C34	636	34.4
	Colorectal	C18-C21	278	15.0
	Female breast ⁴	C50	232	24.2
	Pancreas	C25	223	12.1
65-74 years	Total		9,517	809.2
	Lung	C33, C34	2,303	195.8
	Pancreas	C25	827	70.3
	Colorectal	C18-C21	681	57.9
75-84 years	Prostate ⁵	C61	602	117.8
	Total		3,446	504.7
	Lung	C33, C34	944	138.3
	Pancreas	C25	294	43.1
85+ years	Colorectal	C18-C21	206	30.2
	Female breast ⁴	C50	172	46.8
	Total		3,430	1,033.6
	Lung	C33, C34	882	265.8
85+ years	Pancreas	C25	311	93.7
	Prostate ⁵	C61	225	159.6
	Colorectal	C18-C21	208	62.7
	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

<u>White non-Hispanic¹</u>			<u>Black non-Hispanic¹</u>			<u>Asian non-Hispanic¹</u>			<u>Hispanic¹</u>		
Cause²	#	Rate³	Cause²	#	Rate³	Cause²	#	Rate³	Cause²	#	Rate³
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

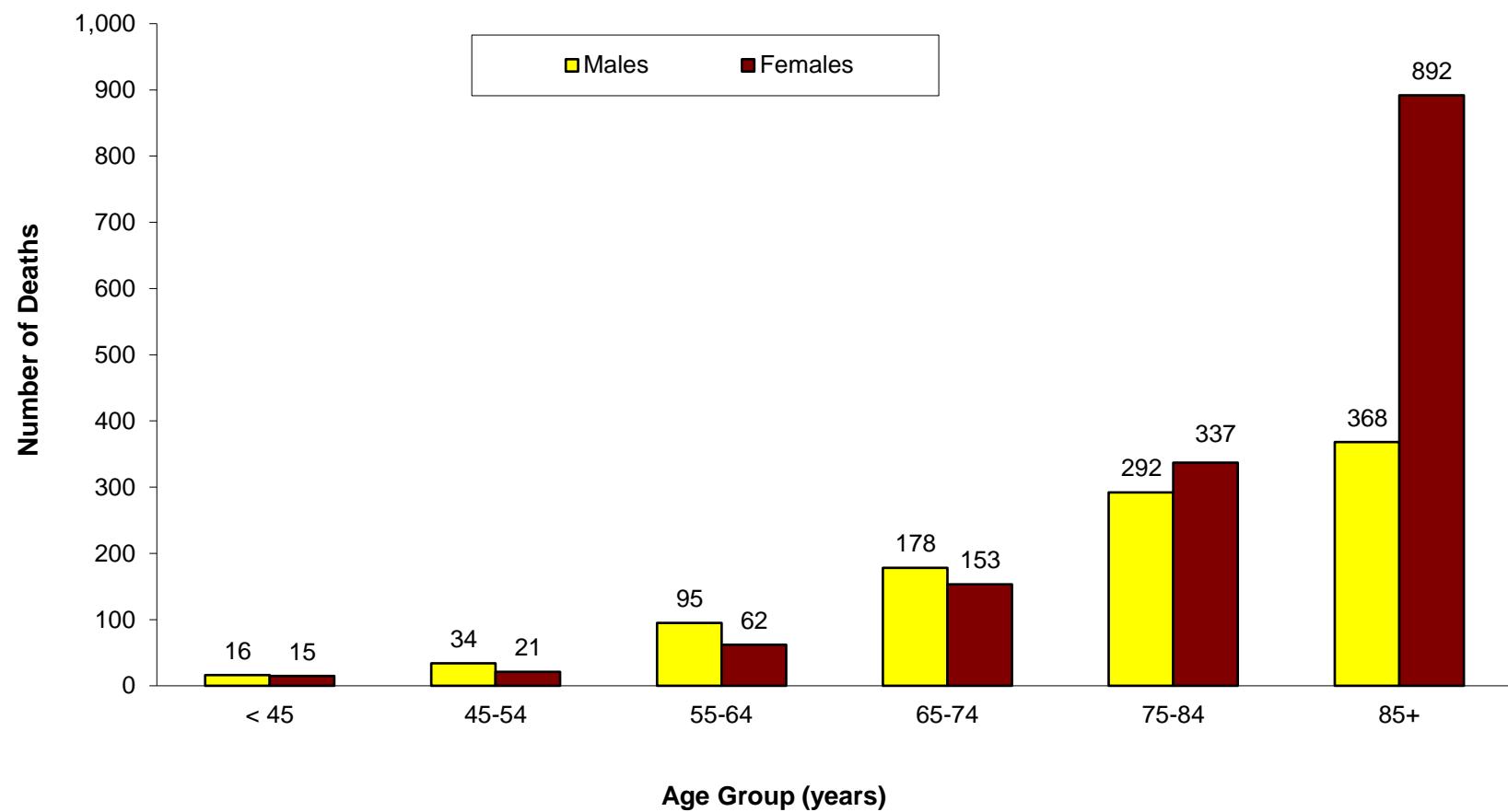
1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the technical notes for more information on race and ethnicity. 2. ICD-10 codes used. Please see the ICD-10 codes listing in the Appendix 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.

