Data Brief: Massachusetts Deaths 2013

Massachusetts Department of Public Health AUGUST 2015

As in previous years, Massachusetts mortality continues to compare favorably with the U.S. and there are continued declines in many of the leading causes of death. Most death rates in Massachusetts were lower than those of the United States including those for heart disease, stroke, chronic lower respiratory disease, unintentional injuries, homicide, suicide, Alzheimer's disease, chronic liver disease, HIV/AIDS, infant mortality, and diabetes. Looking at the greatest differences in age-adjusted rates per 100,000 people, some examples include the homicide rate in Massachusetts (2.3) was 57% lower than the U.S. homicide rate (5.2), and the Massachusetts rate for suicides (8.5) was 33% below the U.S. rate (12.6). The rate of all firearm-related deaths in Massachusetts was one-third the rate of firearm-related deaths in the United States (3.2 deaths per 100,000 compared with 10.4 per 100,000).

The top 10 causes of death are shown in the table below, with comparisons to the years 2000, 2009, and 2012. As in recent years, cancer and heart disease are the leading causes of death in Massachusetts, accounting for almost half of all deaths[1]. The number and rate of 7 of the 10 leading causes of death were statistically significantly lower than in 2000. Notable decreases since 2000 include a 34% decrease in the death rate for heart disease and a 46% decrease in the death rate for stroke. Also notable is the 62% drop in deaths since 2000 where HIV/AIDS is listed as the underlying cause of death. In contrast, the death rate for injuries of all causes (including opioids and falls) increased by 30% since 2000. All opioid related deaths have increased by 162% since 2000 and by 33% since 2012. In 2013, the ranking for the 10 leading causes of death remained unchanged from 2012 except for diabetes and Ill-defined conditions, which switched places. The death rate for cancer decreased by 4.4% from 2012, driven largely by a 9.0% decline in age-adjusted lung cancer mortality. Compared to 2012, the 2013 death rate for all injuries increased by 9.4%, driven largely by an increase in poisoning and opioid deaths.

Of the 54,609 deaths in 2013, 20,277 (37%) occurred in hospitals, 15,652 (29%) occurred in nursing homes, 15,117 (28%) occurred at home, and 617 (1%) were pronounced dead on arrival at emergency departments[2]. In 2013, the percentage of deaths which occurred at home increased by 3.9% from 2012, and has been increasing by 3.6% per year since 2008.

Several factors may account for the generally favorable numbers in Massachusetts, including high quality health care, higher than average socioeconomics, and high education levels relative to other states. Nonetheless, disparities persist with higher death rates for certain causes of death for some racial groups, for the poor, for those with lower levels of education, and for those who live in certain geographical areas. These disparities have remained relatively constant in recent years. For detailed information on these disparities, please refer to the separate Data Supplement (*Massachusetts Deaths 2013: Data Supplement*).

Our special focus for the 2013 Death report is on infant mortality in Massachusetts: how it has changed over time among population groups and within communities in the state.

[1] Both in terms of absolute numbers and also when adjusted for the age of the population.
[2] Please see Table 4 in the 2013 Data Supplement for a complete list of places of death

Leading Causes of Death[1], Massachusetts: 2000, 2009, 2012, 2013

	2000			2009			2012			2013		
Cause	**Rank**	**Number of Deaths**	**Age Adjusted rate per 100,000**	**Rank**	**Number of Deaths**	**Age Adjusted rate per 100,000**	**Rank**	**Number of Deaths**	**Age Adjusted rate per 100,000**	**Rank**	**Number of Deaths**	**Age Adjusted rate per 100,000**
Cancer	2	14,006	206.9	1	13,042	174.0	1	12,850	166.7	1	12,851	142.2
Heart Disease	1	15,313	218.0	2	12,233	155.0	2	11,586	141.3	2	12,077	159.5
All Injuries combined	5	2,386	35.9	3	2,920	41.4	3	3,053	42.6	3	3,378	46.7
Chronic Lower Respiratory Disease	4	2,911	41.9	5	2,546	33.6	4	2,520	32.3	4	2,575	31.8
Stroke	3	3,645	51.2	4	2,552	32.2	5	2,360	28.7	5	2,355	27.7
Alzheimer's Disease	7	1,427	19.7	6	1,690	20.6	6	1,711	20.1	6	1,698	19.4
Influenza & Pneumonia	6	2,110	29.3	7	1,335	16.8	7	1,356	16.3	7	1,551	18.0
Nephritis	9	1,230	17.6	8	1,267	16.1	8	1,267	15.7	8	1,263	15.2
Diabetes	13	490	7.1	11	617	8.2	10	1,098	13.9	9	1,149	14.2
Ill-defined conditions-signs and symptoms	8	1,353	19.7	9	995	13.1	9	1,120[2]	14.3	10	958	11.8

