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Advance Data

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**DEATHS 1997**

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# **Executive Summary**



## ***Executive Summary***

### *Overview*

In 1997, 54,634 Massachusetts residents died: 29,261 females and 25,373 males. The number of resident deaths in 1997 decreased slightly more than 1% from 1996 (553 deaths) but represented a 3% increase since 1990. The age-adjusted death rate in 1997 for Massachusetts was 431.3 deaths per 100,000 persons, an 8% decline since 1990. The 1997 Massachusetts age-adjusted death rate was 10% lower than the preliminary 1997 United States rate, and has been consistently lower than the US rate throughout the 1980's and early 1990's. In 1997, the Massachusetts age-adjusted heart disease rate was 12% lower than the US rate; the Massachusetts stroke death rate 22% lower than the US rate; and the injury death rate 49% lower than the US rate.

In 1997, life expectancy at birth in Massachusetts was 78.1 years. For men, the life expectancy was 75.4 years and for women, 80.6 years. This varied by race as well. At birth, white women could expect to live 80.7 years, black women 77.7 years, white men 75.5 years, and black men 70.8 years.

There were 425 deaths to persons less than one year of age in 1997, 22 more deaths than in 1996, but 35% lower than in 1990. (Please note: infant mortality rates will be available when Advance Data: Births 1997 is released later this year.)

The age-adjusted total mortality rates varied enormously by sex. The age-adjusted mortality rate for women was substantially lower than for men: 344.6 compared to 541.6 deaths per 100,000 persons.

### *Leading Causes of Death*

Heart disease and cancer continued to be the leading causes of death among Massachusetts residents. In 1997, 16,482 Massachusetts residents died of heart disease yielding an age-adjusted death rate of 114.3 per 100,000 persons. Cancer was the second leading cause of death, representing 13,675 deaths, with an age-adjusted rate of 129.0. (Note that the number of deaths due to heart disease is greater than the number of deaths due to cancer, yet the age-adjusted death rate for heart disease is lower than the age-adjusted cancer rate.)

Heart disease was the leading cause of death for Massachusetts residents ages 65 and above, while cancer was the leading cause of death for persons ages 25-64. In 1997, cancer remained the number one leading cause of death for Massachusetts residents ages 25-44; heart disease, external causes (unknown intent), and suicide were among the other leading causes. For the first time since 1988, AIDS/HIV-related diseases was not among the four leading causes of death in this age group. For persons ages 15-24, injuries accounted for 56% of the deaths. Motor vehicle-related deaths accounted for the highest percentage of these deaths, followed by homicides and suicides.

### *Patterns by Race and Ethnicity*

The age-adjusted mortality rates varied enormously by race and Hispanic ancestry in Massachusetts in 1997. Overall, Asians and persons of other races combined had the lowest death rate, 254.6 deaths per 100,000 persons; blacks had the highest rate, 598.0. The rate for whites was 426.5 and for Hispanic persons, 269.9.

The leading causes of death varied markedly by race and ethnicity in Massachusetts in 1997 as in previous years. Cancer was the leading cause among Asians and blacks in 1997, followed by heart disease and stroke. Heart disease was the leading cause for whites, followed by cancer and stroke. Heart disease was also the leading cause of death for Hispanics, followed by cancer and AIDS/HIV-related diseases. Nine of the ten leading causes of death for whites were chronic conditions (such as heart disease, cancer, stroke, respiratory illness, and diabetes), which especially afflict older people. The leading causes of death for blacks included AIDS/HIV-related diseases and homicide, which occur more frequently among younger people. For Asians, motor vehicle-related injuries and suicide were among the top ten leading causes; for Hispanics, AIDS/HIV-related diseases, perinatal conditions, homicide and chronic liver disease were among the ten leading causes of death in 1997.

### *Cancer*

The leading cause of cancer death was lung cancer. It was also the leading cause of cancer death for each gender. The lung cancer mortality rate for women was 46% higher than the breast cancer mortality rate. The second leading cause of cancer death was breast cancer for females and colorectal cancer for males. Leukemia was the leading cause of cancer death for persons under the age of 25, while lung cancer was the leading cause of cancer death for persons ages 45 and above. Among the 25-44 year age group, female breast cancer was the leading cause of cancer death.

### *AIDS and HIV-Related Deaths*

The dramatic decline in the number of AIDS/HIV-related deaths continued in 1997 - 242 Massachusetts residents died from AIDS/HIV-related illnesses. This represented a 60% decline from 1996 and a 74% reduction in the last two years. The dramatic decline is due in large part to improved treatment efforts that have resulted in increased longevity of persons living with AIDS/HIV-related diseases.

In 1997, AIDS was the third leading cause of death for Hispanics and the fifth leading cause for blacks. It was the 21st leading cause of deaths for whites. AIDS was the fifth leading cause of death for Massachusetts residents ages 25-44; just two years ago, AIDS was the leading cause of death in this age group. AIDS remained the leading cause of death for persons ages 25-44 among blacks and Hispanics.



### *Intentional and Unintentional Injuries*

In 1997, 4.2% of all deaths to Massachusetts residents were the result of intentional and unintentional injuries (2,314 deaths). Half of these deaths were due to fires, falls, drownings and other injuries, while 21% were due to suicide, 22% to motor vehicle-related injuries, and 6% to homicide. The number of deaths and the age-adjusted death rates for motor vehicle-related deaths and suicides have dropped substantially since 1990. The number of motor vehicle deaths has declined 25% and the number of suicides 10%; the number of deaths due to other injuries has increased 13% since 1990.

The motor vehicle-related death rate, the suicide death rate, and the homicide death rate varied enormously by sex. The male motor-vehicle death rate was more than twice the female rate (11.2 vs. 4.7), while the male suicide rate was more than four times the suicide rate for females: 11.7 deaths per 100,000 males compared with 2.7 for females. The homicide rate for males was also three times greater than the homicide rate for females, 3.5 vs. 1.3 deaths per 100,000 persons.

In addition, there were large differences in the homicide rates by race: the rate for blacks (12.7) was seven times greater than the rate for whites (1.7), and almost double the rate for Hispanics (7.1). The 1996 declines in homicide rates for blacks and Hispanics were maintained in 1997.

### *Causes of Infant Death*

In 1997, 425 infant deaths occurred among Massachusetts residents, an increase of 22 infant deaths from 1996. The overall leading causes of infant death were conditions arising in the perinatal period (234 deaths) and congenital anomalies (86 deaths). This represents an increase from 73 congenital anomaly infant deaths in 1996. Other causes of infant death were sudden infant death syndrome (SIDS, 30 deaths) and homicide (3 deaths). SIDS was the leading cause of death in the post neonatal period (28 days - 1 year), while disorders relating to short gestation and low birthweight was the leading cause in the neonatal period. Certain conditions originating in the perinatal period and congenital anomalies represented the two leading causes of death for infants among whites, blacks and Hispanics.



# TRENDS



## **Trends**

In 1997, 54,634 Massachusetts residents died: 29,261 females and 25,373 males (Table 1). The number of resident deaths in 1997 decreased slightly more than 1% from 1996 (553 deaths) but represented a 3% increase since 1990. The age-adjusted death rate in 1997 for Massachusetts was 431.3 deaths per 100,000 persons, an 8% decline since 1990. There were 425 deaths to persons less than one year of age in 1997, 22 more deaths than in 1996, but 35% lower than in 1990. The number of occurrence deaths in Massachusetts was 55,527 in 1997. (Please refer to the Glossary in the Appendix for a definition of occurrence deaths, age-adjusted rates and other technical terms.)

The age-adjusted total mortality rates varied greatly by sex and race in Massachusetts in 1997. Overall, Asians and persons of other races had the lowest rate, 254.6 deaths per 100,000 persons; blacks had the highest rate, 598.0. The rate for whites was 426.5 and for Hispanic persons, 269.9. (The rates for Asians and Hispanics do not appear in Table 1.) The age-adjusted mortality rate for women was substantially lower than for men: 344.6 vs. 541.6. Among Hispanics, the female rate was 197.2 and the male rate was 355.0; for whites, the female rate was 340.4, and the male rate was 536.2; and among blacks, the female rate was 470.0, and the male rate was 764.8 deaths per 100,000 persons. (Please note that the age-adjusted death rates, particularly for minority populations, may differ substantially from previously published data for 1991 to 1996. This is due to the use of revised population estimates published by the Massachusetts Institute for Social and Economic Research or MISER in July 1998.)

The 1997 Massachusetts age-adjusted death rate was 10% lower than the preliminary 1997 United States rate, and Massachusetts age-adjusted death rates have been consistently lower than the US rate throughout the 1980's and early 1990's (Table 2). The Massachusetts age-adjusted death rates have been consistently lower than the US rates for heart disease, stroke, and unintentional injuries, and higher than the US rates for cancer and pneumonia/influenza. Since 1980, the age-adjusted heart disease and unintentional injury death rates have declined much more rapidly in Massachusetts than in the nation as a whole. The Massachusetts cancer mortality rate declined 3% from 1996 to 1997.

In 1997, life expectancy at birth in Massachusetts was 78.1 years (data not shown). For men, life expectancy was 75.4 years and for women, 80.6 years. Life expectancy varied by race as well (Figure 1). At birth, white women could expect to live 80.7 years, black women 77.7 years, white men 75.5 years, and black men 70.8 years. At age 65, men could expect to live an average of 16.2 more years while women could expect to live another 19.6 years.

Massachusetts has a rich history of collecting and reporting vital statistics, as demonstrated by Figures 2 and 3, which present historical mortality trend data for the Commonwealth from 1842 to the present. In 1842, infectious diseases were the leading cause of death in Massachusetts, accounting for 47% of all deaths; 4% of all deaths were due to intentional and unintentional injuries, 2% of all deaths were attributed to heart disease, and 1% of all deaths were due to cancer. By 1997, 30% of the deaths in Massachusetts were due to heart disease, 25% were due to cancer, 7% were due to infectious diseases, and 4% were due to intentional and unintentional injuries. The

proportion of deaths due to infectious diseases decreased by 85% between 1842 and 1997. The most marked period of decline was from the mid-1800s until the early 1950s, with one notable exception occurring in 1918 when 13,783 residents died from the influenza epidemic. (This is compared to only 494 influenza deaths in 1917.) From the 1950s until 1985, the proportion of deaths from infectious diseases remained fairly constant at around 5%. However, since the mid-1980s, it has risen, primarily a reflection of the rise in the number of deaths from AIDS/HIV-related causes. However, from 1995 to 1997, the number of infectious disease deaths in Massachusetts declined from 4,622 to 3,924 due to the dramatic decrease in AIDS and HIV-related mortality.

**Table 1. Trends in Mortality Characteristics<sup>1</sup> Massachusetts: 1980, 1985, 1990 - 1997**

Year		1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	
Resident deaths	Number	54,934	55,597	53,008	53,010	53,804	55,557	54,914	55,296	55,187	54,634	
	Crude rate <sup>2,3,4</sup>	957.5	946.0	881.0	877.5	886.6	910.1	893.8	895.9	889.6	876.4	
	Age-adjusted rate <sup>5</sup>	550.7	523.7	471.7	470.6	472.4	472.4	463.9	455.4	444.1	431.3	
Race of decedent <sup>6</sup>												
	White											
	Number	53,251	53,580	50,779	50,814	51,525	53,182	52,465	52,721	52,720	52,146	
	Percent	96.9	96.4	95.8	95.8	95.8	95.7	95.5	95.3	95.5	95.4	
	Age-adjusted rate	549.1	498.9	465.6	465.8	467.5	467.3	458.7	448.6	439.5	426.5	
Black	Number	1,508	1,779	1,879	1,887	1,957	1,969	2,079	2,136	2,025	2,033	
	Percent	2.8	3.2	3.5	3.6	3.6	3.5	3.8	3.9	3.7	3.7	
	Age-adjusted rate	932.6	761.1	628.2	608.7	630.7	620.0	638.0	649.6	600.8	598.0	
Asian/Other	Number	141	214	341	303	319	394	368	438	433	445	
	Percent	0.3	0.4	0.6	0.5	0.6	0.7	0.7	0.8	0.8	0.8	
Unknown	Number	34	24	9	5	3	12	2	1	9	10	
	Percent	-	-	-	-	-	-	-	-	-	-	
Sex of decedent <sup>7</sup>												
	Female											
	Number	27,563	28,367	27,490	27,550	27,770	29,109	28,733	29,262	29,152	29,261	
	Age-adjusted rate	377.9	362.0	360.0	360.6	361.2	364.5	359.9	355.9	346.0	344.6	
Male	Number	27,369	27,230	25,518	25,460	26,034	26,448	26,181	26,034	26,035	25,373	
	Age-adjusted rate	663.6	627.5	618.5	616.2	618.1	611.8	596.8	581.2	568.3	541.6	
Age of decedent <sup>7</sup>												
	<1 year	Number	748	746	649	576	569	523	499	419	403	425
	1-14 years	Number	297	246	205	207	225	239	192	204	197	174
	15-24 years	Number	940	763	586	538	470	464	473	452	434	422
	25-44 years	Number	2,117	2,303	2,682	2,912	3,062	3,055	3,210	3,196	2,720	2,348
	45-64 years	Number	10,504	9,691	8,138	7,877	7,973	7,920	7,766	7,611	7,477	7,416
	65+ years	Number	40,326	41,843	40,742	40,894	41,503	43,349	42,769	43,409	43,950	43,847

1. Deaths presented in all tables and figures are resident deaths unless otherwise specified. 2. Deaths per 100,000 residents. 3. See Glossary for further definition of terms and rates. 4. Resident population data for 1985 are interpolations of the 1980 and 1990 US Census; for 1991 through 1995, MISER annual population estimates released in July 1998 were used; 1996 and 1997 populations are extrapolations of the 1990 Census and the 1995 MISER estimates. **PLEASE NOTE: DIFFERENCES BETWEEN THESE RATES AND PREVIOUSLY PUBLISHED DATA REFLECT JULY 1998 MISER UPDATES IN POPULATION ESTIMATES FOR 1991-1996.** 5. Rates are age-adjusted per 100,000 residents using the 1940 US Census standard population. 6. See other tables for Hispanic data. 7. Column sum may not equal total because the age or sex of some decedents was unknown.

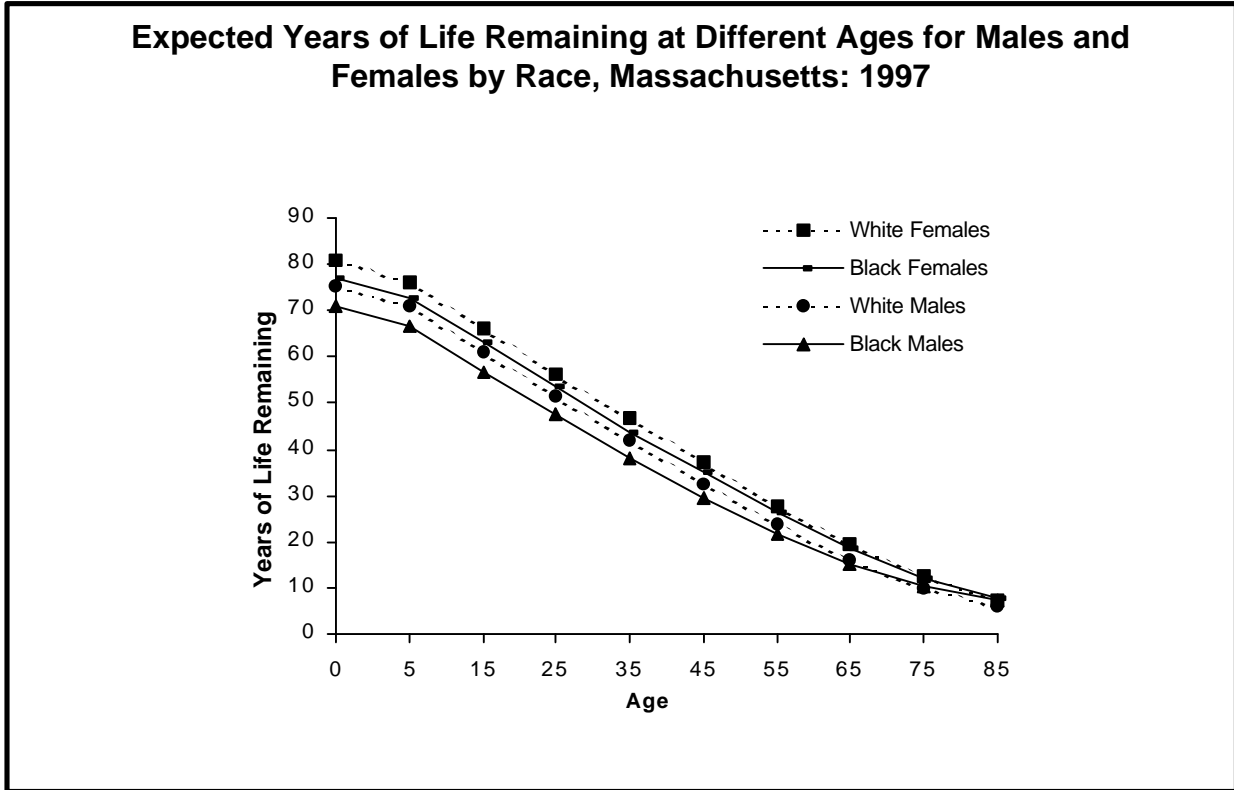
**Table 2. Five Leading Causes of Death<sup>1</sup> Age-Adjusted Rates<sup>2</sup>  
Massachusetts and United States: 1980, 1985, 1990-1997**