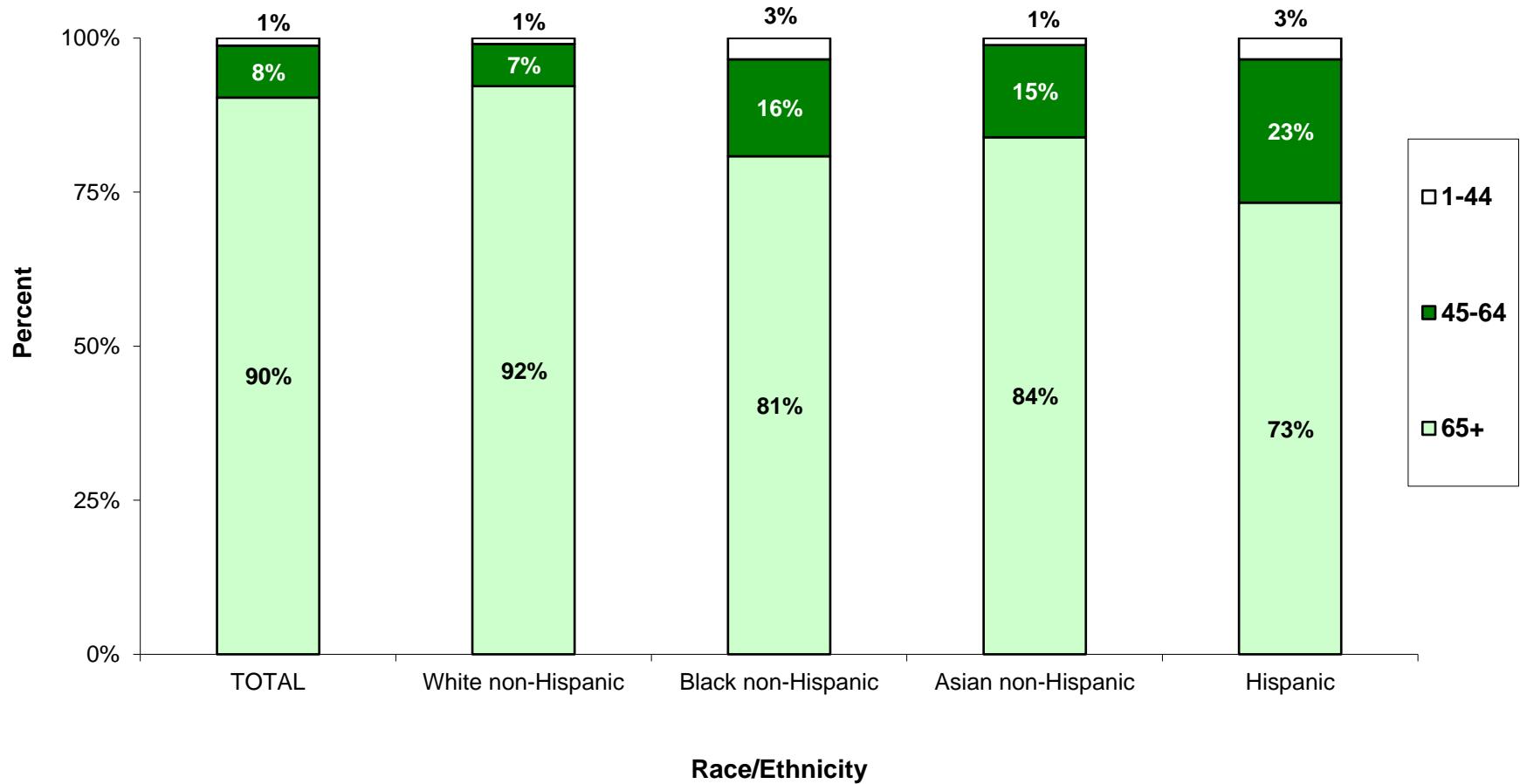
Figure 12. Number of Stroke Deaths by Age Group and Gender, Massachusetts: 2019



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



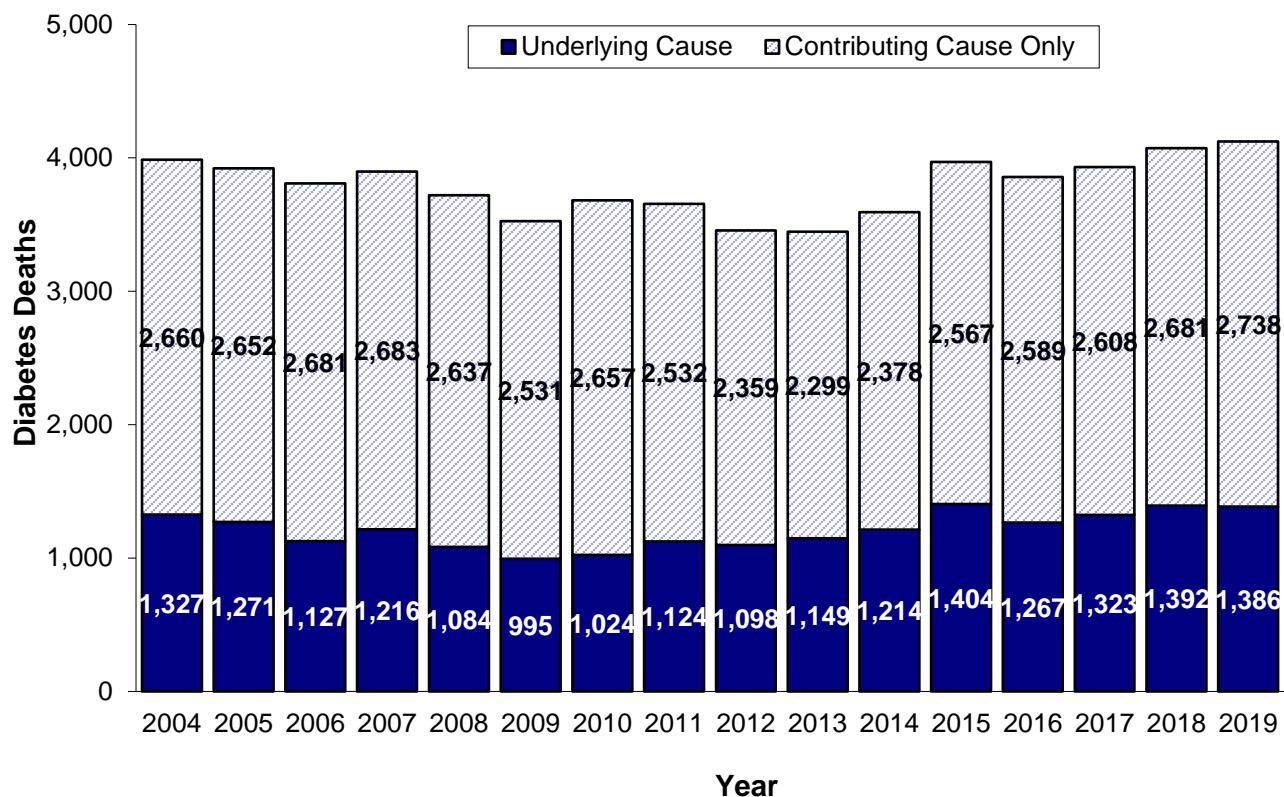
Note: The ICD-10 codes used for stroke deaths were I60-I69. Please see the technical notes for more information on race and ethnicity.