1. The National Center for Health Statistics (NCHS) publishes a list of 113 selected causes of death from which we select 57 causes and order them by their number of deaths. 2. This category is often dependent on receiving additional information from the Office of the Chief Medical Examiner (OCME). With the sharp increase in opioid-related deaths in Massachusetts, the OCME made an effort to complete work on as many of these cases as possible. As a result, it is possible that the 2013 death file has a higher proportion of such cases than previous years and could account for some of the recent increase.

Leading Causes of Death[1] by County, Massachusetts: 2013

Rank	County													
	Barnstable	Berkshire	Bristol	Dukes	Essex	Franklin	Hampden	Hampshire	Middlesex	Nantucket	Norfolk	Plymouth	Suffolk	Worcester
1	Heart Disease (699)	Heart Disease (369)	Cancer (1,159)	Heart Disease (35)	Heart Disease (1,452)	Cancer (163)	Cancer (1,008)	Cancer (299)	Cancer (2,689)	Cancer (15)	Cancer (1,373)	Cancer (1,042)	Cancer (1,138)	Cancer (1,522)
2	Cancer (674)	Cancer (322)	Heart Disease (1,126)	Cancer (32)	Cancer (1,415)	Heart Disease (158)	Heart Disease (1,008)	Heart Disease (280)	Heart Disease (2,308)	Heart Disease (7)	Heart Disease (1,276)	Heart Disease (1,003)	Heart Disease (900)	Heart Disease (1,456)
3	CLRD[2] (158)	CLRD[2] (79)	CLRD[2] (270)	Influenza & Pneumonia (10)	Unintentional Injuries (300)	CLRD[2] (50)	Unintentional Injuries (211)	Unintentional Injuries (68)	CLRD[2] (477)	Atherosclerosis (4)	CLRD[2] (253)	CLRD[2] (213)	Unintentional Injuries (243)	Stroke (364)
4	Stroke (151)	Unintentional Injuries (77)	Unintentional Injuries (237)	Stroke (7)	CLRD[2] (275)	Stroke (37)	CLRD[2] (193)	Stroke (61)	Stroke (471)	CLRD[2] (3)	Unintentional Injuries (233)	Unintentional Injuries (209)	CLRD[2] (200)	CLRD[2] (340)
5	Alzheimer's Disease (149)	Alzheimer's Disease (73)	Stroke (189)	CLRD[2] (6)	Stroke (262)	Unintentional Injuries (28)	Stroke (170)	CLRD[2] (58)	Unintentional Injuries (454)	Stroke (3)	Stroke (216)	Stroke (181)	Stroke (178)	Unintentional Injuries (317)
6	Unintentional Injuries (100)	Stroke (65)	Alzheimer's Disease (168)	Unintentional Injuries (6)	Influenza & Pneumonia (166)	Influenza & Pneumonia (20)	Influenza & Pneumonia (121)	Influenza & Pneumonia (38)	Alzheimer's Disease (356)	Influenza & Pneumonia (2)	Alzheimer's Disease (178)	Alzheimer's Disease (174)	Diabetes (130)	Alzheimer's Disease (212)
7	Influenza & Pneumonia (75)	Influenza & Pneumonia (34)	Influenza & Pneumonia (163)	Nephritis (5)	Alzheimer's Disease (154)	Alzheimer's Disease (16)	Nephritis (121)	Alzheimer's Disease (31)	Influenza & Pneumonia (299)	Unintentional Injuries (2)	Influenza & Pneumonia (145)	Influenza & Pneumonia (144)	Alzheimer's Disease (127)	Influenza & Pneumonia (210)