Year		Heart disease <sup>3</sup>		Cancer		Stroke		Pneumonia/ Influenza		Unintentional Injuries		All Causes	
		MA	US	MA	US	MA	US	MA	US	MA	US	MA	US
1980	Rate <sup>2</sup>	197.7	202.0	136.6	132.8	34.2	40.8	16.7	12.9	30.4	42.3	550.7	585.8
	% of Total	39.9	38.2	22.2	20.9	7.9	8.6	4.0	2.7	3.9	5.3		
1985	Rate	178.7	180.5	140.2	133.6	27.3	32.3	14.7	13.4	25.2	34.7	523.7	546.1
	% of Total	37.9	37.2	23.5	22.0	6.8	7.3	4.0	3.2	3.4	4.5		
1990	Rate	138.2	150.3	136.7	133.0	22.5	27.6	14.2	13.5	19.4	32.7	471.7	515.1
	% of Total	33.4	33.5	25.3	23.4	6.2	6.7	4.3	3.6	2.9	4.3		
1991	Rate	134.4	146.1	140.1	132.6	21.7	26.5	14.5	12.6	18.2	31.7	470.6	507.9
	% of Total	32.2	33.2	26.0	23.8	6.2	6.6	4.5	3.5	2.7	4.2		
1992	Rate	131.9	144.5	143.2	133.2	21.6	26.1	13.9	12.7	16.0	29.2	472.4	504.9
	% of Total	31.7	33.1	26.3	23.9	6.2	6.6	4.5	3.5	2.4	4.0		
1993	Rate	131.7	145.3	139.2	132.6	21.3	26.5	15.9	13.5	16.3	30.3	472.4	513.3
	% of Total	31.7	32.6	25.2	23.4	6.1	6.6	5.0	3.6	2.4	3.9		
1994	Rate	124.6	140.4	137.0	131.5	21.0	26.5	15.0	13.0	15.5	30.3	463.9	507.4
	% of Total	30.8	32.1	25.3	23.4	6.1	6.7	4.8	3.6	2.4	4.0		
1995	Rate	118.6	138.3	136.2	129.9	21.0	26.7	14.9	12.9	14.1	30.5	455.4	503.9
	% of Total	30.2	31.8	25.4	23.3	6.3	6.8	4.9	3.6	2.2	4.0		
1996	Rate	118.1	134.6	132.7	129.9	20.2	26.5	14.8	12.6	14.2	30.1	444.1	492.5
	% of Total	30.4	31.6	25.2	23.4	6.1	6.9	5.1	3.6	2.3	4.0		
1997	Rate	114.3	129.9	129.0	125.0	20.2	25.9	14.1	13.2	14.8	28.9	431.2	478.2 <sup>4</sup>
	% of Total	30.2	31.3	25.0	23.2	6.2	6.9	4.9	3.8	2.3	4.0		

1. Cause of death: the disease or injury that initiated the events leading to death; or the circumstances of the unintentional or intentional injury that resulted in the death. 2. All rates are age-adjusted per 100,000 residents using the 1940 US Census standard population. **PLEASE NOTE: DIFFERENCES BETWEEN THESE RATES AND PREVIOUSLY PUBLISHED DATA REFLECT JULY 1998 MISER UPDATES IN POPULATION ESTIMATES FOR 1991-1996.** 3. International Classification of Diseases, Ninth Revision (ICD-9) codes used in this publication are listed in the Appendix. 4. The 1997 US data are derived from "Births and Deaths: Preliminary Data for 1997, National Vital Statistical Report," Vol. 47, No. 4, October 7, 1998, National Center for Health Statistics, Centers for Disease Control and Prevention, US Department of Health and Human Services.



Figure 1



Years of Life Remaining, Massachusetts: 1997

At Age:	White Females	Black Females	White Males	Black Males
Birth	80.7	77.2	75.5	70.8
1 year old*	80.1	76.8	74.9	70.4
5 years old	76.2	72.8	71.0	66.5
15 years old	66.2	63.0	61.1	56.7
25 years old	56.4	53.5	51.5	47.5
35 years old	46.6	43.9	41.9	38.2
45 years old	37.0	34.9	32.6	29.5
55 years old	27.8	26.3	23.8	21.5
65 years old	19.6	18.7	16.2	15.2
75 years old	12.4	12.3	9.9	10.2
85 years old	7.4	7.6	6.0	7.4

\* Not shown in the figure.

Figure 2

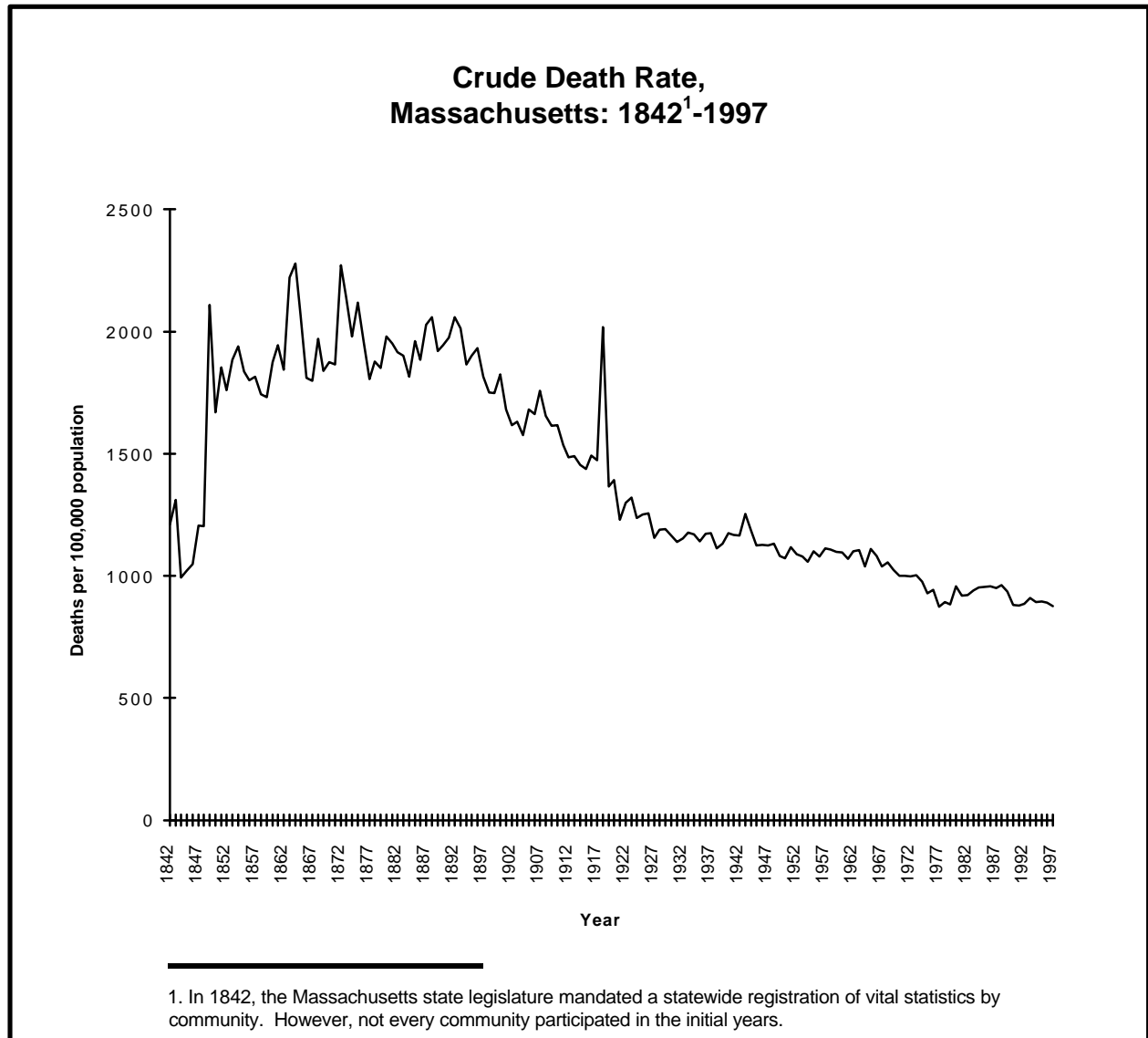
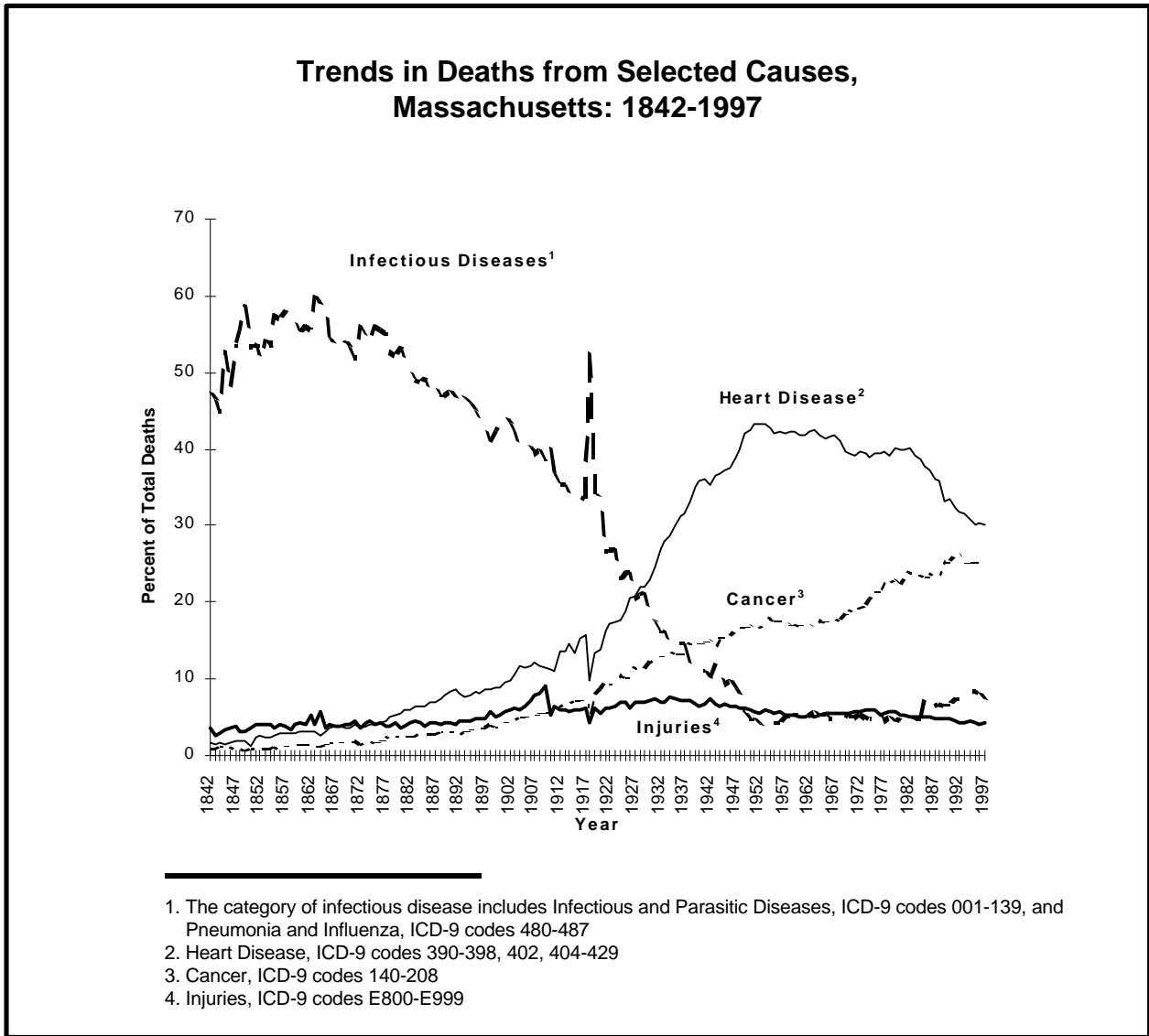


Figure 3





# LEADING CAUSES



## ***Leading Causes***

Heart disease and cancer continued to be the leading causes of death among Massachusetts residents (Figure 4). In 1997, 16,482 Massachusetts residents died of heart disease yielding an age-adjusted death rate of 114.3 per 100,000 persons. Cancer was the second leading cause of death, representing 13,675 deaths, with an age-adjusted rate of 129.0 (Table 2). (Note that the number of deaths due to heart disease is greater than the number of deaths due to cancer, yet the age-adjusted death rate for heart disease is lower than the age-adjusted cancer rate. Rates are weighted by the age distribution of a standard population, enabling direct comparisons to age-adjusted rates from other populations. A large proportion of heart disease deaths occurred among the oldest age group which had the lowest weighting factor, thus yielding an overall lower age-adjusted rate than cancer.)

On average, 150 Massachusetts residents died every day in 1997 (Figure 5). Approximately 45 of these deaths were due to heart disease and 38 were due to cancer.

Heart disease was the leading cause of death for Massachusetts residents ages 65 and above, while cancer was the leading cause of death for persons ages 25-64 (Table 3).

In 1997, cancer remained the number one leading cause of death for Massachusetts residents ages 25-44. Heart disease, external causes of unknown intent, and suicide were other leading causes. For the first time since 1988, AIDS/HIV-related diseases was not among the four leading causes of death in this age group.

For persons ages 15-24, injuries accounted for 56% of the deaths. Motor vehicle-related deaths accounted for the highest percentage of these deaths, followed by homicides and suicides. In 1997, motor vehicle-related deaths increased 17% from 1996 (136 vs. 116), while homicide deaths decreased 40% from 1996 (43 vs. 72).

Among 1-14 year-olds, the leading causes of death were unintentional injuries (22 deaths), cancer (21 deaths), congenital anomalies (20 deaths), and motor vehicle-related injuries (20 deaths).

The leading causes of death varied markedly by race and ethnicity in Massachusetts in 1997 as in previous years (Table 4). Cancer was the number one cause among Asians and blacks in 1997, followed by heart disease and stroke. Heart disease was the leading cause for whites followed by cancer and stroke. Heart disease was also the leading cause of death for Hispanics, followed by cancer and AIDS/HIV-related diseases. Nine of the ten leading causes of death for whites were chronic conditions (such as heart disease, cancer, stroke, respiratory illness, and diabetes), which especially afflict older people. The leading causes of death for blacks included AIDS/HIV-related diseases and homicide, which occur more frequently among younger people. For Asians, motor vehicle-related injuries and suicide were among the top ten leading causes; for Hispanics, AIDS/HIV-related diseases, perinatal conditions, homicide and chronic liver disease were among the leading causes of death in 1997.

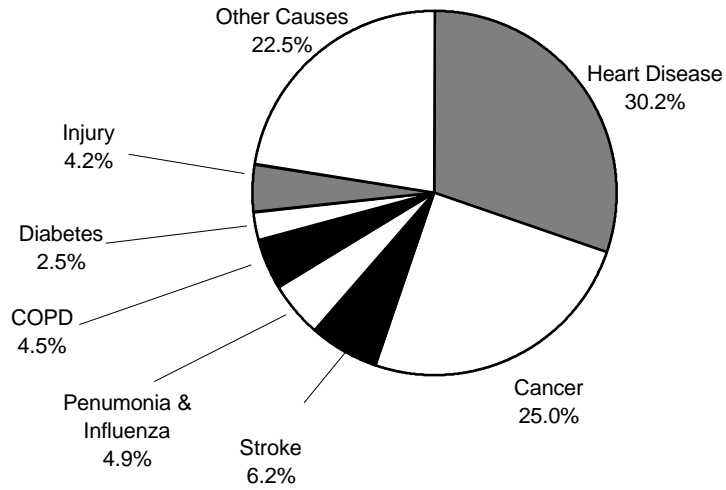
The differences in the leading causes of death among whites, blacks, Asians, and Hispanics result from a combination of factors. Younger age distributions within the Massachusetts black and Hispanic populations yield higher proportions of deaths from

causes typically affecting the young. Also, among the younger age groups, blacks and Hispanics have higher age-specific death rates for such causes as AIDS and homicide as compared to whites. Among persons over the age of 44, Hispanics have lower age-specific rates of death from heart disease and cancer as compared to whites and blacks (Table 5).