Table 15. Stroke Deaths by Race and Hispanic Ethnicity and Gender, Age-Adjusted Rates¹, Massachusetts: 2006-2019

Year	<u>White non-Hispanic²</u>			<u>Black non-Hispanic²</u>		
	Male	Female	Total	Male	Female	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	<u>Asian non-Hispanic²</u>			<u>Hispanic²</u>		
	Male	Female	Total	Male	Female	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

Cause of Death	Proportion of all Deaths (%) ¹			Number		
	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.

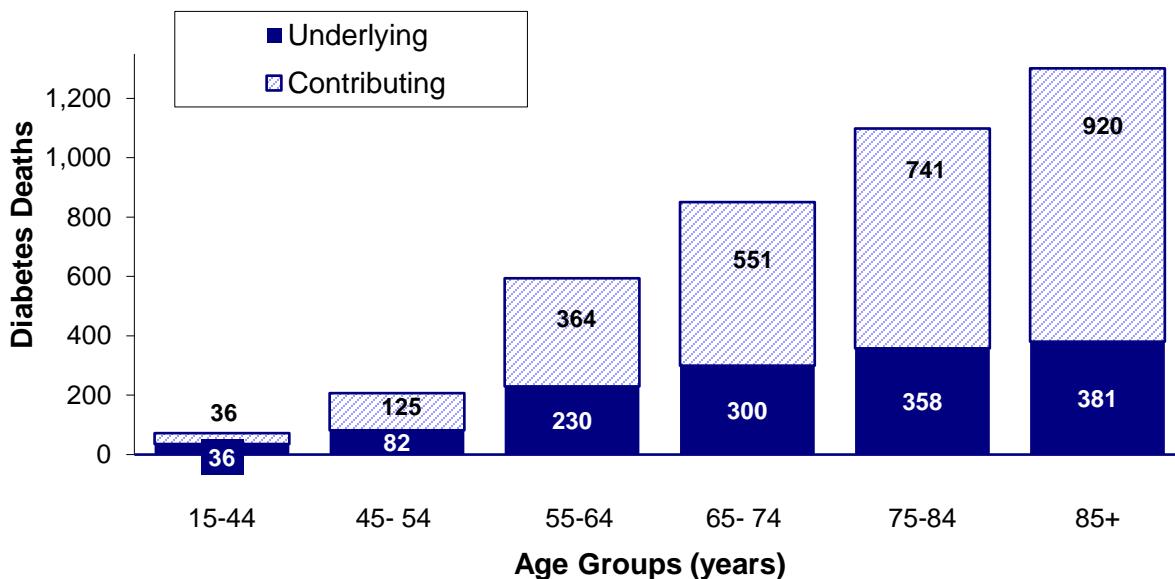
Table 17. Diabetes Deaths by Race and Hispanic Ethnicity, Massachusetts: 2019

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
<i>Total Diabetes-Related</i>	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.

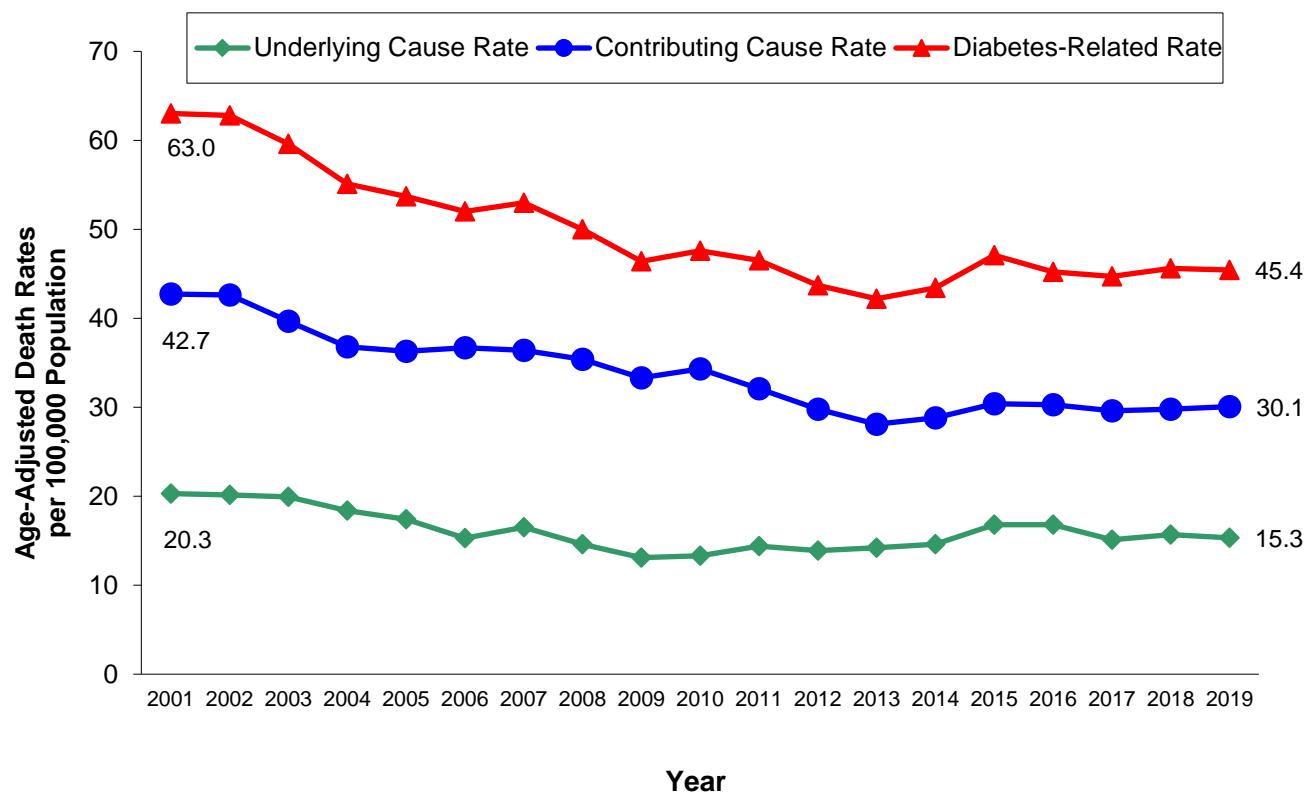
1. Rates are per 100,000 age-adjusted to the 2000 U.S. standard population