Leading Causes of Death[1] by County, Massachusetts: 2013

Rank	County													
	Barnstable	Berkshire	Bristol	Dukes	Essex	Franklin	Hampden	Hampshire	Middlesex	Nantucket	Norfolk	Plymouth	Suffolk	Worcester
8	Diabetes (62)	Nephritis (28)	Nephritis (143)	Alzheimer's Disease (4)	Nephritis (143)	Diabetes (12)	Diabetes (83)	Diabetes (27)	Nephritis (269)	Hypertension (2)	Nephritis (131)	Nephritis (101)	Influenza & Pneumonia (124)	Diabetes (142)
9	Nephritis (46)	Diabetes (23)	Diabetes (116)	Septicemia (4)	ill-defined conditions-signs and symptoms (123)	Septicemia (10)	ill-defined conditions-signs and symptoms (76)	Nephritis (25)	ill-defined conditions-signs and symptoms (251)	Alzheimer's Disease (1)	Diabetes (114)	Diabetes (93)	Nephritis (113)	Nephritis (129)
10	Parkinson's Disease (43)	Suicide (21)	ill-defined conditions-signs and symptoms (113)	ill-defined conditions-signs and symptoms (4)	Diabetes (115)	Suicide (10)	Septicemia (65)	Septicemia (24)	Diabetes (230)	Diabetes (1)	Parkinson's Disease (82)	Septicemia (64)	ill-defined conditions-signs and symptoms (101)	ill-defined conditions-signs and symptoms (114)

1. The National Center for Health Statistics (NCHS) publishes a list of 113 selected causes of death from which we select 57 causes and order them by their number of deaths. 2. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title).

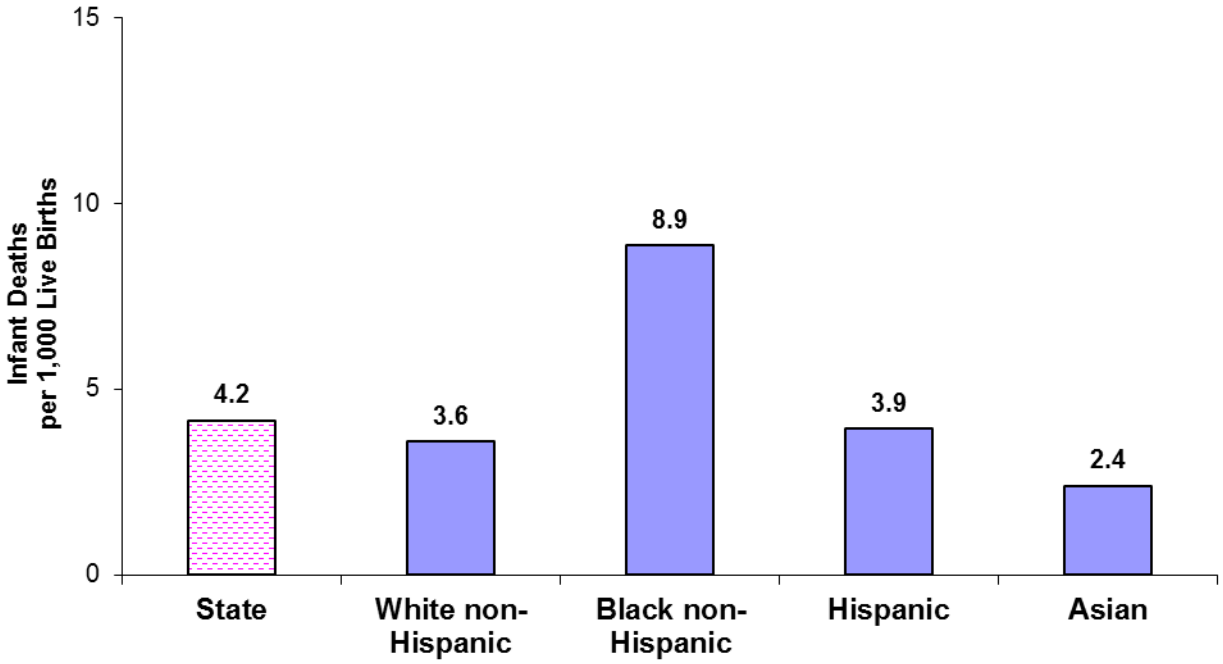
Infant Mortality

The infant mortality rate (IMR), defined as the number of deaths in children under 1 year of age per 1000 live births, is considered a good measure of population health for comparing the health status of a population over time, or between populations at a single point in time[3].