**Figure 4**

**Percentage Distribution of Leading Causes of Death<sup>1</sup>  
Massachusetts: 1997**

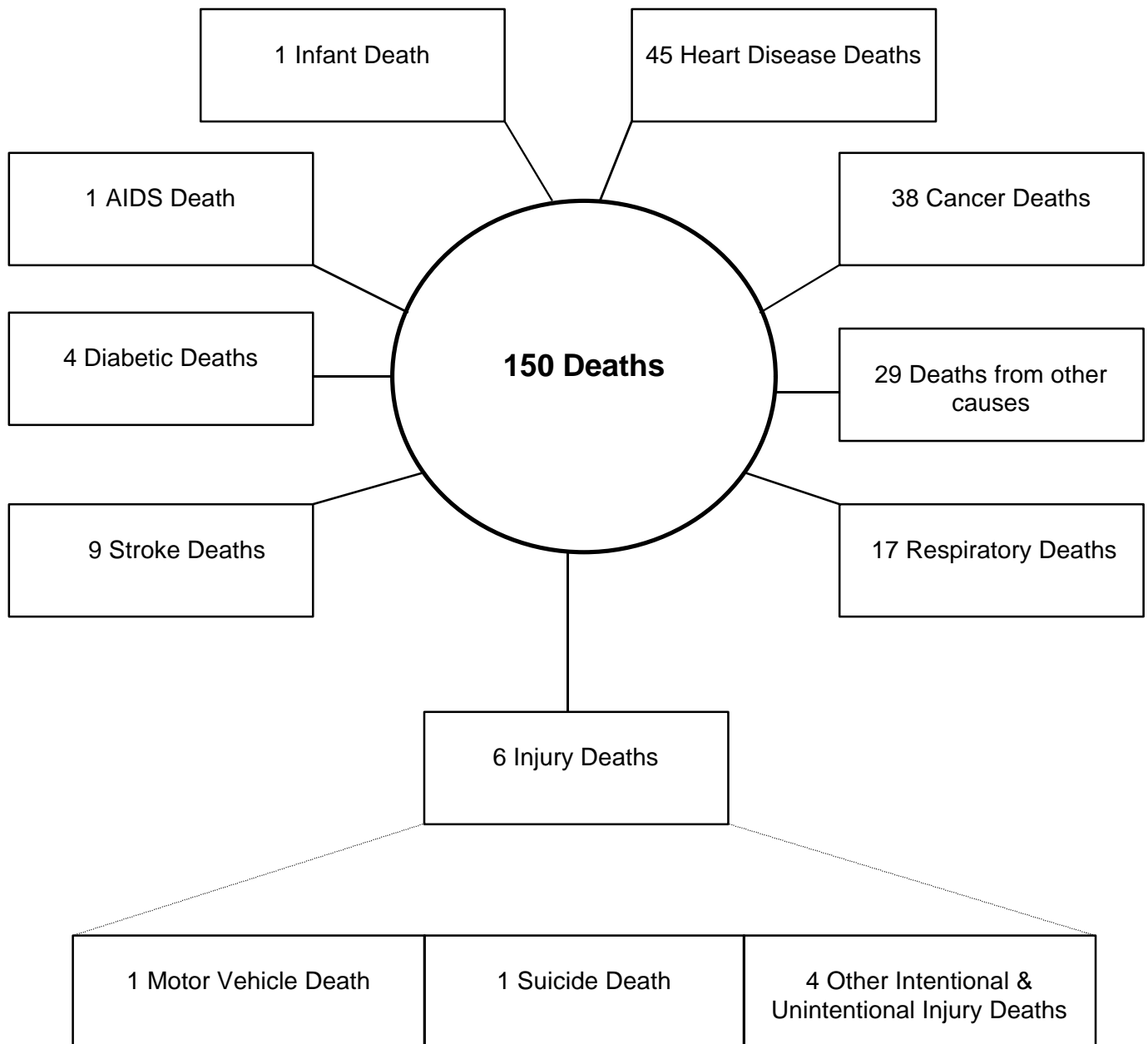


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<sup>1</sup> Number of Total Deaths = 54,634

**Figure 5. Daily Death Statistics  
Massachusetts: 1997**

Every day in 1997, residents of Massachusetts experienced an average of the following:



**Table 3. Leading Causes of Death<sup>1</sup> by Age, All Persons, Massachusetts: 1997**

Age	Cause of Death	Deaths	
		Number	Rate <sup>2</sup>
<b>1-14 years</b>	<b>TOTAL</b>	<b>174</b>	<b>14.8</b>
	Unintentional injuries, excluding motor vehicle injuries	22	1.9
	Cancer	21	1.8
	Congenital anomalies	20	1.7
	Motor vehicle-related injuries	20	1.7
<b>15-24 years</b>	<b>TOTAL</b>	<b>422</b>	<b>57.6</b>
	Motor vehicle-related injuries	136	18.6
	Suicide	61	8.3
	Homicide <sup>3</sup>	41	5.6
	Cancer	35	4.8
<b>25-44 years</b>	<b>TOTAL</b>	<b>2,348</b>	<b>110.7</b>
	Cancer	427	20.1
	Heart disease	278	13.1
	External causes, unknown intent	277	13.1
	Suicide	213	10.0
<b>45-64 years</b>	<b>TOTAL</b>	<b>7,416</b>	<b>577.5</b>
	Cancer	2,952	229.9
	Heart disease	1,890	147.7
	Diabetes	240	18.7
	Cerebrovascular disease (stroke)	227	17.7
<b>65 + years</b>	<b>TOTAL</b>	<b>43,847</b>	<b>5249.6</b>
	Heart disease	14,266	1,708.0
	Cancer	10,238	1,225.7
	Cerebrovascular disease (stroke)	3,109	372.2
	Pneumonia and Influenza	2,480	296.9

1. See Appendix for ICD-9 codes. 2. Number of deaths per 100,000 persons in each age group. 3. The NCHS categories for 72 selected causes of death combines Homicide (ICD-9 E960-969) and Legal Intervention (ICD-9 E970-978). There were no deaths due to legal intervention in this age group in 1997, (one overall).

**Table 4. Leading Causes of Death<sup>1</sup> and Age-Adjusted Death Rates by Race and Hispanic Ethnicity<sup>2</sup>, Massachusetts: 1997**

White			Black			Asian		
Cause	#	Rate <sup>3</sup>	Cause	#	Rate	Cause	#	Rate
<b>Total</b>	<b>52,146</b>	<b>426.5</b>	<b>Total</b>	<b>2,033</b>	<b>598.0</b>	<b>Total</b>	<b>403</b>	<b>262.9</b>
Heart disease	15,918	114.1	Cancer	497	159.8	Cancer	121	36.9
Cancer	13,045	128.9	Heart disease	482	139.6	Heart disease	73	20.3
Stroke	3,264	19.8	Stroke	104	28.6	Stroke	32	9.3
Pneumonia/ influenza	2,583	14.0	Diabetes	92	28.4	Pneumonia/ influenza	17	3.9
COPD <sup>4</sup>	2,380	18.5	AIDS/HIV-related	74	21.0	Motor vehicle	13	4.0
Diabetes	1,256	11.3	Pneumonia/ influenza	65	16.9	Diabetes	12	3.0
Nephritis	886	6.0	Nephritis	48	13.9	Unintentional injury, excl. motor vehicle	11	3.5
Unintentional injury, excl. motor vehicle	741	6.8	Septicemia	44	14.0	Suicide	10	2.9
Septicemia	653	4.6	COPD <sup>4</sup>	42	12.7	COPD <sup>4</sup>	8	2.4
Other arterial disease	649	4.6	Homicide	42	12.7	Septicemia	7	2.2

Hispanic			Total		
Cause	#	Rate	Cause	#	Rate
<b>Total</b>	<b>749</b>	<b>269.9</b>	<b>Total</b>	<b>54,634</b>	<b>431.3</b>
Heart disease	148	61.3	Heart disease	16,482	114.3
Cancer	129	55.1	Cancer	13,675	129.0
AIDS/HIV-related	47	14.2	Stroke	3,401	20.2
Diabetes	38	17.4	Pneumonia/ influenza	2,667	14.1
Perinatal conditions	37	6.1	COPD <sup>4</sup>	2,432	18.2
Stroke	33	12.9	Diabetes	1,361	11.7
Pneumonia/ influenza	25	8.1	Nephritis	941	6.3
Homicide	25	7.1	Unintentional injury, excl. motor vehicle	780	7.0
Unintentional injury, excl. motor vehicle	21	5.7	Septicemia	704	5.0
Chronic liver disease	20	8.8	Other artery disease	677	4.7

1. Ranking based on number of deaths. 2. Persons of Hispanic ethnicity are also included in the race categories, consistent with the US Census population classification. 3. All rates are age-adjusted per 100,000 residents using the 1940 US Census standard population. 4. Chronic Obstructive Pulmonary Disease.

**Table 5. Number and Age-Specific Rates for Selected Causes of Death by Race and Hispanic Ethnicity, Massachusetts: 1997**

Selected Causes	<u>Total</u>		<u>White</u>		<u>Black</u>		<u>Asian</u>		<u>Hispanic</u>	
	#	Rate <sup>2</sup>	#	Rate	#	Rate	#	Rate	#	Rate
<b>Age: 1-14, TOTAL</b>	174	14.8	136	13.1	28	29.9	10	23.4	19	17.7
Unintentional injuries, excluding motor vehicle injuries	22	1.9	14	1.3	6	6.4	2	-- <sup>3</sup>	1	-- <sup>3</sup>
Cancer	21	1.8	19	1.8	1	-- <sup>3</sup>	1	-- <sup>3</sup>	3	-- <sup>3</sup>
Congenital Anomalies	20	1.7	16	1.5	1	-- <sup>3</sup>	3	-- <sup>3</sup>	0	0.0
Motor vehicle-related injuries	20	1.7	14	1.3	5	5.3	1	-- <sup>3</sup>	2	-- <sup>3</sup>
<b>Age: 15-24, TOTAL</b>	422	57.6	345	53.1	64	117.9	11	40.7	38	63.4
Motor vehicle-related injuries	136	18.6	122	18.8	12	22.1	2	-- <sup>3</sup>	7	11.7
Suicide	61	8.3	54	8.3	5	9.2	2	-- <sup>3</sup>	3	-- <sup>3</sup>
Homicide <sup>4</sup>	41	5.6	19	2.9	20	36.9	2	-- <sup>3</sup>	12	20.0
Cancer	35	4.8	30	4.6	4	-- <sup>3</sup>	1	-- <sup>3</sup>	2	-- <sup>3</sup>
<b>Age: 25-44, TOTAL</b>	2,348	110.7	2,053	106.9	250	206.9	41	55.5	183	149.2
Cancer	427	20.1	385	20.1	30	24.8	12	16.2	19	15.5
Heart disease	278	13.1	247	12.9	27	22.3	4	-- <sup>3</sup>	17	13.9
External causes, undetermined intent	277	13.1	254	13.2	21	17.4	0	0.0	31	25.3
Suicide	213	10.0	203	10.6	6	5.0	4	-- <sup>3</sup>	6	4.9
<b>Age: 45-64, TOTAL</b>	7,416	577.5	6,823	568.0	503	956.8	78	285.6	208	492.0
Cancer	2,952	229.9	2,764	230.1	156	296.8	29	106.2	63	149.0
Heart disease	1,896	147.7	1,754	146.0	123	234.0	16	58.6	42	99.4
Diabetes	240	18.7	216	18.0	22	41.8	2	-- <sup>3</sup>	14	33.1
Stroke	227	17.7	203	16.9	15	28.5	9	32.9	11	26.0
<b>Age: 65+, TOTAL</b>	43,847	5249.6	42,440	5286.8	1,122	5077.3	251	2784.6	246	1611.8
Heart Disease	14,266	1708.0	13,888	1730.0	319	1443.5	53	588.0	86	563.5
Cancer	10,238	1225.7	9,845	1226.4	306	1384.7	78	865.3	41	268.6
Stroke	3,109	372.2	3,009	374.8	77	348.4	22	244.1	18	117.9
Pneumonia	2,480	296.9	2,418	301.2	45	203.6	15	166.4	10	65.5

1. Persons of Hispanic ethnicity are also included in the race categories, consistent with the US Census population classification. 2. Number of deaths per 100,000 persons in each age group.  
3. Calculations based on fewer than five events are excluded. 4. The NCHS categories for 72 selected causes of death combines Homicide (ICD-9 E960-969) and Legal Intervention (ICD-9 E970-978). There were no deaths due to legal intervention in this age group.



# **HEART DISEASE AND CANCER**





## ***Heart Disease and Cancer***

Heart disease and cancer continued to be the first and second leading causes of death among Massachusetts residents in 1997 (16,482 heart disease deaths and 13,675 cancer deaths, yielding age-adjusted rates of 114.3 and 129.0 per 100,000 persons respectively). (Table 2.) (Note that the number of deaths due to heart disease is greater than the number of deaths due to cancer, yet the age-adjusted death rate for heart disease is lower than the age-adjusted cancer rate. Rates are weighted by the age distribution of a standard population, enabling direct comparisons to age-adjusted rates from other populations. A large proportion of heart disease deaths occurred among the oldest age group which had the lowest weighting factors thus yielding an overall lower age-adjusted rate than cancer. Refer to the Glossary in the Appendix for a definition of age-adjusted rates.)

The age-adjusted heart disease death rate declined 42% in Massachusetts from 1980 to 1997. However, the age-adjusted cancer death rate has declined by only 6% during this time period.

The age-adjusted heart disease rates have declined dramatically in Massachusetts since 1980 for all race-sex groups (Table 6). The age-adjusted cancer death rates have fluctuated over the past 25 years, with the highest rates consistently being among black males, followed by white males, black females and white females. Since 1980, the cancer death rate has declined 12% for white males and 6% for white females.

Cancer is the leading cause of death for persons ages 25-64 while heart disease is the leading cause of death for Massachusetts residents ages 65 and above (Table 3).

The overall leading cause of cancer death was lung cancer (Table 7). It was also the leading cause of cancer death for each sex. The lung cancer mortality rate for women was 46% higher than the breast cancer mortality rate. The second leading cause of cancer death was breast cancer for females and colorectal cancer for males.

Leukemia was the leading cause of cancer death for persons under the age of 25 while lung cancer was the leading cause of cancer death for persons ages 45 and above (Table 8). Among the 25-44 year age group, female breast cancer was the leading cause of cancer death.

In Massachusetts in 1997, lung cancer was the leading cause of cancer death for each race group, followed by colorectal cancers (Table 9). The overall age-adjusted cancer mortality rate for blacks was 24% higher than for whites (159.8 per 100,000 persons vs. 128.9). The cancer death rate for Hispanics was less than half the rate for whites (55.1 vs 128.9). The age-adjusted lung cancer death rates for blacks and whites were substantially higher than for Hispanics and Asians in 1997. The age-adjusted prostate cancer death rate for blacks was approximately 2.5 times higher than the rate for whites.

**Table 6. Heart Disease and Cancer Deaths by Race and Sex,  
Age-Adjusted Rates,<sup>1</sup> Massachusetts: 1980-1997**

**Heart Disease**

<b>Year</b>	<b><u>White</u></b>			<b><u>Black</u></b>		
	<b>Male</b>	<b>Female</b>	<b>Total</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
1980	282.3	135.5	197.6	279.2	157.0	209.7
1985	252.7	119.6	176.5	250.1	150.4	193.0
1990	193.1	96.7	138.2	222.1	120.4	162.3
1995 <sup>2</sup>	163.7	84.0	118.9	170.5	114.5	138.6
1996 <sup>2</sup>	162.2	84.0	118.5	175.8	102.3	134.3
1997	154.3	82.4	114.1	187.0	102.7	139.6

**Cancer**

<b>Year</b>	<b><u>White</u></b>			<b><u>Black</u></b>		
	<b>Male</b>	<b>Female</b>	<b>Total</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
1980	169.0	117.4	137.2	223.3	120.0	162.3
1985	169.8	120.6	139.6	198.3	115.0	150.0
1990	167.2	117.5	137.4	194.1	123.9	151.6
1995 <sup>2</sup>	162.7	116.9	135.5	215.1	132.9	166.6
1996 <sup>2</sup>	159.4	113.5	132.3	202.1	129.9	160.3
1997	151.1	113.7	128.9	207.9	127.6	159.8

1. All rates are age-adjusted per 100,000 residents using the 1940 US Census standard population. Rates for 1980, 1985, and 1990 are obtained through CDC WONDER using the Compressed Mortality File (CMF). 2. Differences between these rates and previously published data reflect MISER July 1998 updates in population estimates for 1995-1996.

**Table 7. Number and Age-Adjusted Rates<sup>1</sup> of Cancer Deaths by Selected Causes<sup>2</sup> and Sex, Massachusetts: 1997**

Cause of Death	ICD-9 Code	Total		Female		Male	
		#	Rate <sup>3</sup>	#	Rate	#	Rate
Total Cancer Deaths	140-208	13,675	129.0	6,951	113.4	6,724	151.8
Esophagus	150	306	3.2	75	1.1	231	5.8
Stomach	151	362	3.0	161	2.0	201	4.4
Colon, rectum, rectosigmoid junction & anus	153-154	1,532	12.9	823	10.8	709	15.6
Pancreas	157	714	6.6	386	5.6	328	7.8
Trachea, bronchus and lung	162	3,629	36.8	1,660	29.8	1,969	46.5
Melanoma of the skin	172	205	2.3	84	1.8	121	2.9
Female breast	174	1,125	20.4	1,125	20.4	-	-
Cervix	180	79	1.7	79	1.7	-	-
Body of uterus and of uterus, part unspecified	179,182	152	2.4	152	2.4	-	-
Ovary	183	330	5.9	330	5.9	-	-
Prostate	185	777	13.5	-	-	777	13.5
Bladder	188	354	2.7	124	1.5	230	4.5
Kidney and other and unspecified urinary organs	189	269	2.6	100	1.5	169	4.0
Brain and other and unspecified parts of nervous system	191,192	269	3.1	129	2.6	140	3.6
Hodgkin's disease	201	28	0.3	20	0.4	8	0.2
Non-Hodgkin's lymphoma	200,202 (except 202.4)	599	5.7	315	4.8	284	6.7
Multiple myeloma and other immunoproliferative neoplasms	203	232	2.1	109	1.7	123	2.7
Leukemia	202.4, 204-208	460	4.2	220	3.2	240	5.5
All other cancers	Residual	2,253	21.4	1,059	16.1	1,194	28.0

1. All rates are age-adjusted by the direct method using the 1940 US Census population. Rates are per 100,000 population. 2. The grouping of ICD-9 codes for selected causes of cancers used in this document was updated starting with Advance Data Deaths: 1994. Please refer to the Technical Notes in the Appendix for a detailed explanation. 3. The total resident population is used to calculate all "Total Rates" except for ICD-9 174 to 183, which are based on the total female population, and ICD-9 185, which is based on the total male population.