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	
	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>
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	
	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>
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	
	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>	<u>Number</u>	<u>Rate²</u>
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)						
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/AIDS¹ Deaths by Place of Occurrence, Massachusetts: 2005-2019

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

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 Deaths² 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/AIDS¹ Deaths² 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/AIDS¹ Deaths by Gender, Race and Hispanic Ethnicity: Numbers, Percent and Age-Adjusted Rates, Massachusetts: 2006-2019

Year	White non-Hispanic ²			Black non-Hispanic ²			Hispanic ²		
	#	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/AIDS¹ 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)		Neonatal (<28 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. Infant¹ Deaths by Major Causes², 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	○
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	○
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	○

✓ = YES, met target

○ = 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 Communities¹	Number of Premature Deaths	PMR² (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**

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (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**

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (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

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (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

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (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

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (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**

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (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**

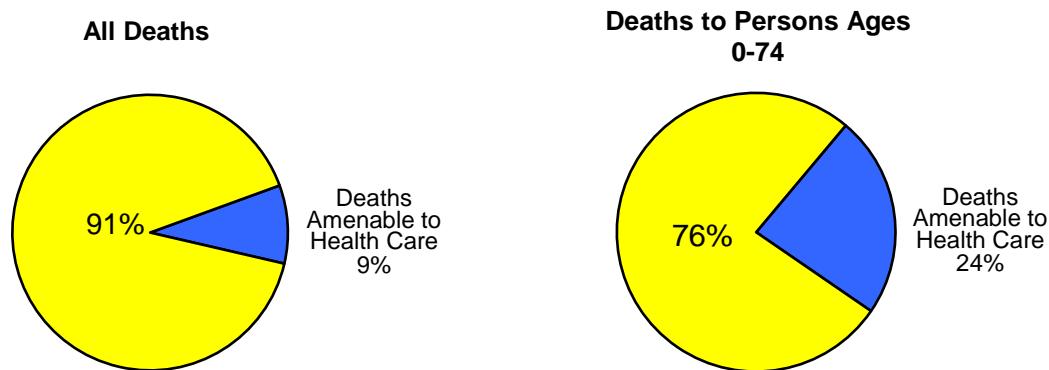
<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (per 100,000 population)
Swampscott	37	226.6
Swansea	66	292.1
Taunton	284	421.3
Templeton	29	231.8
Tewksbury	119	287.5
Tisbury	14	298.8
Tolland	2	.2
Topsfield	15	195.4
Townsend	34	259.4
Truro	14	420.5
Tyngsborough	43	279.9
Tyringham	2	.2
Upton	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

<u>City/Town</u>	<u>Premature Deaths (#)</u>	<u>PMR¹</u> (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

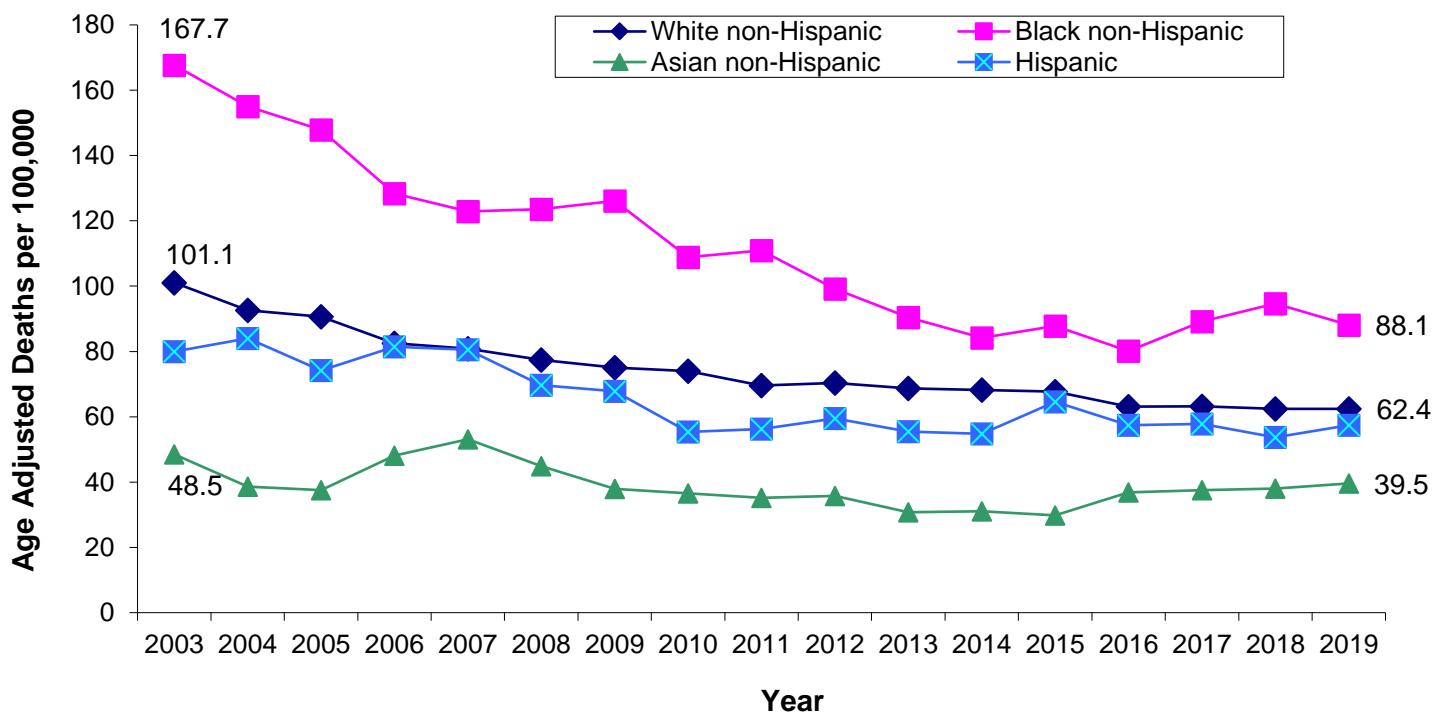
1. Premature mortality rates (PMR) are age-adjusted to the 2000 US Standard Population for persons ages 0-74 years. 2. Age-adjusted rates based on values 1-4 are excluded.