**Table 8. Selected Causes of Cancer Deaths by Age, Massachusetts: 1997**

Age	Cause of death <sup>1</sup>	ICD-9 Code	Number	Age-specific rate <sup>2</sup>
<b>1 - 14</b>	<b>TOTAL</b>		<b>21</b>	<b>1.8</b>
	Leukemia	202.4, 204-208	8	0.7
	Brain & other unspecified parts of the nervous system	191	5	0.4
	Kidney and urinary tract organs	189	1	-- <sup>3</sup>
	Non-Hodgkin's lymphoma	200,202 (except 202.4)	1	-- <sup>3</sup>
<b>15 - 24</b>	<b>TOTAL</b>		<b>35</b>	<b>4.8</b>
	Leukemia	202.4, 204-208	12	1.6
	Non-Hodgkin's lymphoma	200,202 (except 202.4)	8	1.1
	Melanoma	172	2	-- <sup>3</sup>
	Brain & other unspecified parts of the nervous system	191	2	-- <sup>3</sup>
<b>25 - 44</b>	<b>TOTAL</b>		<b>427</b>	<b>20.1</b>
	Female breast	174	87	8.1 <sup>4</sup>
	Trachea, bronchus & lung	162	50	2.4
	Colon, rectum	153-154	30	1.4
	Non-Hodgkin's lymphoma	200,202 (except 202.4)	26	1.2
<b>45 - 64</b>	<b>TOTAL</b>		<b>2,952</b>	<b>229.9</b>
	Trachea, bronchus & lung	162	922	71.8
	Female breast	174	314	47.2 <sup>4</sup>
	Colon, rectum	153-154	251	19.5
	Pancreas	157	145	11.3
<b>65 +</b>	<b>TOTAL</b>		<b>10,238</b>	<b>1,225.7</b>
	Trachea, bronchus & lung	162	2,656	318.0
	Colon, rectum	153-154	1,251	149.8
	Female breast	174	730	221.5 <sup>4</sup>
	Prostate	185	724	143.2 <sup>5</sup>

1. The grouping of ICD-9 codes for selected causes of cancers used in this document was updated starting with Advance Data Deaths: 1994. Please refer to the Technical Notes in the Appendix for a detailed explanation. 2. Number of deaths per 100,000 residents in each age group. 3. Calculations based on fewer than five events are excluded. 4. Calculation based on female population in specified age group. 5. Calculation based on male population in specified age group.

**Table 9. Selected Causes of Cancer Deaths and Age-Adjusted Rates by Race & Hispanic Ethnicity, Massachusetts: 1997<sup>1,2</sup>**

Cause	<u>White</u>		Cause	<u>Black</u>		Cause	<u>Asian</u>		Cause	<u>Hispanic<sup>3</sup></u>	
	#	Rate		#	Rate		#	Rate		#	Rate
Trachea, bronchus and lung	3,482	37.1	Trachea, bronchus and lung	121	40.8	Trachea, bronchus and lung	22	15.6	Trachea, bronchus and lung	22	10.5
Colon, rectum, rectosigmoid junction, and anus	1,459	12.8	Colon, rectum, rectosigmoid junction, and anus	56	18.1	Colon, rectum, rectosigmoid junction, and anus	15	10.2	Colon, rectum, rectosigmoid junction, and anus	14	6.3
Female breast	1,078	20.5	Prostate	45	33.0	Stomach	13	8.3	Female breast	11	9.2
Prostate	728	13.1	Female breast	39	22.2	Leukemia	9	6.0	Prostate	10	8.9
<b>Total Cancer</b>	<b>13,045</b>	<b>128.9</b>	<b>Total Cancer</b>	<b>497</b>	<b>159.8</b>	<b>Total cancer</b>	<b>121</b>	<b>36.9</b>	<b>Total Cancer</b>	<b>129</b>	<b>55.1</b>

1. The grouping of ICD-9 codes for selected causes of cancers was updated starting with Advance Data Deaths: 1994. Please refer to the Technical Notes in the Appendix for a detailed explanation. 2. All rates are age-adjusted by the direct method using the 1940 US Census population. Rates are per 100,000 population. **PLEASE NOTE: DIFFERENCES BETWEEN THESE RATES AND PREVIOUSLY PUBLISHED DATA REFLECT JULY 1998 MISER UPDATES IN POPULATION ESTIMATES FOR 1991-1996.** 3. Persons of Hispanic ethnicity are also included in the race categories, consistent with the US Census population classification.



# INJURIES





## ***Injuries***

In 1997, 4.2% of all deaths to Massachusetts residents were the result of intentional and unintentional injuries (2,314 deaths). Half of these deaths were due to fires, falls, drownings and other injuries, while 21% were due to suicide, 22% to motor vehicle-related injuries, and 6% to homicide. (See Table 10.)

The motor vehicle-related death rate varied enormously by sex, with the male rate more than twice the female rate (11.2 deaths per 100,000 persons vs. 4.7). The motor vehicle mortality rate increased for blacks from 6.1 in 1996 to 11.0 in 1997. (Caution should be used when interpreting year to year variation based on a relatively small number of events - 37 cases).

The suicide rate for males was more than four times the suicide rate for females: 11.9 deaths per 100,000 males compared with 2.7 for females. This pattern was consistent for whites, blacks, and persons of Hispanic ancestry. Suicide rates were highest for persons age 25 and above.

The number of homicides continued to decline in Massachusetts: there were half the number of homicides in 1997 (137) as there were in 1990 (270). The largest decline from 1996 to 1997 was in the 15-24 year old age group (from 72 deaths to 41 deaths). The homicide rate for males was about three times greater than the homicide rate for females, 3.5 vs. 1.3 deaths per 100,000 persons. In addition, there were large differences in the rates by race: the rate for blacks (12.7) was seven times greater than the rate for whites (1.7), and almost double the rate for Hispanics (7.1).

The rate for other injuries (fires, falls, drownings, etc.) was three times greater for men than women (19.5 deaths per 100,000 compared to 6.7). Other injury death rates were higher for blacks (18.2) and Hispanics (16.1) than for whites (12.1) or Asians (7.8).

The number of deaths and the age-adjusted death rates for motor vehicle-related deaths and suicides have dropped substantially since 1990. The number of motor vehicle deaths has declined 25% and the number of suicides 10%; the number of deaths due to other injuries has increased 13% since 1990. (Data not shown.)

Although the greatest number of motor vehicle deaths occurred to males between the ages of 15 and 44, the highest age-specific rate was for males ages 15-24 (26.8 deaths/100,000 persons). Rates for males ages 65+ were the next highest (21.5).

The age-specific suicide rate for males was highest among persons age 65+; the female rate was highest in the 25-44 year age group. The homicide rate for each gender was clearly highest among the 15-24 year age group.

For injuries such as falls and fires, the age-specific death rates were dramatically higher for persons age 65 and above. For females, the rate in this age group was more than nine times higher than for younger age groups. For males, the injury death rate was three times higher among men over the age of 64 compared to younger adult males.

**Table 10. Injury Deaths by Sex, Age, Race and Hispanic Ethnicity: Numbers, Age-Adjusted, and Age-Specific Rates<sup>1</sup>, Massachusetts: 1997**

Cause of Death (ICD-9 Code)	All Injuries (E800-E999)		Motor Vehicle <sup>2</sup> (E810-E825)		Suicide (E950-E959)		Homicide <sup>3</sup> (E960-E969)		Other Injuries <sup>4</sup> (E800-E809, E826-E949, E970-E999)	
	# <sup>5</sup>	Rate	#	Rate	#	Rate	#	Rate	#	Rate
<b>All Persons</b>	2,314	30.4	501	7.9	487	7.2	137	2.4	1,189	12.9
<1 <sup>6</sup>	6	-- <sup>6</sup>	0	0.0	0	0.0	3	-- <sup>6</sup>	3	-- <sup>6</sup>
1-14	52	4.4	20	1.7	3	-- <sup>7</sup>	5	0.4	24	2.0
15-24	295	40.3	136	18.6	61	8.3	41	5.6	57	7.8
25-44	801	37.8	140	6.6	213	10.0	55	2.6	393	18.5
45-64	415	32.3	76	5.9	125	9.7	24	1.9	190	14.8
65+	744	89.1	129	15.4	85	10.2	9	1.1	521	62.4
<b>All Females</b>	764	15.5	168	4.7	96	2.7	40	1.3	460	6.7
<1	2	-- <sup>6</sup>	0	0.0	0	0.0	1	-- <sup>6</sup>	1	-- <sup>6</sup>
1-14	16	2.8	7	1.2	0	0.0	2	-- <sup>7</sup>	7	1.2
15-24	64	17.8	36	10.0	8	2.2	8	2.2	12	3.3
25-44	202	18.9	40	3.7	52	4.9	18	1.7	92	8.6
45-64	102	15.3	27	4.1	24	3.6	9	1.4	42	6.3
65+	377	74.6	58	11.5	12	2.4	2	-- <sup>7</sup>	305	60.3
<b>All Males</b>	1,550	46.2	333	11.2	391	11.9	97	3.5	729	19.5
<1	4	-- <sup>6</sup>	0	0.0	0	0.0	2	-- <sup>6</sup>	2	-- <sup>6</sup>
1-14	36	6.0	13	2.2	3	-- <sup>7</sup>	3	-- <sup>7</sup>	17	2.8
15-24	231	61.8	100	26.8	53	14.2	33	8.8	45	12.0
25-44	599	57.0	100	9.5	161	15.3	37	3.5	301	28.7
45-64	313	50.5	49	7.9	101	16.3	15	2.4	148	23.9
65+	367	111.4	71	21.5	73	22.2	7	2.1	216	65.5
<b>Race/Sex</b>										
<b>All Whites</b>	2,108	29.4	451	7.7	460	7.4	90	1.7	1,107	12.7
Females	704	14.8	148	4.4	88	2.7	29	1.0	439	6.8
Males	1,404	44.8	303	11.1	372	12.3	61	2.4	668	19.0
<b>All Blacks</b>	160	47.1	37	11.0	17	5.1	42	12.7	64	18.2
Females	42	23.3	13	7.7	2	-- <sup>7</sup>	8	4.9	19	9.5
Males	118	72.3	24	14.4	15	9.6	34	20.7	45	27.5
<b>All Asians</b>	41	24.2	13	7.6	10	6.1	5	2.7	13	7.8
Females	18	21.4	7	9.6	6	7.2	3	-- <sup>7</sup>	2	-- <sup>7</sup>
Males	23	26.4	6	5.4	4	-- <sup>7</sup>	2	-- <sup>7</sup>	11	14.3
<b>All Hispanics<sup>8</sup></b>	113	31.7	17	5.0	12	3.6	25	7.1	59	16.1
Females	25	13.9	4	2.4	2	1.0	5	2.7	14	7.7
Males	88	49.7	13	7.4	10	6.0	20	11.2	45	25.1

1. Number of deaths per 100,000 persons in each age group; rates for all rows except the age group rows are age-adjusted. 2. Motor vehicle deaths to occupants, pedestrians, motorcyclists and bicyclists. 3. The NCHS categories for 72 selected causes of death combines Homicide (ICD-9 960-969) and Legal Intervention (ICD-9 970-978). In addition to 137 homicides there was one death caused by legal intervention to a male, age 25-44, which is included under "Other Injury." 4. Other Injuries also includes deaths from drownings, fires and falls, as well as deaths of undetermined intent (deaths where investigation has not determined whether the injuries were accidental or purposely inflicted). 5. Column sum may not equal total because age or race of some decedents was not known. 6. The denominator usually used in this age group is the number of 1997 resident births; since these data are not yet available, no rates for this age group are presented. 7. Calculations based on fewer than five events are excluded. 8. Persons of Hispanic ethnicity are also included in the race categories, consistent with the US Census population classification.

# AIDS



## **AIDS**

The dramatic decline in the number of AIDS and HIV related deaths continued in 1997. In 1997, 242 Massachusetts residents died from AIDS and HIV-related illnesses. (See Table 11.) This represents a 60% decline from 1996 and a 74% reduction in the last two years. The dramatic decline is due in large part to improved treatment efforts that have resulted in increased longevity of persons living with AIDS/HIV-related diseases.

In 1997, AIDS was the third leading cause of death for Hispanics and the fifth leading cause for blacks. It was the 21st leading cause of deaths for whites. AIDS was the fifth leading cause of death for Massachusetts residents ages 25-44; just two years ago, AIDS was the leading cause of death in this age group. AIDS remained the leading cause of death for persons ages 25-44 among blacks and Hispanics.

The proportion of AIDS deaths occurring in older age groups continued to increase; more than one out of four AIDS deaths occurred to persons at least 45 years of age. In 1997, females accounted for 22% of all AIDS deaths.

The 1997 age-specific AIDS death rate among 25-44 year-olds varied considerably by race, Hispanic ethnicity, and sex, with the highest rates occurring among Hispanic and black males (50.5 and 45.6 deaths per 100,000 residents, respectively) and the lowest rate among white females (2.4 deaths per 100,000 residents). (See Table 12.) Black and Hispanic men had age-specific death rates four times higher than white men. The 1997 death rates in all race- sex-specific groups reflect dramatic declines. Since 1995, the age-specific death rate for persons 25-44 has declined 78%.

**Table 11. AIDS/HIV-Related Deaths<sup>1</sup> by Sex and Race/Ethnicity, Massachusetts: 1987-1997<sup>2</sup>**

Year	Total <sup>3</sup>	Place of Occurrence				Sex		
		At Home	Hospital	Out of State	Hospice/ Nursing Home/Other	Female	Male	
1987	#	241	26	207	5	3	32	209
	%	100.0	10.8	85.9	2.1	-	13.3	86.7
1988	#	315	67	234	7	7	34	281
	%	100.0	21.3	74.3	2.2	2.2	10.8	89.2
1989	#	404	79	313	7	5	45	359
	%	100.0	19.6	77.5	1.7	1.2	11.1	88.9
1990	#	447	90	284	9	64	57	390
	%	100.0	20.1	63.5	2.1	14.3	12.8	87.2
1991	#	632	159	338	4	131	97	535
	%	100.0	25.2	53.5	-	20.7	15.4	84.6
1992	#	701	171	394	14	122	96	605
	%	100.0	24.4	56.2	2.0	17.4	13.7	86.3
1993	#	777	218	413	14	127	114	663
	%	100%	28.1	53.2	1.8	16.3	14.7	85.3
1994	#	938	265	514	13	142	175	763
	%	100%	28.3	54.8	1.4	15.1	18.7	81.3
1995	#	937	303	500	7	127	184	753
	%	100%	32.3	53.4	0.7	13.6	19.6	80.4
1996	#	609	154	336	9	110	115	494
	%	100%	25.3	55.2	1.5	18.1	18.9	81.1
1997	#	242	59	158	4	21	52	190
	%	100%	24.4	65.3	-	8.6	21.5	78.5

1. AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus. The deaths reported are cases for which AIDS or HIV-related disease was the underlying cause of death. 2. The deaths presented were coded by using the most current ICD-9 classification schedule, which began with 1987 death data. 3. ICD Codes: AIDS-042, AIDS-like syndrome-043 and Other HIV infection-044.

**Table 11. (continued) AIDS/HIV-Related Deaths<sup>1</sup> by Sex and Race/Ethnicity, Massachusetts: 1987-1997<sup>2</sup>**

Year		Age					Race/Ethnicity			
		<15	15-24	25-34	35-44	45 +	White	Black	Other <sup>3</sup>	Hispanic <sup>4</sup>
1987	#	5	8	105	78	45	190	50	1	NA
	%	2.1	3.3	43.6	32.3	18.7	78.8	20.8	-	
1988	#	5	12	111	127	60	251	64	0	NA
	%	1.6	3.8	35.2	40.3	19.1	79.7	20.3	0.0	
1989	#	3	16	146	167	72	327	76	1	37
	%	-	4.0	36.1	41.3	17.8	81.0	18.8	-	9.2
1990	#	3	4	147	197	96	352	94	1	50
	%	-	-	32.8	44.1	21.5	78.8	21.0	-	11.2
1991	#	9	19	214	298	92	513	118	1	74
	%	1.4	3.0	33.8	47.2	14.6	81.2	18.7	-	14.4
1992	#	6	5	243	304	143	558	141	2	95
	%	0.8	0.7	34.7	43.4	20.4	79.6	20.1	-	13.6
1993	#	10	5	234	359	157	612	160	5	94
	%	1.3	0.6	30.1	46.2	20.2	78.7	20.6	0.6	12.1
1994	#	7	8	272	464	187	738	193	7	157
	%	0.7	0.9	29.0	49.5	19.9	78.7	20.6	0.7	16.7
1995	#	11	5	272	443	206	709	223	5	155
	%	1.2	0.5	29.0	47.3	22.0	75.7	23.8	0.5	16.5
1996	#	4	8	154	300	143	442	161	6	101
	%	0.7	1.3	25.3	49.3	23.5	72.6	26.4	1.0	16.6
1997	#	5	1	35	135	66	168	74	0	47
	%	2.1	-	14.5	55.8	27.3	69.4	30.6	0.0	19.6

1. AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus. The deaths reported are cases for which AIDS or HIV-related disease (ICD Codes: AIDS-042, AIDS-like syndrome-043 and Other HIV infection-044) was the underlying cause of death. 2. The deaths presented were coded by using the most current ICD-9 classification schedule (AIDS-042, AIDS-like syndrome-043 and Other HIV infection-044), which began with 1987 death data. 3. The "Other" category represents Asians and American Indians. 4. Persons of Hispanic ethnicity are also included in the race categories, consistent with the US Census population classification.

**Table 12. AIDS and HIV-Related Deaths by Race and Hispanic Ethnicity,  
Persons Ages 25-44, Massachusetts: 1989 - 1997**

Year	White						Black						Hispanic <sup>1</sup>					
	<u>Total</u>		<u>Female</u>		<u>Male</u>		<u>Total</u>		<u>Female</u>		<u>Male</u>		<u>Total</u>		<u>Female</u>		<u>Male</u>	
	#	Rate <sup>2</sup>	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate	#	Rate
1989	221	12.2	15	1.6	206	23.1	60	56.3	17	31.1	43	82.9	32	36.0	6	13.3	26	59.4
1990	270	14.7	22	2.4	248	27.2	73	65.4	23	40.4	50	91.6	40	42.4	4	- <sup>3</sup>	36	77.1
1991	412	22.0	51	5.4	361	39.0	99	87.3	28	48.4	71	128.0	55	55.3	16	31.9	39	79.1
1992	441	23.6	49	5.2	392	42.4	105	92.5	26	44.9	79	142.1	79	77.0	15	29.0	64	125.8
1993	467	24.9	60	6.3	407	43.9	122	106.3	31	52.9	91	161.8	76	71.3	19	35.4	57	107.6
1994	578	30.6	97	10.2	481	51.5	152	130.6	39	65.7	113	198.0	127	114.4	34	61.0	93	168.2
1995	552	29.1	95	9.9	457	48.7	159	134.8	47	78.2	112	193.6	124	108.2	34	59.3	90	157.1
1996	336	17.6	54	5.6	282	29.8	113	94.6	40	65.8	73	124.6	85	71.7	24	40.5	61	102.7
1997	122	6.4	23	2.4	99	10.4	48	39.7	18	29.3	30	50.5	36	29.4	8	13.1	28	45.6

1. Persons of Hispanic ethnicity are also included in the race categories, consistent with the US Census population classification. 2. Number of deaths per 100,000 residents in the specified population group.  
**PLEASE NOTE: DIFFERENCES BETWEEN THESE RATES AND PREVIOUSLY PUBLISHED DATA REFLECT JULY 1998 UPDATES IN POPULATION ESTIMATES FOR 1991-1996.** 3. Calculations based on fewer than five events are excluded.