Figure 17. Percent of Deaths Amenable to Health Care¹, 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 Mortality¹ by Race and Hispanic Ethnicity², 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

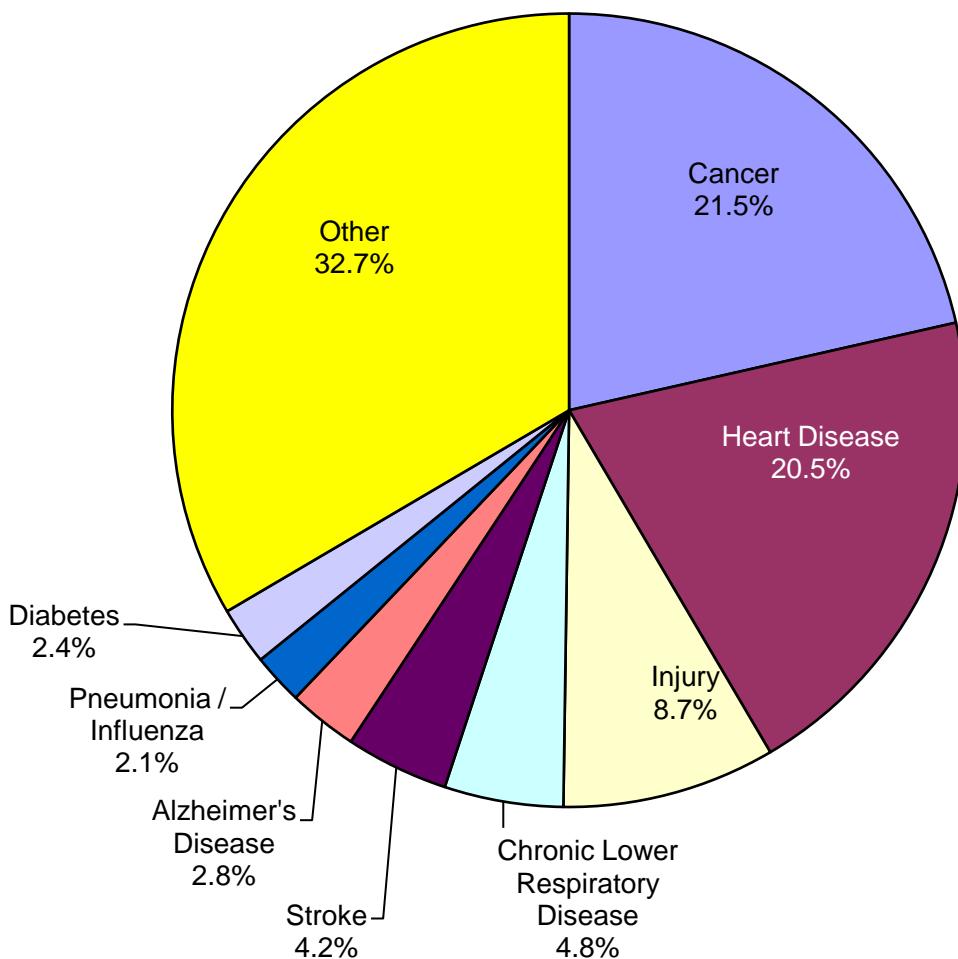
APPENDIX

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

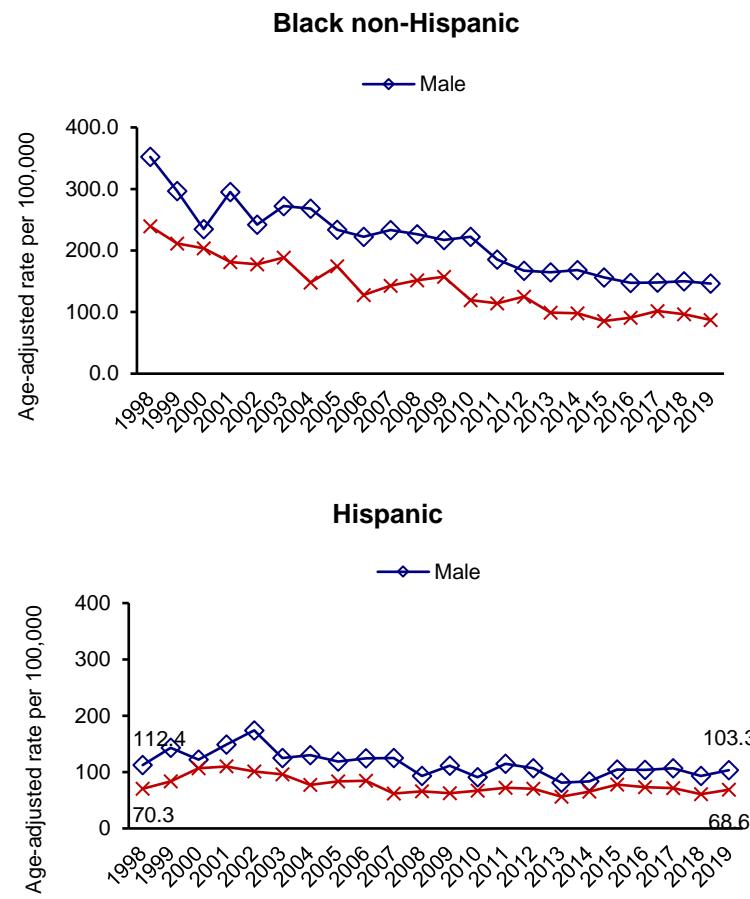
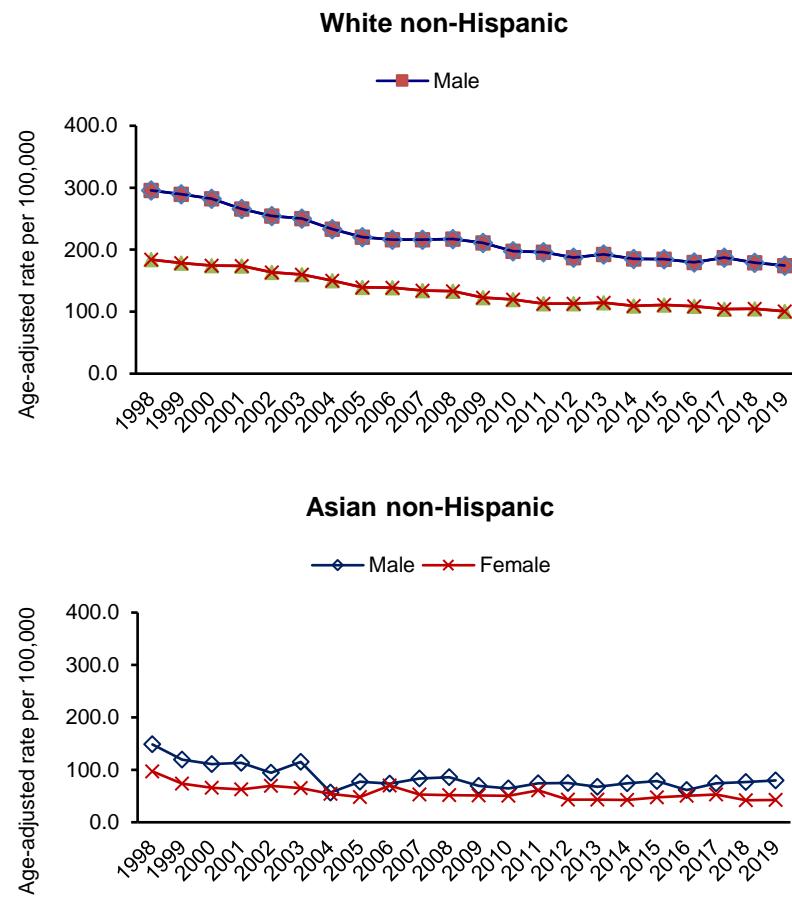
Selected Causes ²	Total		White non-Hispanic ¹		Black non-Hispanic ¹		Asian non-Hispanic ¹		Hispanic ¹	
	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³	#	Rate ³
Age: 1-14, TOTAL	106	9.9	62	9.8	11	11.6	13	17.3	17	8.2
Unintentional Injuries ⁴	20	1.9	15	2.4	1	-- ⁶	2	-- ⁶	2	-- ⁶
Cancer	17	1.6	9	1.4	0	0.0	4	-- ⁶	3	-- 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