# **CAUSES OF INFANT DEATH**



### ***Causes of Infant Death***

In 1997, 425 infant deaths occurred among Massachusetts residents, an increase of 22 infant deaths from 1996. Infant mortality rates for 1997 are not yet available; they will be published in *Advance Data, Births 1997* later this year.

The overall leading causes of infant death were conditions arising in the perinatal period (234 deaths) and congenital anomalies (86 deaths) (Table 13). This represents an increase from 73 congenital anomaly infant deaths in 1996. Other causes of infant death were sudden infant death syndrome (SIDS, 30 deaths) and homicide (3 deaths).

SIDS was the leading cause of death in the post neonatal period (28-365 days), while disorders relating to short gestation and low birthweight was the leading cause in the neonatal period.

Certain conditions originating in the perinatal period and congenital anomalies represented the two leading causes of death for infants among whites, blacks and Hispanics (Table 14).

**Table 13. Infant, Neonatal, and Post Neonatal Deaths by Cause<sup>1</sup>, Massachusetts: 1997**

Cause of Death	ICD-9 Code	Infant (<1 year)		Neonatal (<28 days)		Post Neonatal (28-365 days)	
		#	% <sup>2,3</sup>	#	%	#	%
<b>TOTAL</b>		<b>425</b>	<b>100%</b>	<b>323</b>	<b>100%</b>	<b>102</b>	<b>100%</b>
Infectious and parasitic diseases	001-139	6	1.4	2	--	4	--
Cancer	280-289	2	--	0	0	2	--
Other diseases of nervous system and sense organs	323-389	10	2.4	1	--	9	8.8
Diseases of the respiratory system	460-519	9	2.1	3	--	6	5.9
Diseases of digestive system	520-579	4	--	1	--	3	--
<b>Congenital anomalies</b>	<b>740-759</b>	<b>86</b>	<b>20.3</b>	<b>64</b>	<b>19.8</b>	<b>22</b>	<b>21.6</b>
Anencephalus and similar anomalies	740	2	--	3	--	0	--
Congenital anomalies of central nervous system and eye	742-743	7	--	4	--	3	--
Congenital anomalies of heart	745-746	26	--	15	--	11	--
Other congenital anomalies of circulatory system	747	7	--	7	--	0	--
Congenital anomalies of respiratory system	748	14	--	14	--	0	--
Cleft palate and other digestive tract anomalies	749-751	2	--	1	--	1	--
Congenital anomalies of genitourinary system	752-753	1	--	1	--	0	--
Congenital anomalies of musculoskeletal system	754-756	8	--	6	--	2	--
Chromosomal anomalies	758	13	--	10	--	3	--
<b>Certain conditions originating in the perinatal period</b>	<b>760-779</b>	<b>234</b>	<b>55.1</b>	<b>228</b>	<b>70.6</b>	<b>6</b>	<b>5.9</b>
Newborn affected by maternal conditions which may be unrelated to present pregnancy	760	9	--	9	--	0	--
Newborn affected by maternal complications of pregnancy	761	34	--	34	--	0	--
Newborn affected by complications of placenta, cord and membrane	762	24	--	24	--	0	--
Newborn affected by other complications of labor and delivery	763	1	--	1	--	0	--
Slow fetal growth and fetal malnutrition	764	1	--	1	--	0	--
Disorders relating to short gestation and unspecified low birthweight	765	69	--	68	--	1	--
Birth trauma	767	7	--	7	--	0	--
Intrauterine hypoxia and birth asphyxia	768	5	--	5	--	0	--
Respiratory distress syndrome	769	23	--	22	--	1	--
Other respiratory conditions of newborn	770	37	--	35	--	2	--
Infections specific to the perinatal period	771	7	--	6	--	1	--
Neonatal hemorrhage	772	3	--	3	--	0	--
Other and ill-defined conditions originating in the perinatal period	775-779	14	--	13	--	1	--
<b>Symptoms, signs, and ill-defined conditions</b>	<b>780-799</b>	<b>40</b>	<b>9.4</b>	<b>7</b>	<b>2.2</b>	<b>33</b>	<b>32.4</b>
Sudden Infant Death Syndrome (SIDS)	798.0	30	--	3	--	27	--
<b>Accidents and adverse effects</b>	<b>E800-E949</b>	<b>3</b>	<b>--</b>	<b>0</b>	<b>0.0</b>	<b>3</b>	<b>--</b>
<b>Homicide</b>	<b>E960-E969</b>	<b>3</b>	<b>--</b>	<b>0</b>	<b>0.0</b>	<b>3</b>	<b>--</b>
<b>All other causes</b>	<b>Residual</b>	<b>28</b>	<b>6.6</b>	<b>17</b>	<b>5.3</b>	<b>11</b>	<b>10.8</b>

1. The ICD-9 cause categories presented in this table were updated starting with Advanced Data Deaths: 1994. Refer to the Technical Notes in the Appendix for an explanation. 2. Percents not calculated for subcategories. 3 Calculations based on fewer than five events are excluded.

**Table 14. Infant Deaths by Major Causes, Race and Hispanic Ethnicity, Massachusetts: 1997**

Cause of Death	ICD-9 Code	White		Black		Hispanic <sup>1</sup>	
		#	%	#	%	#	%
TOTAL		349	100%	66	100%	55	100%
Congenital anomalies	740-759	73	20.9	11	16.7	10	18.2
Certain conditions originating in the perinatal period	760-779	199	57.0	30	45.5	35	63.6
Symptoms, signs, and ill-defined conditions	780-799	28	8.0	10	15.2	5	9.1
Accidents and adverse effects	E800-E949	2	-- <sup>2</sup>	0	0.0	1	-- <sup>2</sup>
Homicide	E960-E969	3	-- <sup>2</sup>	0	0.0	0	0.0
All other causes	Residual	44	12.6	15	22.7	4	-- <sup>2</sup>

1. Persons of Hispanic ethnicity are also included in the race categories, consistent with the US Census population classification. 2. Calculations based on fewer than five events are excluded.



**CAUSE OF DEATH  
BY MUNICIPALITY,  
BY CHNA  
(COMMUNITY HEALTH  
NETWORK AREA),  
AND BY COUNTY**





**Table 15. Selected Causes of Death by Municipality, 1997**

Municipality	Total Deaths	Age adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
Abington	121	434.4	41	30	6	3	10	2	0	5	9	1	1
Acton	65	232.1	16	15	2	2	5	0	0	5	3	1	2
Acushnet	99	401.9	36	26	6	1	3	2	0	2	4	3	1
Adams	127	406.8	51	25	6	2	10	1	0	9	5	0	0
Agawam	279	402.3	70	68	20	5	16	5	0	17	25	7	1
Alford	7	277.5	0	3	1	0	0	0	0	2	0	0	0
Amesbury	142	465.2	46	32	8	2	11	2	0	3	7	6	2
Amherst	120	302.8	33	26	8	1	7	3	0	3	8	2	2
Andover	204	346.6	60	50	13	7	16	1	0	6	8	7	2
Arlington	434	332.1	136	105	25	13	41	1	0	14	17	11	2
Ashburnham	32	378.5	11	7	2	1	1	0	0	1	1	0	1
Ashby	12	270.6	4	1	0	0	0	0	0	0	0	0	0
Ashfield	17	375.1	6	5	1	0	0	0	0	1	0	0	1
Ashland	92	451.1	27	34	8	3	3	0	0	4	6	1	2
Athol	135	552.8	42	31	4	3	13	1	0	3	5	1	2
Attleboro	341	465.4	109	74	24	5	23	5	0	21	19	6	3
Auburn	163	410.0	53	47	12	6	9	0	0	5	7	2	1
Avon	63	625.4	20	23	8	2	2	1	0	3	3	2	0
Ayer	80	654.3	19	14	0	3	6	0	0	2	4	5	0
Barnstable	477	413.7	121	137	44	9	38	4	1	9	20	15	5
Barre	41	491.0	16	9	5	1	3	0	0	4	0	0	0
Becket	7	307.8	1	2	0	0	2	0	0	0	0	0	0
Bedford	127	395.7	30	28	5	4	8	3	0	14	6	1	0
Belchertown	75	380.8	25	20	5	3	8	2	0	3	3	1	3
Bellingham	76	392.6	21	28	7	2	3	3	0	3	3	3	0
Belmont	216	267.7	59	52	11	7	19	1	0	16	9	2	2
Berkley	16	307.5	3	7	0	1	1	0	0	1	1	0	0
Berlin	15	351.3	6	3	2	0	2	0	0	0	2	0	1
Bernardston	20	307.8	11	5	1	0	0	0	0	0	0	0	1
Beverly	378	390.2	137	73	29	5	40	1	2	27	19	4	3
Billerica	237	489.9	73	63	18	5	12	5	0	10	10	6	0
Blackstone	55	422.8	19	15	2	1	2	0	1	2	2	1	0
Blandford	9	479.9	1	3	1	0	2	0	0	0	0	0	0
Bolton	10	250.0	2	5	2	0	0	0	0	0	1	0	0
Boston	4544	532.7	1201	1094	280	93	246	37	35	256	167	120	55

**Table 15. Selected Causes of Death by Municipality, 1997 (continued)**

Municipality	Total Deaths	Age adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
Bourne	181	434.7	55	45	12	3	14	2	0	11	7	3	2
Boxborough	13	365.0	6	4	0	0	1	0	0	0	1	0	0
Boxford	28	252.7	9	5	0	0	4	0	0	3	2	0	0
Boylston	21	276.9	6	6	1	0	4	1	0	1	2	0	0
Braintree	383	429.3	121	89	27	9	21	5	0	20	17	6	5
Brewster	129	367.7	38	27	12	0	12	0	0	7	4	8	0
Bridgewater	129	436.6	47	31	11	3	10	3	0	5	8	1	3
Brimfield	41	825.1	5	14	6	2	2	1	2	1	3	2	2
Brockton	865	536.7	265	222	67	18	38	5	5	31	50	22	5
Brookfield	21	317.7	9	6	1	1	1	1	0	0	2	0	0
Brookline	381	262.3	124	86	19	7	24	0	3	26	11	6	5
Buckland	16	405.6	3	4	3	0	1	0	0	2	1	0	0
Burlington	142	411.0	45	40	12	0	8	0	0	1	4	4	2
Cambridge	649	399.0	170	169	44	26	33	3	2	32	24	24	12
Canton	200	484.1	81	36	14	2	10	1	0	11	10	2	2
Carlisle	12	198.4	2	3	0	0	2	1	0	0	0	0	0
Carver	92	532.2	30	29	9	2	2	1	0	1	10	2	1
Charlemont	9	464.6	3	1	0	0	1	0	0	1	0	1	0
Charlton	72	484.1	28	21	1	3	2	1	0	3	1	0	1
Chatham	113	350.0	34	28	4	3	10	0	0	2	4	2	0
Chelmsford	246	416.7	77	73	21	6	11	2	0	13	10	4	3
Chelsea	282	619.5	67	83	35	2	11	3	1	8	17	12	4
Cheshire	13	185.2	3	0	0	0	3	0	0	1	0	1	0
Chester	8	454.4	2	2	1	1	1	1	0	1	0	0	0
Chesterfield	9	649.4	1	4	0	0	0	0	0	0	1	1	0
Chicopee	594	473.6	202	140	42	8	35	6	1	25	23	15	5
Chilmark	11	683.8	2	5	1	0	0	0	0	0	0	0	0
Clarksburg	15	264.7	4	2	1	0	1	0	0	1	0	3	0
Clinton	128	435.8	32	31	5	3	5	2	0	7	11	5	0
Cohasset	65	393.7	21	15	5	0	1	0	0	5	1	2	0
Colrain	14	439.3	2	2	0	0	1	0	0	1	0	1	0
Concord	155	328.4	48	32	8	3	16	0	0	19	5	0	3
Conway	14	318.7	4	4	2	0	2	0	0	2	0	1	0
Cummington	6	309.2	3	0	0	0	0	0	0	0	1	0	0
Dalton	73	442.7	25	12	2	6	1	0	0	5	6	2	0
Danvers	264	444.9	99	58	18	6	19	0	0	15	6	3	2
Dartmouth	251	347.3	89	67	14	8	23	3	0	8	11	7	1

**Table 15. Selected Causes of Death by Municipality, 1997 (continued)**

Municipality	Total Deaths	Age adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
Dedham	246	443.7	74	70	20	4	14	1	0	15	16	6	1
Deerfield	34	348.9	11	12	8	1	0	2	0	3	1	0	1
Dennis	213	406.5	68	49	16	1	11	2	0	6	9	5	1
Dighton	56	465.1	20	10	1	0	6	2	0	6	3	0	0
Douglas	29	378.5	7	15	4	0	0	0	0	0	1	0	0
Dover	30	229.0	13	7	1	2	3	0	0	2	1	0	0
Dracut	215	510.0	71	55	14	8	12	5	0	9	19	1	2
Dudley	74	419.1	24	25	5	3	3	0	0	0	3	3	2
Dunstable	9	382.6	2	3	0	0	0	1	0	0	0	1	0
Duxbury	112	370.4	36	28	5	2	8	0	0	5	3	1	2
East Bridgewater	104	597.5	34	27	9	2	5	1	0	4	9	1	0
East Brookfield	6	156.6	3	1	0	1	1	0	0	0	0	0	0
East Longmeadow	176	409.1	57	29	5	4	16	1	0	11	8	4	2
Eastham	47	344.9	12	12	1	2	2	0	0	1	2	4	0
Easthampton	144	495.2	56	32	10	3	4	2	0	8	8	2	1
Easton	136	433.3	37	36	11	2	6	2	0	9	8	3	0
Edgartown	27	379.4	6	12	4	0	4	0	0	1	1	0	0
Egremont	12	473.3	0	4	2	0	2	3	0	0	1	0	0
Erving	20	491.5	9	1	0	0	1	0	0	1	3	0	1
Essex	17	325.0	4	7	1	1	0	0	1	1	1	0	0
Everett	314	391.5	106	86	28	2	13	2	0	8	15	13	3
Fairhaven	217	492.3	88	51	11	4	8	1	0	3	15	4	1
Fall River	1112	521.1	394	261	64	15	75	7	3	53	33	35	13
Falmouth	350	373.5	104	98	31	7	25	2	0	15	26	1	0
Fitchburg	430	510.9	117	115	39	8	21	7	0	30	20	10	3
Florida	5	412.9	1	2	2	0	0	0	0	2	0	0	0
Foxborough	123	467.3	35	40	14	4	8	1	0	3	7	4	0
Framingham	548	389.5	154	141	28	20	31	5	1	33	24	17	2
Franklin	154	476.3	41	44	12	2	12	3	1	8	3	5	1
Freetown	41	310.7	10	9	2	0	1	1	0	2	3	2	0
Gardner	221	524.2	79	43	13	2	13	2	0	7	11	4	0
Gay Head	2	967.8	0	1	0	0	0	0	0	0	0	0	0
Georgetown	38	288.7	11	11	4	1	2	0	0	0	3	3	0
Gill	10	371.6	3	2	0	0	2	0	0	0	1	1	1

Table 15. Selected Causes of Death by Municipality, 1997 (continued)

Municipality	Total Deaths	Age adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
Gloucester	322	516.2	99	88	20	7	15	2	0	8	15	8	2
Goshen	10	540.1	4	2	1	0	1	1	0	1	0	0	0
Gosnold	0	0.0	0	0	0	0	0	0	0	0	0	0	0
Grafton	99	370.2	25	30	5	2	9	1	0	4	1	4	0
Granby	49	432.9	12	14	6	1	6	0	0	1	1	1	0
Granville	5	143.5	2	2	0	0	1	0	0	0	0	0	0
Great Barrington	108	537.5	33	26	7	1	5	1	0	3	5	5	3
Greenfield	232	482.4	50	50	12	3	17	5	0	24	14	6	0
Groton	45	339.8	6	11	2	1	4	1	0	1	2	2	0
Groveland	38	464.4	16	9	4	1	1	0	0	1	3	1	0
Hadley	50	361.6	15	13	4	1	3	0	0	2	2	2	1
Halifax	66	506.7	20	16	1	1	2	1	0	2	9	0	0
Hamilton	53	357.1	19	18	2	3	1	1	0	1	2	1	1
Hampden	40	450.4	10	10	1	2	4	0	0	2	3	0	1
Hancock	3	198.0	0	1	0	0	0	0	0	0	1	0	0
Hanover	78	390.3	26	21	9	1	4	3	0	4	6	1	1
Hanson	62	451.8	24	15	2	3	4	3	0	0	4	1	0
Hardwick	30	579.0	8	11	3	0	1	1	0	2	1	0	0
Harvard	14	158.9	5	5	2	0	1	0	0	1	0	1	0
Harwich	180	427.0	56	50	6	5	7	0	0	6	6	8	2
Hatfield	34	466.1	14	9	3	2	0	0	0	0	1	0	0
Haverhill	514	477.4	167	114	26	12	49	6	0	20	19	11	3
Hawley	3	285.7	2	1	0	0	0	0	0	0	0	0	0
Heath	5	552.5	1	2	0	0	1	1	0	0	0	0	0
Hingham	170	361.4	41	53	15	2	8	3	0	8	9	6	3
Hinsdale	35	638.1	13	3	1	0	1	0	0	6	3	3	0
Holbrook	105	446.2	28	30	13	2	3	0	0	5	11	3	0
Holden	117	316.7	38	28	4	5	6	1	0	7	5	2	1
Holland	9	298.3	0	2	0	0	1	0	0	0	2	0	0
Holliston	74	405.7	18	22	7	2	5	0	0	2	4	2	0
Holyoke	522	630.9	168	116	31	13	41	3	5	20	21	15	2
Hopedale	45	414.4	14	10	3	4	1	0	0	2	3	1	0
Hopkinton	63	422.6	19	13	2	2	7	2	1	3	2	2	1
Hubbardston	9	243.5	2	3	0	0	1	1	0	0	0	0	0
Hudson	103	348.0	25	36	9	2	8	0	0	2	6	4	1
Hull	93	557.3	21	29	8	3	9	4	0	1	6	1	2