Selected Causes²	Total		White non-Hispanic¹		Black non-Hispanic¹		Asian non-Hispanic¹		Hispanic¹	
	#	Rate³	#	Rate³	#	Rate³	#	Rate³	#	Rate³
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

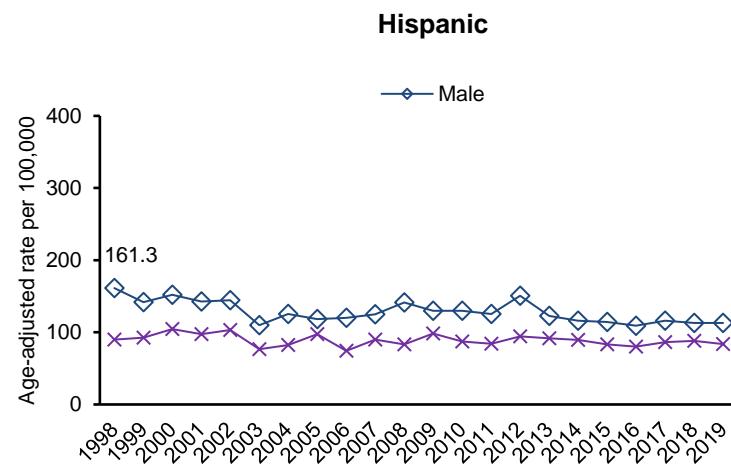
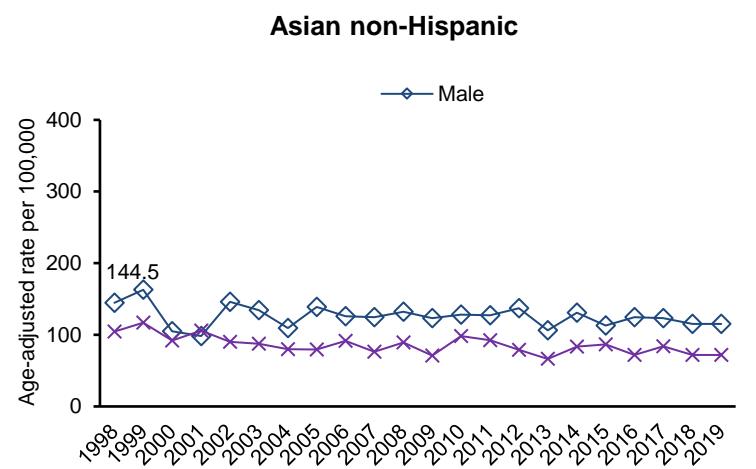
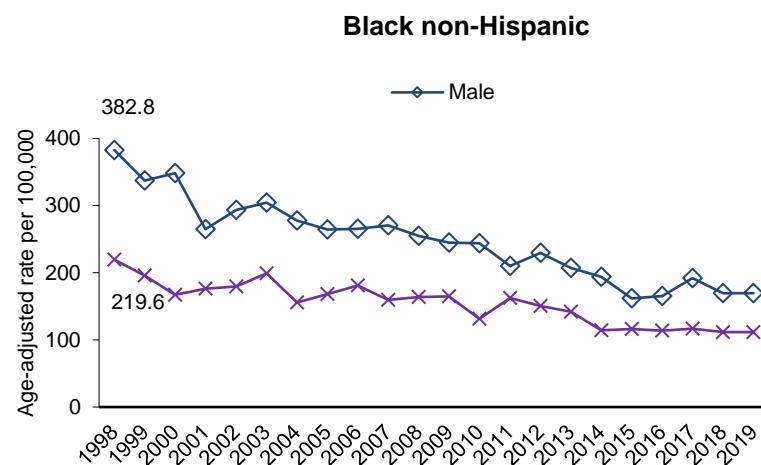
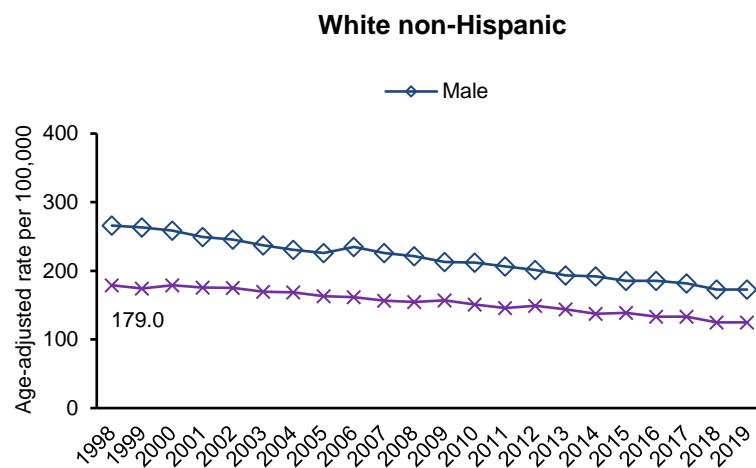
1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the Technical Notes for more information on race and ethnicity. 2. Deaths are coded according to ICD-10. Please see Appendix for a list 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 Rates¹ by Race and Hispanic Ethnicity and Gender, Massachusetts: 1998-2019²



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 Rates¹ by Race and Hispanic Ethnicity and Gender, Massachusetts: 1998-2019²



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 Mortality¹ 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 Mortality¹ 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	0	1
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

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	0	2
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	0	1
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

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

Decedent Race

Enter race to appear on death certificate: _____

Decedent Ethnicity

<input type="checkbox"/> African (specify): _____	<input type="checkbox"/> Laotian
<input type="checkbox"/> African-American	<input type="checkbox"/> Mexican, Mexican American, Chicano
<input type="checkbox"/> American	<input type="checkbox"/> Middle Eastern (specify): _____
<input type="checkbox"/> Asian Indian	<input type="checkbox"/> Native American (specify tribal nation(s)): _____
<input type="checkbox"/> Brazilian	<input type="checkbox"/> Portuguese
<input type="checkbox"/> Cambodian	<input type="checkbox"/> Puerto Rican
<input type="checkbox"/> Cape Verdean	<input type="checkbox"/> Russian
<input type="checkbox"/> Caribbean Islander (specify): _____	<input type="checkbox"/> Salvadoran
<input type="checkbox"/> Chinese	<input type="checkbox"/> Vietnamese
<input type="checkbox"/> Colombian	<input type="checkbox"/> Other Asian (specify): _____
<input type="checkbox"/> Cuban	<input type="checkbox"/> Other Central American (specify): _____
<input type="checkbox"/> Dominican	<input type="checkbox"/> Other Pacific Islander (specify): _____
<input type="checkbox"/> European (specify): _____	<input type="checkbox"/> Other Portuguese (specify): _____
<input type="checkbox"/> Filipino	<input type="checkbox"/> Other South American (specify): _____
<input type="checkbox"/> Guatemalan	<input type="checkbox"/> Other ethnicity (ies) not listed (specify): _____
<input type="checkbox"/> Haitian	<input type="checkbox"/> Refused
<input type="checkbox"/> Honduran	<input type="checkbox"/> Not obtainable
<input type="checkbox"/> Japanese	<input type="checkbox"/> Unknown
<input type="checkbox"/> 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 Pneumonia¹ 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
by Joyce A. Martin, M.P.H.; Brady E. Hamilton, Ph.D.; Paul D. Sutton, Ph.D.; Stephanie J. Ventura, M.A.; Fay Menacker, Dr. P.H.; and Martha L. Munson, M.S.;
From the Division of Vital Statistics, NCHS. (Technical Notes, "Significance testing" section begins on page 110).

This document is available from the following website:

<http://www.cdc.gov/nchs/products/pubs/pubd/nvsr/52/52-23.htm>

For comparisons of more than 100 events, whether they are rates, proportions, or numbers, the binomial distribution is assumed, and confidence intervals are examined to see whether they overlap (Refer to the "Confidence Intervals" section in the next page for an explanation of using confidence intervals to determine statistical significance). When the number of events is less than 100, a Poisson distribution is assumed, and confidence intervals are constructed based upon the Poisson distribution. For more details and exact formulas for calculating confidence intervals or other tests of statistical significance, refer to the publication listed above.