**Table 15. Selected Causes of Death by Municipality, 1997 (continued)**

Municipality	Total Deaths	Age adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
Huntington	10	229.0	2	2	1	0	0	0	0	2	0	1	0
Ipswich	115	400.0	28	33	4	4	8	1	0	5	5	3	2
Kingston	91	420.3	32	19	4	1	12	2	0	4	2	2	0
Lakeville	70	449.2	20	21	5	1	4	1	0	4	2	3	1
Lancaster	41	354.8	8	9	3	0	3	0	0	0	5	2	0
Lanesborough	27	529.6	11	5	3	0	0	1	0	0	2	1	2
Lawrence	539	444.9	179	109	31	8	39	6	5	28	20	18	3
Lee	73	514.9	20	20	7	2	4	0	0	8	3	3	0
Leicester	96	455.5	28	24	6	3	9	3	0	6	4	2	1
Lenox	74	368.1	17	19	5	2	5	0	0	7	2	1	0
Leominster	323	416.6	93	86	23	9	26	3	1	22	17	9	2
Leverett	7	279.8	3	4	0	1	0	0	0	0	0	0	0
Lexington	264	262.7	84	64	16	6	23	2	0	12	7	5	0
Leyden	5	285.5	3	0	0	0	1	0	0	0	0	0	0
Lincoln	36	248.1	8	14	4	1	3	0	0	3	1	1	0
Littleton	72	477.1	22	21	6	2	4	2	0	0	4	4	1
Longmeadow	149	340.0	40	42	8	3	11	1	0	17	3	5	1
Lowell	971	550.6	293	216	57	15	65	13	9	43	51	28	10
Ludlow	184	405.3	56	49	11	3	8	0	0	8	8	8	2
Lunenburg	48	265.8	16	12	2	2	1	0	1	0	3	4	0
Lynn	829	571.0	239	207	66	9	47	12	5	39	43	14	7
Lynnfield	86	271.7	15	29	4	5	6	0	0	3	4	2	2
Malden	491	436.5	135	126	32	11	42	2	2	32	16	12	3
Manchester	51	333.9	13	13	3	1	3	0	0	2	3	1	1
Mansfield	99	454.5	29	24	7	1	6	2	0	8	2	4	1
Marblehead	152	320.7	32	48	10	2	12	0	0	9	3	6	3
Marion	54	590.7	19	11	3	2	2	0	0	1	4	1	1
Marlborough	244	418.3	68	73	25	5	15	2	0	15	9	5	3
Marshfield	167	513.1	49	49	20	4	4	2	0	6	5	8	0
Mashpee	80	368.2	13	20	4	1	6	1	0	3	4	2	2
Mattapoissett	45	265.9	18	10	5	1	3	2	0	2	1	0	0
Maynard	83	385.1	26	20	7	1	2	1	0	7	7	2	1
Medfield	50	314.2	16	9	2	3	3	0	0	3	2	0	1
Medford	622	430.6	190	155	43	6	42	3	1	37	23	11	5
Medway	83	472.9	25	22	5	3	5	0	0	2	2	1	1
Melrose	269	391.4	91	60	13	5	17	1	0	17	10	4	1
Mendon	30	482.3	9	10	2	2	0	0	0	0	1	2	0

**Table 15. Selected Causes of Death by Municipality, 1997 (continued)**

Municipality	Total Deaths	Age adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
Merrimac	30	306.2	10	8	2	0	1	1	0	1	2	0	0
Methuen	430	461.3	133	113	30	7	25	6	1	28	17	14	3
Middleborough	151	474.6	42	39	3	5	4	1	0	7	2	7	3
Middlefield	2	282.8	1	1	0	0	0	0	0	0	0	0	0
Middleton	45	496.3	11	12	1	3	6	1	0	1	2	0	1
Milford	231	465.3	66	50	13	6	15	5	0	16	11	5	2
Millbury	138	436.9	40	24	6	4	8	3	0	9	2	3	0
Millis	35	351.2	11	7	1	2	4	0	0	3	1	1	0
Millville	10	299.5	2	4	1	1	0	0	0	0	0	0	0
Milton	262	342.9	82	68	19	3	19	1	0	16	6	5	0
Monroe	2	440.2	0	1	0	0	0	0	0	0	1	0	0
Monson	66	472.8	23	17	9	0	2	0	0	3	2	0	0
Montague	101	626.5	26	21	4	1	5	2	0	5	3	5	1
Monterey	9	458.0	2	3	0	1	0	0	0	0	1	0	1
Montgomery	6	280.4	1	2	1	1	1	0	0	1	0	0	0
Mt. Washington	2	503.5	1	0	0	0	0	0	0	0	0	0	0
Nahant	42	321.2	14	13	5	2	2	0	0	1	0	2	0
Nantucket	86	567.3	30	21	5	2	10	1	0	3	3	1	1
Natick	259	406.0	82	61	22	5	23	1	1	16	11	6	1
Needham	287	326.9	87	80	15	7	24	0	0	17	9	5	2
New Ashford	0	0.0	0	0	0	0	0	0	0	0	0	0	0
New Bedford	1032	469.9	346	234	60	21	65	6	3	28	45	39	6
New Braintree	9	914.7	5	0	0	0	1	0	0	0	0	0	1
New Marlborough	8	263.5	3	2	0	0	0	0	0	1	0	0	0
New Salem	7	379.0	1	1	1	0	0	1	0	1	1	0	0
Newbury	41	392.2	19	9	4	0	3	1	0	0	2	1	0
Newburyport	184	561.0	63	44	11	3	7	1	0	10	12	4	3
Newton	645	301.3	189	159	29	15	39	5	1	50	25	17	5
Norfolk	42	487.6	7	16	2	2	2	0	0	0	0	3	3
North Adams	192	509.0	55	48	13	2	10	0	0	8	10	8	3
North Andover	216	442.6	72	50	13	6	20	3	0	6	7	4	1
North Attleboro	175	421.5	60	49	15	5	8	2	0	9	10	7	0
North Brookfield	49	470.7	12	15	3	3	1	2	0	4	1	2	1

**Table 15. Selected Causes of Death by Municipality, 1997 (continued)**

Municipality	Total Deaths	Age adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
North Reading	67	307.8	21	18	6	2	3	1	0	2	2	1	1
Northampton	321	446.8	95	64	13	1	20	1	0	29	13	5	1
Northborough	67	330.3	14	19	6	0	3	1	0	5	5	0	1
Northbridge	170	546.2	53	27	5	4	13	3	0	16	12	6	2
Northfield	25	413.9	8	6	2	1	1	0	0	2	1	0	1
Norton	96	489.1	30	24	7	3	8	1	0	2	5	3	1
Norwell	72	335.6	25	18	5	5	2	0	0	3	2	1	0
Norwood	311	439.1	88	93	22	12	12	0	0	5	14	9	4
Oak Bluffs	55	645.1	15	9	2	1	4	0	0	3	2	0	1
Oakham	14	665.4	7	3	1	0	0	0	0	0	1	0	1
Orange	67	495.6	23	17	4	0	0	5	0	3	4	0	1
Orleans	106	374.6	24	31	3	0	9	0	0	4	5	2	0
Otis	11	668.2	5	5	2	0	0	0	0	0	0	0	0
Oxford	85	418.3	23	29	11	4	2	3	0	4	0	3	1
Palmer	137	569.1	44	37	8	3	9	1	0	6	3	1	3
Paxton	30	339.2	11	6	4	0	4	1	0	0	2	0	0
Peabody	484	455.1	146	126	36	9	28	7	1	26	24	13	3
Pelham	11	377.2	2	4	1	0	0	0	0	0	0	0	1
Pembroke	85	412.6	19	24	6	3	4	5	0	4	5	3	2
Pepperell	55	482.1	12	14	1	1	5	2	0	2	6	1	0
Peru	2	201.6	1	1	1	0	0	0	0	0	0	0	0
Petersham	13	475.9	6	1	0	0	0	0	0	1	2	0	0
Phillipston	8	420.8	1	1	1	0	2	0	0	0	1	0	0
Pittsfield	544	437.3	174	129	33	15	33	4	0	23	35	15	1
Plainfield	4	354.9	1	2	0	1	1	0	0	0	0	0	0
Plainville	50	391.4	16	17	5	1	2	0	0	0	1	1	1
Plymouth	442	489.0	137	109	35	8	21	6	1	27	27	6	2
Plympton	11	387.6	3	5	0	1	1	0	0	1	0	0	0
Princeton	16	274.9	7	1	0	0	2	0	0	1	1	1	0
Provincetown	64	748.4	21	9	3	0	3	0	0	1	4	2	0
Quincy	954	522.5	322	221	66	15	51	9	2	45	39	22	8
Randolph	285	434.3	110	76	24	3	14	4	3	17	10	4	2
Raynham	79	383.1	33	19	6	1	7	0	0	3	5	0	0
Reading	169	312.2	57	41	4	3	12	2	1	7	7	1	2
Rehoboth	42	305.0	13	11	1	2	2	1	0	2	0	1	0
Revere	510	563.4	154	122	33	6	36	2	3	23	19	16	9
Richmond	16	350.1	6	4	0	0	0	0	0	0	3	0	0

**Table 15. Selected Causes of Death by Municipality, 1997 (continued)**

Municipality	Total Deaths	Age adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
Rochester	19	295.5	9	2	2	0	2	1	0	1	0	2	0
Rockland	156	518.1	47	37	5	6	6	1	1	8	12	4	1
Rockport	90	338.9	28	17	3	2	7	1	0	4	4	5	0
Rowe	4	374.0	0	0	0	0	1	0	0	0	0	0	0
Rowley	34	540.3	12	7	3	0	2	1	0	0	3	2	1
Royalston	9	478.9	1	1	0	0	0	0	0	1	1	2	1
Russell	8	324.0	4	1	1	0	0	1	0	1	0	0	0
Rutland	25	372.7	6	8	3	0	0	1	0	3	0	0	1
Salem	390	465.2	108	116	30	9	31	3	0	20	18	5	2
Salisbury	75	606.8	23	19	9	0	5	2	0	1	5	2	0
Sandisfield	9	594.5	1	2	1	0	0	0	0	0	2	1	0
Sandwich	148	385.1	33	45	13	3	11	5	0	7	8	3	1
Saugus	232	355.7	85	64	19	8	12	1	2	12	7	4	2
Savoy	1	136.1	1	0	0	0	0	0	0	0	0	0	0
Scituate	152	383.0	50	38	12	4	10	1	0	6	8	5	2
Seekonk	85	315.0	23	26	4	2	4	1	0	6	3	1	1
Sharon	89	294.1	31	25	4	2	6	0	1	1	4	3	2
Sheffield	25	421.1	11	6	1	2	1	0	0	0	0	1	0
Shelburne	20	440.1	4	5	3	0	3	0	0	2	3	2	0
Sherborn	18	238.8	5	4	1	0	2	0	0	0	0	1	1
Shirley	32	402.1	10	10	1	1	1	0	0	1	1	0	0
Shrewsbury	246	410.2	58	75	23	3	11	3	0	10	14	5	0
Shutesbury	3	86.7	0	1	0	0	0	0	0	0	0	0	0
Somerset	167	323.0	59	38	8	3	10	1	1	6	11	3	0
Somerville	605	433.7	191	157	49	8	35	5	0	23	33	15	9
South Hadley	177	401.0	54	38	7	4	11	2	0	10	16	2	1
Southampton	26	309.4	5	11	2	1	2	0	0	1	1	0	0
Southborough	30	264.1	8	15	8	2	3	0	0	0	0	1	0
Southbridge	175	437.7	56	45	7	4	11	2	0	6	6	7	0
Southwick	69	610.0	27	19	5	0	4	1	0	1	1	0	1
Spencer	95	482.1	27	28	13	1	3	1	0	5	6	3	5
Springfield	1483	603.8	416	332	95	28	80	12	9	70	75	51	11
Sterling	41	443.3	14	16	4	2	2	0	0	1	1	1	0
Stockbridge	17	189.5	5	3	1	0	3	0	0	1	3	0	0
Stoneham	206	412.2	46	64	24	2	10	2	0	7	13	6	1
Stoughton	249	439.7	71	65	20	4	15	2	1	15	11	4	2
Stow	27	348.1	8	9	2	0	2	0	0	1	0	1	0

**Table 15. Selected Causes of Death by Municipality, 1997 (continued)**



Municipality	Total Deaths	Age adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
Sturbridge	66	452.9	28	19	4	1	5	0	0	2	1	1	1
Sudbury	93	374.7	33	25	6	3	3	0	0	3	3	1	2
Sunderland	15	309.8	4	4	2	0	4	0	0	0	1	0	0
Sutton	40	337.9	12	13	4	1	0	2	0	2	1	2	0
Swampscott	148	318.9	58	38	10	6	8	1	0	10	1	3	0
Swansea	109	335.0	35	29	5	2	8	0	2	5	3	4	0
Taunton	513	524.4	179	132	42	9	22	10	0	21	32	13	6
Templeton	57	409.6	16	21	4	2	3	0	0	1	3	2	0
Tewksbury	211	479.5	58	58	19	3	7	1	0	10	10	3	2
Tisbury	40	496.5	18	9	2	0	3	0	0	0	2	1	0
Tolland	2	346.1	1	0	0	0	0	0	0	0	0	0	0
Topsfield	38	228.8	11	9	1	2	3	0	0	3	1	2	0
Townsend	52	515.7	13	14	3	2	2	0	0	5	5	2	1
Truro	20	297.7	4	3	0	0	3	1	0	1	0	0	0
Tyngsborough	41	414.9	13	11	4	1	0	2	0	0	4	2	0
Tyringham	2	144.8	1	0	0	0	0	0	0	0	1	0	0
Upton	49	491.5	12	12	1	3	3	0	0	2	0	1	1
Uxbridge	89	461.4	30	24	7	1	7	0	1	3	2	2	2
Wakefield	210	334.5	58	69	19	7	7	1	0	12	11	1	0
Wales	8	491.0	0	4	2	0	1	0	0	1	0	0	0
Walpole	155	386.3	48	38	12	2	6	2	0	5	9	4	1
Waltham	483	395.1	130	110	20	12	40	3	2	19	20	18	4
Ware	103	477.6	37	28	9	3	6	1	0	4	0	4	1
Wareham	224	539.2	61	61	17	4	15	3	0	15	11	5	5
Warren	47	537.5	11	14	4	2	3	2	0	1	3	1	0
Warwick	10	729.6	4	1	0	0	0	0	0	0	0	0	1
Washington	5	306.3	1	1	0	0	0	0	0	1	1	0	0
Watertown	319	534.5	98	89	25	5	26	0	0	12	8	9	3
Wayland	80	291.8	26	20	6	1	7	0	0	5	1	2	1
Webster	189	457.7	67	45	9	5	12	2	0	7	9	8	0
Wellesley	201	274.6	60	46	14	5	22	0	0	6	10	2	0
Wellfleet	25	515.9	4	10	1	0	2	1	0	1	0	0	0
Wendell	3	521.0	1	1	0	0	0	0	0	0	0	0	0
Wenham	31	313.4	7	7	2	0	1	0	0	2	1	0	0
West Boylston	62	355.8	18	19	3	3	2	0	0	3	4	3	0
West Bridgewater	62	379.1	16	20	6	2	3	0	0	5	8	0	0

**Table 15. Selected Causes of Death by Municipality, 1997 (continued)**

Municipality	Total Deaths	Age adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
West Brookfield	32	356.1	10	9	3	0	2	0	0	2	1	0	0
West Newbury	19	350.3	6	6	1	1	2	0	0	0	0	0	0
West Springfield	260	391.7	68	76	14	8	21	1	0	15	10	5	1
West Stockbridge	10	172.8	1	2	0	0	2	0	0	1	1	1	0
West Tisbury	6	123.7	4	1	1	0	0	0	0	0	0	0	0
Westborough	155	463.2	43	33	5	1	15	0	3	8	6	3	1
Westfield	348	397.0	127	94	30	8	20	3	0	9	12	2	8
Westford	101	449.2	36	26	4	3	3	0	0	7	2	2	1
Westhampton	8	391.1	3	1	1	0	0	1	0	0	0	1	0
Westminster	36	410.0	9	13	5	1	2	2	0	0	2	1	0
Weston	105	344.4	23	27	4	2	16	2	0	8	5	1	2
Westport	125	411.3	41	33	11	1	7	1	0	6	5	2	3
Westwood	163	454.4	44	49	9	5	19	1	1	2	7	1	1
Weymouth	548	482.0	165	131	35	7	29	5	1	30	20	14	6
Whately	12	396.3	4	4	0	1	1	0	0	0	0	1	0
Whitman	89	416.9	26	30	7	4	3	1	0	3	3	1	1
Wilbraham	129	353.8	44	24	7	1	11	0	0	10	5	0	0
Williamsburg	17	234.8	4	6	3	0	2	0	0	2	0	0	0
Williamstown	75	339.5	17	20	5	1	5	0	0	4	4	0	3
Wilmington	159	602.8	46	39	6	5	8	0	0	6	10	5	4
Winchendon	91	635.3	26	31	5	1	10	1	0	5	2	0	0
Winchester	212	354.7	64	47	11	3	22	2	0	11	8	8	0
Windsor	2	103.8	0	0	0	0	0	0	0	0	1	0	0
Winthrop	203	450.3	64	50	19	2	9	1	0	7	7	7	1
Woburn	304	428.9	97	92	26	5	10	1	0	13	14	7	5
Worcester	1825	514.6	532	424	106	40	113	13	6	126	70	51	12
Worthington	2	75.8	2	0	0	0	0	0	0	0	0	0	0
Wrentham	105	590.8	36	25	8	2	4	0	0	3	4	1	1
Yarmouth	412	459.2	101	101	27	4	37	3	0	20	21	9	5

1. All rates are age-adjusted using the 1940 US Census standard population. 2. Includes only female breast cancer. 3. Chronic Obstructive Pulmonary Disease

**Table 16. Selected Causes of Death by Community Health Network Area (CHNA), 1997**

CHNA (Name and number)	Total Deaths	Age-adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
Alliance for Community Health (Boston,Chelsea, Revere, Winthrop) (19)	5920	509.6	1610	1435	386	110	326	43	42	320	221	161	74
Beverly/Gloucester Area (13)	1095	394.6	346	265	65	25	78	6	3	53	51	24	9
Blue Hills Community Health Alliance (Quincy,20)	3584	439.2	1158	892	256	67	192	33	7	168	146	80	36
Cambridge/Somerville Area (17)	2223	392.9	654	572	154	59	154	10	2	97	91	61	28
Cape Cod & Islands CommunityHealth Netwrk (27)	2772	408.9	763	723	192	41	211	22	1	101	128	66	20
Community Health Network of Berkshire (1)	1509	420.0	464	350	94	34	88	10	0	83	90	45	13
Community Partners for Health (Milford Area, 6)	1061	443.8	311	274	66	30	61	16	3	56	41	29	9
Community Wellness Coalition (WorcesterArea,8)	2797	455.1	809	683	170	66	175	26	6	171	111	72	15
Fitchburg/Gardner Community Health Network (9)	1907	428.8	549	496	130	40	116	23	2	96	100	50	11
Greater Attleboro/Taunton Area (24)	1723	445.5	561	436	115	35	95	26	0	90	84	45	16
Greater Brockton Community Health Network (22)	1923	480.5	585	514	158	42	95	17	6	85	120	38	12
Greater Framingham Area (7)	2496	383.6	725	677	186	63	158	15	6	121	108	62	24
Greater Haverhill Area (12)	1143	454.9	382	264	72	20	87	14	0	39	58	30	9
Greater Holyoke Area (3)	1168	399.1	367	275	73	21	71	13	0	64	55	21	11
Greater Lawrence Area (11)	1434	426.9	455	334	88	31	106	17	6	69	54	43	10
Greater Lowell Community Health Network (10)	2031	485.6	623	505	137	41	110	29	9	92	106	47	18
Greater New Bedford Area (26)	1982	431.8	676	471	120	41	122	19	3	62	94	63	15
Greater Southbridge Area (5)	969	444.3	303	277	69	30	50	15	2	36	38	30	13
Greater Springfield Community Health Network (4)	2818	493.3	808	662	175	55	178	23	9	154	135	73	21
Greater Woburn/Concord/Littleton Area (15)	1561	355.7	468	399	96	31	110	11	0	84	63	36	17
Hampshire County Partnership for Health (21)	1666	474.1	557	403	116	33	105	13	6	65	64	41	17
Medford/Malden/Melrose Area (16)	2348	391.2	704	619	169	38	146	14	4	122	97	49	16
North Shore Community Health Network (14)	2627	441.8	796	699	198	56	165	24	8	135	106	52	21
Partners for a Healthier Community (Fall River 25)	1513	452.1	529	361	88	21	100	9	6	70	52	44	16
South Shore Partners in Prevention (Plymouth,23)	1362	460.3	423	352	96	32	68	24	2	62	83	28	9
Upper Valley Health Web (Franklin County, 2)	840	451.4	236	189	48	11	57	17	0	53	43	21	12
West Suburban Health Network (Newton/Walth.18)	2160	340.3	620	548	112	52	177	12	4	119	93	50	15

1. All rates are age-adjusted using the 1940 US Census standard population. 2. Includes only female breast cancer. 3. Chronic Obstructive Pulmonary Disease.

**Table 17. Selected Causes of Death by County, 1997**

County Name	Total Deaths	Age-adjusted death rate <sup>1</sup>	Heart disease	Total Cancer	Lung Cancer	Breast Cancer <sup>2</sup>	Stroke	Motor vehicle	Homicide	Pneumonia & influenza	COPD <sup>3</sup>	Diabetes	Suicide
Barnstable	2545	403.2	688	665	177	38	190	21	1	94	120	64	18
Berkshire	1509	420.0	464	350	94	34	88	10	0	83	90	45	13
Bristol	4791	439.8	1634	1160	299	86	293	48	9	201	218	137	37
Dukes	141	460.5	45	37	10	1	11	0	0	4	5	1	1
Essex	6299	431.0	1979	1562	423	132	436	61	17	296	269	149	49
Franklin	675	438.4	186	155	43	8	42	16	0	48	34	18	9
Hampden	4532	487.7	1368	1083	298	90	287	37	17	219	204	115	40
Hampshire	1178	396.7	369	277	74	21	71	13	0	66	55	22	11
Middlesex	11356	390.0	3346	2913	739	250	741	88	21	574	498	283	106
Nantucket	86	567.3	30	21	5	2	10	1	0	3	3	1	1
Norfolk	5695	408.1	1798	1456	403	114	338	39	13	271	232	119	49
Plymouth	3782	459.5	1158	994	277	91	196	52	7	163	215	85	36
Suffolk	5539	537.2	1486	1349	367	103	302	43	39	294	210	155	69
Worcester	6504	441.8	1931	1653	420	155	396	72	13	351	279	167	48

1. All rates are age-adjusted using the 1940 US Census standard population. 2. Includes only female breast cancer. 3. Chronic Obstructive Pulmonary Disease

# APPENDIX



## **Technical Notes**

### **Change in Categories of Cancer Causes**

The grouping of ICD-9 codes for selected causes of cancer used in this document was updated beginning with Advance Data Deaths: 1994. The current format follows the NCHS ICD-9 groupings for 16 selected sub-categories of malignant neoplasms (including neoplasms of lymphatic and hematopoietic tissues) with the addition of female breast cancer and leukemia.

### **Change in Categories of Causes of Infant Deaths**

The ICD-9 cause categories presented in the infant mortality tables were changed to an expanded format starting with Advance Data Deaths:1994. The current format follows the NCHS ICD-9 groupings for 61 selected causes of infant deaths.

### **Data Sources**

Data for this document are derived from Massachusetts death certificates, Massachusetts birth certificates, the Public Document No. 1 (an annual report of Massachusetts vital statistics), the U.S. Federal Census, the Massachusetts Institute for Social and Economic Research (MISER) population estimates updated in July 1998, and the National Center for Health Statistics (NCHS).

### **Differences from Previously Published Data**

The population estimates for 1991-1996 were re-calculated using updated counts from MISER released in July 1998. These updated estimates yielded significantly different age-adjusted mortality rates, particularly for minority populations. This re-estimation will affect the comparison of 1991-1996 rates published here with previously published MDPH rates. Also, minor differences from previous reports may occur because of the updating of death certificate files.

### **Limitations of Small Numbers**

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

## Glossary

### Age-Adjusted Rate

A procedure for adjusting rates, designed to minimize the distortions created by differences in age distribution when comparing rates for populations with different age compositions. This calculation is useful when comparing death rates from different populations or in the same population over time. For example, if one wished to compare the 1980 death rates between Barnstable County (Cape Cod) and Hampshire County, the age-adjusted formula would account for the fact that 21% of the Barnstable County residents were 65 years of age or older, whereas only 10% 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. The 1940 U.S. population is used as the standard in this document for consistency with data published by NCHS.

### Age-Specific Rate

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

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

### 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. See Death Certificate on page 79.

### 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. These community coalitions will 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, the table on pages 72-74 provides the appropriate CHNA code for each city and town based on the new geographic definitions.

A Community Health Network Area (CHNA) is defined as an aggregation of cities and towns. It is hoped the Networks will mobilize around key health issues impacting the community, promote prevention efforts, enhance access to care, provide opportunities for more collaboration among agencies, and create a client-centered, outcome-oriented health service delivery system. Community Health Networks will also promote efficiency in service delivery by working to reduce duplication and overlap, and by identifying gaps, in service.

### **Crude Death Rate**

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

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

### **Death Certificate**

A vital record signed by a licensed physician that includes cause of death, decedent's name, sex, birth date, place of residence, and place of occurrence. (A copy of the Massachusetts death certificate used in 1997 is on page 79.) Immediate cause of death is recorded on the first line, followed by conditions giving rise to the immediate cause. This information is coded according to the International Classification of Diseases, Ninth Revision, then processed by a software program developed by the National Center for Health Statistics. The result of the coding and programming procedures is the determination of the underlying cause of death.

### **ICD-9**

See International Classification of Diseases, Ninth Revision.

### **International Classification of Diseases, Ninth Revision**

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. The Ninth Revision, published in 1977, is used to code mortality data beginning with 1979. ICD-9 codes used in this publication are listed on pages 77-78.

## **MISER**

MISER is acronym for Massachusetts Institute for Social and Economic Research. The 1991-1995 Massachusetts annual population estimates (released in July 1998) used in this publication are from this Institute.

## **NCHS**

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

## **Occurrence Death**

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

## **Population**

Population counts are based on U.S. decennial census counts, and population estimates are calculated for intercensal years. For 1981-1989, population estimates are derived as linear interpolations from the 1980 and 1990 census. For 1991-1995, population estimates are based on MISER's annual estimates released in July, 1998. 1996 and 1997 population estimate are based upon linear extrapolation using the 1990 Census and 1995 MISER estimate (July 1998). The population estimates from MISER are categorized by White non-Hispanic, Black non-Hispanic, Asian/American Indian and Hispanic while the mortality data in this publication are presented in the race/ethnicity categories of White, Black, Asian and/or American Indians, where Hispanics are included within the race categories. In order to estimate the 1997 population distribution for the race/ethnicity categories that are used in this publication, the age-sex-race distribution from the 1990 US Census (MARS file) were applied to 1997 population estimates. This technique was used to to separate Asians from the combined category of Asian and American Indian, and add Hispanics back into the estimates of whites, blacks, and Asians. (The 1997 Massachusetts population estimates used in this publication appear on page 72-76).

## **Race and Hispanic Ethnicity**

For death records, race and Hispanic ethnicity are specified by the death record informant (for example, spouse or next of kin). Prior to 1989, death certificates included a question on race, but a separate question on Hispanic origin was not added to the death record until January 1, 1989. Therefore, trend tables that reflect pre-1989 data do not contain a separate category for Hispanics. For tables that do provide a separate

category for Hispanics, it should be noted that persons of Hispanic ethnicity are also included in the race categories, consistent with the U.S. Census population classification.

### **Resident Death**

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

### **Total Rate of Change**

The total rate of change is calculated as follows:

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

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

## Population Estimates for Massachusetts Communities, 1997

TOWN NAME	COUNTY	CHNA	POPULATION	TOWN NAME	COUNTY	CHNA	POPULATION
Abington	Plymouth	22	15,061	Conway	Franklin	2	1,666
Acton	Middlesex	15	20,652	Cummington	Hampshire	3	828
Acushnet	Bristol	26	10,289	Dalton	Berkshire	1	7,500
Adams	Berkshire	1	9,308	Danvers	Essex	14	25,341
Agawam	Hampden	4	30,146	Dartmouth	Bristol	26	28,742
Alford	Berkshire	1	458	Dedham	Norfolk	18	23,867
Amesbury	Essex	12	16,347	Deerfield	Franklin	2	5,297
Amherst	Hampshire	3	45,806	Dennis	Barnstable	27	14,395
Andover	Essex	11	30,971	Dighton	Bristol	24	6,077
Arlington	Middlesex	17	42,486	Douglas	Worcester	6	7,029
Ashburnham	Worcester	9	6,228	Dover	Norfolk	18	5,938
Ashby	Middlesex	9	2,522	Dracut	Middlesex	10	27,913
Ashfield	Franklin	2	1,817	Dudley	Worcester	5	9,655
Ashland	Middlesex	7	13,972	Dunstable	Middlesex	10	2,832
Athol	Worcester	2	11,123	Duxbury	Plymouth	23	14,620
Attleboro	Bristol	24	38,834	East Bridgewater	Plymouth	22	12,723
Auburn	Worcester	8	15,921	East Brookfield	Worcester	5	2,104
Avon	Norfolk	22	5,258	East Longmeadow	Hampden	4	14,546
Ayer	Middlesex	9	5,013	Eastham	Barnstable	27	4,792
Barnstable	Barnstable	27	45,912	Easthampton	Hampshire	3	16,674
Barre	Worcester	9	4,898	Easton	Bristol	22	21,586
Becket	Berkshire	1	1,541	Edgartown	Dukes	27	3,630
Bedford	Middlesex	15	13,609	Egremont	Berkshire	1	1,200
Belchertown	Hampshire	3	12,424	Erving	Franklin	2	1,399
Bellingham	Norfolk	6	15,771	Essex	Essex	13	3,294
Belmont	Middlesex	17	25,407	Everett	Middlesex	16	36,545
Berkley	Bristol	24	5,113	Fairhaven	Bristol	26	16,389
Berlin	Worcester	9	2,440	Fall River	Bristol	25	89,246
Bernardston	Franklin	2	2,165	Falmouth	Barnstable	27	29,702
Beverly	Essex	13	41,016	Fitchburg	Worcester	9	37,864
Billerica	Middlesex	10	38,145	Florida	Berkshire	1	793
Blackstone	Worcester	6	9,057	Foxborough	Norfolk	7	16,280
Blandford	Hampden	4	1,257	Framingham	Middlesex	7	64,503
Bolton	Worcester	9	4,107	Franklin	Norfolk	6	26,117
Boston	Suffolk	19	560,741	Freetown	Bristol	26	8,702
Bourne	Barnstable	27	16,130	Gardner	Worcester	9	20,619
Boxborough	Middlesex	15	4,776	Gay Head	Dukes	27	184
Boxford	Essex	12	7,772	Georgetown	Essex	12	7,512
Boylston	Worcester	8	3,910	Gill	Franklin	2	1,499
Braintree	Norfolk	20	35,299	Gloucester	Essex	13	27,960
Brewster	Barnstable	27	10,408	Goshen	Hampshire	3	987
Bridgewater	Plymouth	22	23,985	Gosnold	Dukes	27	201
Brimfield	Hampden	5	3,104	Grafton	Worcester	8	13,877
Brockton	Plymouth	22	91,410	Granby	Hampshire	3	6,262
Brookfield	Worcester	5	2,921	Granville	Hampden	4	1,584
Brookline	Norfolk	19	59,664	Great Barrington	Berkshire	1	8,354
Buckland	Franklin	2	1,958	Greenfield	Franklin	2	18,811
Burlington	Middlesex	15	24,081	Groton	Middlesex	9	9,277
Cambridge	Middlesex	17	102,211	Groveland	Essex	12	5,769
Canton	Norfolk	20	20,202	Hadley	Hampshire	3	4,617
Carlisle	Middlesex	15	4,361	Halifax	Plymouth	23	6,961
Carver	Plymouth	23	11,233	Hamilton	Essex	13	7,649
Charlemont	Franklin	2	1,106	Hampden	Hampden	4	4,851
Charlton	Worcester	5	11,437	Hancock	Berkshire	1	709
Chatham	Barnstable	27	6,702	Hanover	Plymouth	23	12,668
Chelmsford	Middlesex	10	35,528	Hanson	Plymouth	23	9,770
Chelsea	Suffolk	19	30,102	Hardwick	Worcester	9	2,590
Cheshire	Berkshire	1	3,811	Harvard	Worcester	9	11,128
Chester	Hampden	21	1,273	Harwich	Barnstable	27	11,290
Chesterfield	Hampshire	3	1,067	Hatfield	Hampshire	3	3,462
Chicopee	Hampden	21	56,571	Haverhill	Essex	12	55,547
Chilmark	Dukes	27	746	Hawley	Franklin	2	313
Clarksburg	Berkshire	1	1,767	Heath	Franklin	2	833
Clinton	Worcester	9	13,614	Hingham	Plymouth	20	21,752
Cohasset	Norfolk	20	7,321	Hinsdale	Berkshire	1	2,147
Colrain	Franklin	2	1,888	Holbrook	Norfolk	22	10,974
Concord	Middlesex	15	18,922	Holden	Worcester	8	16,010