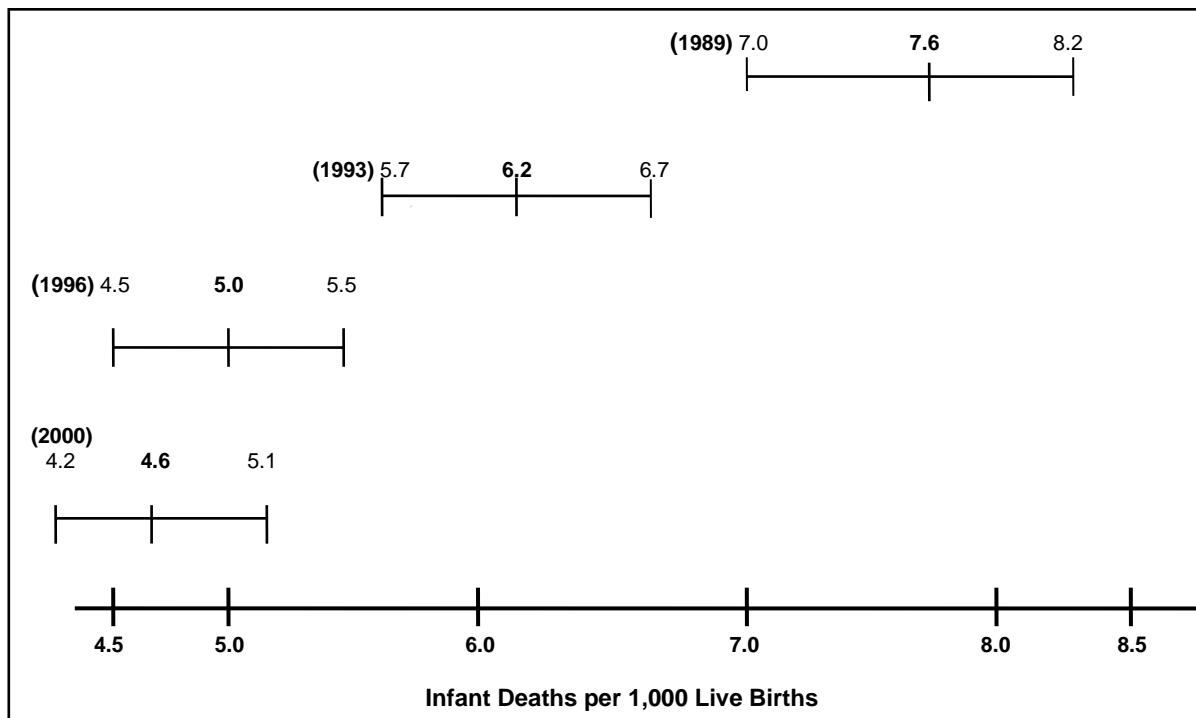
When two statistics are determined to differ significantly, they are referred to in the text as being "significantly" different, either lower or higher than the statistic of comparison.

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 (using 1940 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 Diseases¹	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 Objectives¹ 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	Comparability Ratio (most similar title)
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	Comparability Ratio (most similar title)
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 Estimates¹ 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 Estimates¹ 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 Estimates¹ 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 Estimates¹ for Massachusetts Communities, 2019

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

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 Estimates¹ 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	
Form R-301 08012015		State File # Registered #	
DECEDENT	<i>Place of Death</i>	<i>Age</i>	<i>Sex</i>
	<i>Date of Death</i>		
	<i>Current Name</i>		
	<i>Surname at Birth or Adoption</i>	<i>SSN</i>	
	<i>AKA</i>		
	<i>Date of Birth</i>	<i>Birthplace</i>	
	<i>Residence</i>		
	<i>Race</i>	<i>Education</i>	
	<i>Marital Status</i>	<i>Occupation/Industry</i>	
	<i>Last Spouse – Last, First, Middle (Surname at Birth or Adoption)</i>		<i>Decedent: U.S. Veteran (Most Recent)</i>
<i>Mother/Parent Name – Last, First Middle (Surname at Birth or Adoption)</i>		<i>Birthplace</i>	
<i>Father/Parent Name – Last, First Middle (Surname at Birth or Adoption)</i>		<i>Birthplace</i>	
MEDICAL CERTIFIER	<i>Part I. Cause of Death – Sequentially list immediate cause then antecedent causes then underlying cause</i>		
	<i>a. Immediate Cause (Final condition resulting in death)</i>		
	<i>b. Due to or as a consequence of:</i>		
	<i>c. Due to or as a consequence of:</i>		
	<i>d. Due to or as a consequence of:</i>		
	<i>Interval between onset and death</i>		
	<i>Part II. Other significant conditions contributing to death but not resulting in underlying cause</i>		
	<i>Manner of Death:</i>		
	<i>Time of Death:</i>		
	<i>Result of Injury:</i>		
<i>Certifier</i>			
<i>Lic #</i>			
<i>Addr.</i>			
DISPOSITION	<i>Funeral Licensee/ Designee</i>		
	<i>Lic #</i>		
	<i>Facility/Addr.</i>		
	<i>Immediate Disposition</i>		
	<i>Date of Immediate Disposition</i>		
<i>Place/Address</i>			
<i>Date of Record</i>			
<i>Date of Amendment</i>			

<i>If U.S. war veteran, specify war/conflict(s)</i>			
<i>Branch of military (most recent)</i>	<i>Rank/organization/outfit(most recent)</i>		
<i>Date entered(most recent)</i>	<i>Date Discharged (most recent)</i>	<i>Service Number(most recent)</i>	
<i>Place of Death Type</i>	<i>Date of Pronouncement</i>	<i>Time of Pronouncement</i>	
<i>RN/NP/PA Pronouncement?</i>	<i>Name of RN/NP/PA Pronouncing Death</i>		
<i>RN/NP/PA Employing Agency or Institution</i>		<i>Name of Physician or Medical Examiner notified</i>	
<i>Was M.E. Notified?</i>	<i>Provider in charge of patient's care, if not certifier</i>		
<i>Autopsy Performed?</i>	<i>Findings available for Cause?</i>	<i>Tobacco contribute to death?</i>	<i>Pregnancy Status, if female</i>
<i>Date of Injury</i>	<i>Time of Injury</i>	<i>Injury at Work?</i>	<i>If Transportation Injury, specify:</i>
<i>Place of Injury</i>		<i>Location/Address of Injury:</i>	
<i>Describe How Injury Occurred</i>			
<i>Expanded Race:</i>			
<i>Ethnicity:</i>			
<i>Informant Name</i>		<i>Relationship</i>	
<i>Addr.</i>			
<i>Date Disposition Permit Issued:</i>	<i>Board of Health Agent Local Permit No.</i>		
<i>State Tracking No.</i>			

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