**Population Estimates for Massachusetts Communities, 1997, continued**

TOWN NAME	COUNTY	CHNA	POPULATION	TOWN NAME	COUNTY	CHNA	POPULATION
Holland	Hampden	5	2,261	New Marlborough	Berkshire	1	1,686
Holliston	Middlesex	7	14,639	New Salem	Franklin	2	898
Holyoke	Hampden	21	38,092	Newbury	Essex	12	6,185
Hopedale	Worcester	6	5,819	Newburyport	Essex	12	16,670
Hopkinton	Middlesex	7	10,850	Newton	Middlesex	18	83,886
Hubbardston	Worcester	9	3,303	Norfolk	Norfolk	7	9,818
Hudson	Middlesex	7	18,832	North Adams	Berkshire	1	18,844
Hull	Plymouth	20	10,817	North Andover	Essex	11	23,819
Huntington	Hampshire	21	2,463	North Attleboro	Bristol	24	27,487
Ipswich	Essex	13	11,806	North Brookfield	Worcester	5	5,011
Kingston	Plymouth	23	10,083	North Reading	Middlesex	16	12,695
Lakeville	Plymouth	24	8,779	Northampton	Hampshire	3	31,784
Lancaster	Worcester	9	7,038	Northborough	Worcester	7	13,361
Lanesborough	Berkshire	1	3,212	Northbridge	Worcester	6	13,316
Lawrence	Essex	11	69,220	Northfield	Franklin	2	3,259
Lee	Berkshire	1	5,490	Norton	Bristol	24	15,018
Leicester	Worcester	8	10,804	Norwell	Plymouth	20	9,691
Lenox	Berkshire	1	5,197	Norwood	Norfolk	20	29,690
Leominster	Worcester	9	41,236	Oak Bluffs	Dukes	27	3,238
Leverett	Franklin	2	2,014	Oakham	Worcester	9	1,650
Lexington	Middlesex	15	31,549	Orange	Franklin	2	7,435
Leyden	Franklin	2	742	Orleans	Barnstable	27	6,559
Lincoln	Middlesex	15	7,522	Otis	Berkshire	1	1,231
Littleton	Middlesex	15	7,686	Oxford	Worcester	5	13,609
Longmeadow	Hampden	4	16,444	Palmer	Hampden	4	12,741
Lowell	Middlesex	10	104,270	Paxton	Worcester	8	4,283
Ludlow	Hampden	21	19,741	Peabody	Essex	14	50,877
Lunenburg	Worcester	9	10,028	Pelham	Hampshire	3	1,462
Lynn	Essex	14	79,589	Pembroke	Plymouth	23	15,911
Lynnfield	Essex	14	12,080	Pepperell	Middlesex	9	10,979
Malden	Middlesex	16	51,486	Peru	Berkshire	1	836
Manchester	Essex	13	5,399	Petersham	Worcester	2	1,211
Mansfield	Bristol	24	19,759	Phillipston	Worcester	2	1,673
Marblehead	Essex	14	21,260	Pittsfield	Berkshire	1	48,652
Marion	Plymouth	26	6,653	Plainfield	Hampshire	3	587
Marlborough	Middlesex	7	34,045	Plainville	Norfolk	7	7,345
Marshfield	Plymouth	23	22,983	Plymouth	Plymouth	23	49,895
Mashpee	Barnstable	27	9,778	Plympton	Plymouth	23	2,744
Mattapoisett	Plymouth	26	5,946	Princeton	Worcester	9	3,414
Maynard	Middlesex	7	10,357	Provincetown	Barnstable	27	3,241
Medfield	Norfolk	7	12,389	Quincy	Norfolk	20	84,989
Medford	Middlesex	16	56,134	Randolph	Norfolk	20	31,669
Medway	Norfolk	6	11,933	Raynham	Bristol	24	11,009
Melrose	Middlesex	16	26,727	Reading	Middlesex	16	24,146
Mendon	Worcester	6	4,398	Rehoboth	Bristol	24	9,812
Merrimac	Essex	12	5,674	Revere	Suffolk	19	44,121
Methuen	Essex	11	42,644	Richmond	Berkshire	1	2,000
Middleborough	Plymouth	24	19,437	Rochester	Plymouth	26	4,355
Middlefield	Hampshire	3	475	Rockland	Plymouth	23	17,386
Middleton	Essex	11	5,266	Rockport	Essex	13	8,346
Milford	Worcester	6	23,877	Rowe	Franklin	2	356
Millbury	Worcester	8	12,695	Rowley	Essex	12	5,160
Millis	Norfolk	7	7,440	Royalston	Worcester	2	926
Millville	Worcester	6	2,840	Russell	Hampden	4	1,886
Milton	Norfolk	20	27,383	Rutland	Worcester	9	5,911
Monroe	Franklin	2	165	Salem	Essex	14	40,784
Monson	Hampden	4	7,951	Salisbury	Essex	12	6,921
Montague	Franklin	2	7,342	Sandisfield	Berkshire	1	642
Monterey	Berkshire	1	885	Sandwich	Barnstable	27	18,246
Montgomery	Hampden	4	746	Saugus	Essex	14	25,593
Mt. Washington	Berkshire	1	135	Savoy	Berkshire	1	692
Nahant	Essex	14	4,092	Scituate	Plymouth	20	17,325
Nantucket	Nantucket	27	7,500	Seekonk	Bristol	24	14,093
Natick	Middlesex	7	30,855	Sharon	Norfolk	20	16,300
Needham	Norfolk	18	27,485	Sheffield	Berkshire	1	3,313
New Ashford	Berkshire	1	214	Shelburne	Franklin	2	1,910
New Bedford	Bristol	26	96,835	Sherborn	Middlesex	7	4,595
New Braintree	Worcester	9	909	Shirley	Middlesex	9	6,295

**Population Estimates for Massachusetts Communities, 1997, continued**

TOWN NAME	COUNTY	CHNA	POPULATION	TOWN NAME	COUNTY	CHNA	POPULATION
Shrewsbury	Worcester	8	27,171	Warwick	Franklin	2	755
Shutesbury	Franklin	2	1,957	Washington	Berkshire	1	652
Somerset	Bristol	25	19,151	Watertown	Middlesex	17	26,734
Somerville	Middlesex	17	78,535	Wayland	Middlesex	7	12,889
South Hadley	Hampshire	3	20,052	Webster	Worcester	5	16,090
Southampton	Hampshire	3	5,430	Wellesley	Norfolk	18	28,688
Southborough	Worcester	7	7,804	Welfleet	Barnstable	27	2,458
Southbridge	Worcester	5	18,460	Wendell	Franklin	2	1,139
Southwick	Hampden	4	8,835	Wenham	Essex	13	4,579
Spencer	Worcester	5	11,789	West Boylston	Worcester	8	6,899
Springfield	Hampden	4	141,908	West Bridgewater	Plymouth	22	6,830
Sterling	Worcester	9	7,186	West Brookfield	Worcester	5	3,623
Stockbridge	Berkshire	1	2,819	West Newbury	Essex	12	3,973
Stoneham	Middlesex	16	21,693	West Springfield	Hampden	4	29,196
Stoughton	Norfolk	22	28,143	West Stockbridge	Berkshire	1	1,292
Stow	Middlesex	7	6,193	West Tisbury	Dukes	27	2,340
Sturbridge	Worcester	5	7,503	Westborough	Worcester	7	16,798
Sudbury	Middlesex	7	16,125	Westfield	Hampden	21	43,491
Sunderland	Franklin	2	3,256	Westford	Middlesex	10	19,369
Sutton	Worcester	6	7,678	Westhampton	Hampshire	3	1,569
Swampscott	Essex	14	14,827	Westminster	Worcester	9	6,316
Swansea	Bristol	25	16,156	Weston	Middlesex	18	11,905
Taunton	Bristol	24	51,745	Westport	Bristol	25	14,933
Templeton	Worcester	9	6,706	Westwood	Norfolk	18	13,949
Tewksbury	Middlesex	10	29,913	Weymouth	Norfolk	20	54,606
Tisbury	Dukes	27	3,510	Whately	Franklin	2	1,243
Tolland	Hampden	4	203	Whitman	Plymouth	22	13,649
Topsfield	Essex	13	6,257	Wilbraham	Hampden	4	13,349
Townsend	Middlesex	9	9,300	Williamsburg	Hampshire	3	2,673
Truro	Barnstable	27	1,722	Williamstown	Berkshire	1	8,424
Tyngsborough	Middlesex	10	9,635	Wilmington	Middlesex	15	19,585
Tyringham	Berkshire	1	559	Winchendon	Worcester	9	9,003
Upton	Worcester	6	4,839	Winchester	Middlesex	15	21,134
Uxbridge	Worcester	6	10,902	Windsor	Berkshire	1	899
Wakefield	Middlesex	16	24,723	Winthrop	Suffolk	19	18,255
Wales	Hampden	5	1,589	Woburn	Middlesex	15	36,670
Walpole	Norfolk	7	22,561	Worcester	Worcester	8	167,877
Waltham	Middlesex	18	61,260	Worthington	Hampshire	3	1,428
Ware	Hampshire	3	10,566	Wrentham	Norfolk	7	10,295
Wareham	Plymouth	26	19,680	Yarmouth	Barnstable	27	22,760
Warren	Worcester	5	4,869				

**NOTE:** 1997 population estimates were based upon linear extrapolation using the 1990 Census and 1995 MISER estimates released in July 1998.

**Population Estimates for Massachusetts Community Health  
Network Areas (CHNA) and Counties, 1997**

<b>CHNA</b>	<b>POPULATION</b>	<b>COUNTY</b>	<b>POPULATION</b>
1. Community Health Network of Berkshire	145,262	Barnstable	204,095
2. Upper Valley Health Web (Franklin County)	86,156	Berkshire	145,262
3. Greater Holyoke Area	168,153	Bristol	520,976
4. Greater Springfield Community Health Network	285,643	Dukes	13,849
5. Greater Southbridge Area	114,025	Essex	700,199
6. Community Partners for Health (Milford Area)	143,576	Franklin	71,223
7. Greater Framingham	361,946	Hampden	451,765
8. Community Wellness Coalition (Worcester Area)	279,447	Hampshire	170,616
9. Fitchburg/Gardner Area Community Health Network	249,574	Middlesex	1,445,966
10. Greater Lowell Community Health Network	267,605	Nantucket	7,500
11. Greater Lawrence Area	171,920	Norfolk	651,374
12. Greater Haverhill Area	137,530	Plymouth	462,347
13. Beverly/Gloucester Area	116,306	Suffolk	653,219
14. North Shore Community Health Network	274,443	Worcester	735,357
15. Greater Woburn/Concord/Littleton Area	210,547		
16. Medford/Malden/Melrose Area	254,149	<b>STATE</b>	<b>6,233,748</b>
17. Cambridge/Somerville Area	275,373		
18. West Suburban Health Network (Newton/Waltham)	256,978		
19. City of Boston/Chelsea/Revere/Winthrop	712,883		
20. Blue Hills Community Health Alliance (Quincy Area)	367,044		
21. Hampshire County Partnership for Health	161,631		
22. Greater Brockton Community Health Network	229,619		
23. South Shore Community Partners in Prevention (Greater Plymouth Area)	174,254		
24. Greater Attleboro/Taunton Area	227,163		
25. Partners for a Healthier Community (Fall River Area)	139,486		
26. Greater New Bedford Area	197,591		
27. Cape and Islands Community Health Network	225,444		

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**NOTE:** 1997 population estimates were based upon linear extrapolation using the 1990 Census and 1995 MISER estimates released in July 1998.

**1997 Massachusetts Population Estimates<sup>1</sup> By Age Group,  
Gender, Race<sup>2</sup> and Hispanic Ethnicity<sup>3</sup>**

AGE	SEX	TOTAL	WHITE	BLACK	ASIANS	HISPANIC ETHNICITY
UNDER 1	MALE	42,405	36,531	4,044	1,684	4,866
	FEMALE	40,073	34,460	3,904	1,581	4,654
	TOTAL	82,478	70,991	7,948	3,265	9,520
1 TO 4	MALE	169,793	146,100	16,311	6,798	19,507
	FEMALE	160,439	138,027	15,559	6,338	18,645
	TOTAL	330,232	284,127	31,870	13,136	38,152
5 TO 14	MALE	434,486	386,882	31,197	15,061	35,189
	FEMALE	413,677	366,986	30,673	14,629	33,928
	TOTAL	848,163	753,868	61,870	29,690	69,117
15 TO 24	MALE	373,804	331,948	27,292	13,499	30,612
	FEMALE	358,852	317,308	26,977	13,540	29,365
	TOTAL	732,656	649,256	54,269	27,040	59,977
25 TO 34	MALE	530,129	475,819	32,721	20,119	36,824
	FEMALE	535,927	479,843	33,946	20,600	35,825
	TOTAL	1,066,056	955,661	66,667	40,720	72,649
35 TO 44	MALE	519,943	475,157	26,641	16,630	24,646
	FEMALE	534,877	489,299	27,536	16,511	25,339
	TOTAL	1,054,820	964,456	54,176	33,141	49,985
45 TO 54	MALE	397,103	371,186	15,995	8,990	13,209
	FEMALE	419,906	391,721	18,063	9,091	14,432
	TOTAL	817,009	762,906	34,058	18,081	27,641
55 TO 64	MALE	222,233	208,809	8,129	4,695	6,587
	FEMALE	244,852	229,419	10,382	4,540	8,046
	TOTAL	467,085	438,228	18,512	9,234	14,633
65 TO 74	MALE	194,192	185,734	5,539	2,567	3,773
	FEMALE	243,304	231,690	7,796	3,340	4,860
	TOTAL	437,496	417,425	13,336	5,907	8,633
75 TO 84	MALE	105,623	102,019	2,398	1,070	1,748
	FEMALE	175,818	170,104	4,106	1,330	2,931
	TOTAL	281,441	272,123	6,504	2,401	4,679
85 +	MALE	29,751	28,813	641	236	706
	FEMALE	86,561	84,392	1,617	469	1,244
	TOTAL	116,312	113,204	2,258	706	1,950
ALL AGES	MALE	3,019,462	2,748,998	170,909	91,350	177,667
	FEMALE	3,214,286	2,933,248	180,559	91,970	179,269
	TOTAL	6,233,748	5,682,246	351,469	183,320	356,936

1. 1997 population estimates were based upon linear extrapolation using the 1990 Census and 1995 MISER estimates (July 1998). 2. The age-sex-race distributions from the 1990 US Census (MARS file) were applied to 1997 population estimates. This technique was used to separate Asians from the combined category of Asian and American Indian, and to add Hispanics back into the estimates of white, black, and Asian populations. 3. Persons of Hispanic ethnicity are also included in the race categories, consistent with the US census population classification.



**ICD-9 Codes Used in this Publication**  
(Sorted by ICD-9 Codes)

<b>Cause of Death</b>	<b>ICD-9 Codes</b>
Infectious and parasitic diseases	001-139
Septicemia	038
AIDS and HIV-related diseases	042-044
AIDS	042
AIDS-like syndrome	043
Other HIV infection	044
Cancer	140-208
Cancer of the esophagus	150
Cancer of the stomach and digestive organs	150-159
Cancer of the stomach	151
Cancer of the colon, rectum, rectosigmoid junction, and anus	153-154
Cancer of the pancreas	157
Cancer of the lung and other respiratory organs	160-165
Cancer of the trachea, bronchus, and lung	162
Melanoma of the skin	172
Cancer of the female breast	174
Cancer of the body of the uterus and of uterus, parts unspecified	179,182
Cancer of the cervix	180
Cancer of the ovary and uterine adnexa	183
Cancer of the prostate	185
Cancer of the bladder	188
Cancer of the kidneys and other unspecified urinary organs	189
Cancer of the brain & unspecified parts of the nervous system	191-192
Non-Hodgkin's lymphoma	200,202 (except 202.4)
Hodgkin's Disease	201
Leukemia	202.4,204-208
Multiple myeloma and other immunoproliferative neoplasms	203
Diabetes (diabetes mellitus)	250
Heart disease	390-398, 402, 404-429
Cerebrovascular disease (stroke)	430-438
Other diseases of arteries, arterioles, and capillaries (other artery diseases)	441-448
Pneumonia	480-486
Pneumonia and influenza	480-487
Chronic obstructive pulmonary disease (COPD)	490-496
Chronic liver disease and cirrhosis	571
Nephritis	580-589
Congenital anomalies	740-759
Perinatal conditions (certain conditions of the perinatal period)	760-779
Sudden infant death syndrome (SIDS)	798.0
External causes of injuries and poisonings (intentional & unintentional injuries)	E800-E999
Unintentional Injuries	E800-E949
Unintentional injuries excluding motor vehicle-related injuries	E800-E809, E826-949
Other injuries	E800-E809, E826-E949, E970-E999
Other diseases of arteries, arterioles, and capillaries (other artery diseases)	441-448
Motor vehicle-related injuries	E810-E825
Suicide and self-inflicted injuries	E950-E959
Homicide	E960-E969
Legal Intervention	E970-E978
External causes of undetermined intent	E980-E989

**ICD-9 Codes Used in this Publication**  
(Sorted by Cause of Death)

<b>Cause of Death</b>	<b>ICD-9 Codes</b>
AIDS	042
AIDS and HIV-related diseases	042-044
AIDS-like syndrome	043
Cancer	140-208
Cancer of the brain and unspecified parts of the nervous system	191-192
Cancer of the bladder	188
Cancer of the body of the uterus, and of the uterus, parts unspecified	179,182
Cancer of the cervix	180
Cancer of the colon, rectum, rectosigmoid junction, and anus	153-154
Cancer of the esophagus	150
Cancer of the female breast	174
Cancer of the kidney and other unspecified urinary organs	189
Cancer of the lung and other respiratory organs	160-165
Cancer of the ovary and uterine adnexa	183
Cancer of the pancreas	157
Cancer of the prostate	185
Cancer of the stomach	151
Cancer of the stomach and digestive organs	150-159
Cancer of the trachea, bronchus, and lung	162
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External causes of injuries and poisonings (intentional & unintentional injuries)	E800-E999
External causes of undetermined intent	E980-E989
Heart disease	390-398, 402,404-429
Hodgkin's Disease	201
Homicide	E960-E969
Infectious and parasitic diseases	001-139
Legal intervention	E970-E978
Leukemia	202.2, 204-208
Melanoma of the skin	172
Motor vehicle-related injuries	E810-E825
Multiple myeloma and other immunoproliferative neoplasms	203
Nephritis	580-589
Non-Hodgkin's lymphoma	200, 202 (except 202.4)
Other HIV infection	044
Other injuries	E800-E809, E826-E949, E970-E999
Other diseases of arteries, arterioles, and capillaries (other artery diseases)	441-448
Perinatal conditions (certain conditions of the perinatal period)	760-779
Pneumonia	480-486
Pneumonia and influenza	480-487
Septicemia	038
Stroke (cerebrovascular disease)	430-438
Sudden infant death syndrome (SIDS)	798.0
Suicide and self-inflicted injuries	E950-E959
Unintentional Injuries	E800-E949
Unintentional injuries excluding motor vehicle-related injuries	E800-E809, E826-949

**Massachusetts Death Certificate: 1997**

SAMPLE



## Advance Data: Deaths1997 Evaluation Form

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