In 2013, there were 298 infant deaths and 71,618[4] live births among Massachusetts residents, which correspond to an infant mortality rate (IMR) of 4.2 deaths per 1,000 live births. The 2013 IMR was similar to the 2012 rate (4.3 deaths per 1,000 live births), and it has decreased by 40% since 1990, from 7.0 deaths per 1,000 live births.

In 2013, non-Hispanic Black infants continued to have the highest IMR among all race and ethnicity groups at 8.9 deaths per 1,000 live births. There were no statistically significant changes from the previous year.

Figure 1. Infant Mortality Rates by Race/Hispanic Ethnicity, Massachusetts: 2013



In 2013, 74% of infant deaths occur in the first month of life. The leading causes of infant death were conditions arising in the perinatal period (59% of all infant deaths) followed by congenital malformations (18% of all infant deaths). The leading causes of death in the neonatal period were disorders relating to short gestation and low birthweight, while Sudden Infant Death Syndrome (SIDS) was the leading cause of death in the post neonatal period (28-364 days).

[3] Murray CJL, Salomon JA, Mathers C. A critical examination of summary measures of population health. Bull World Health Organ, 2000;78:981–94.

[4] In our calculation of IMR by race/ethnicity, we reassigned mothers who selected more than 1 race (multiple races) to the lowest minority racial group (i.e. American Indian and White to American Indian).

Table 1. Trends in Infant, Neonatal, and Post Neonatal Mortality by Race/Hispanic Ethnicity, Massachusetts: 1995-2013

INFANT MORTALITY (less than one year of age)

	State Total[1]		White non-Hispanic		Black non-Hispanic		Hispanic		Asian		Other[2]	
Year	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**
1995	419	5.1	275	4.4	65	11.1	58	7.2	19	5.5	2	--[4]
1996	403	5.0	289	4.7	63	11.4	40	5.1	8	2.2	2	--[4]
1997	425	5.3	294	4.8	64	11.7	55	6.7	10	2.6	2	--[4]
1998	414	5.1	287	4.6	59	10.6	58	6.7	10	2.7	0	0.0
1999	418	5.2	285	4.7	72	12.3	49	5.5	8	1.9	4	--[4]
2000	377	4.6	232	3.8	74	12.8	48	5.2	19	4.1	4	--[4]
2001	407	5.0	245	4.1	71	12.1	69	7.3	15	3.1	7	4.1
2002	397	4.9	239	4.1	69	11.6	67	7.0	16	3.0	6	3.8
2003	383	4.8	235	4.1	75	12.7	55	5.6	14	2.7	4	--[4]
2004	376	4.8	210	3.8	70	11.5	75	7.6	15	2.7	6	3.5
2005	391	5.1	230	4.3	57	9.4	78	7.7	18	3.4	8	4.3
2006	369	4.8	221	4.2	72	11.1	62	5.8	10	1.8	3	--[4]
2007	380	4.9	206	3.9	66	10.2	81	7.4	18	3.1	4	--[4]
2008	382	5.0	194	3.7	78	11.7	86	7.9	16	2.7	8	5.1
2009	366	4.9	205	4.1	54	7.8	78	7.1	20	3.4	9	7.8
2010	319	4.4	163	3.4	56	8.2	65	6.1	25	4.3	7	6.5
2011	310	4.2	159	3.4	47	6.7	75	5.8	22	3.6	6	2.1
2012	309	4.3	158	3.5	57	8.2	71	5.4	17	2.6	4	--[4]
2013	298	4.2	161	3.6	63	8.9	49	3.9	15	2.4	3	--[4]

NEONATAL MORTALITY (birth to 27 days)

	State Total[1]		White non-Hispanic		Black non-Hispanic		Hispanic		Asian		Other[2]	
Year	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**
1995	298	3.6	198	3.1	50	8.5	39	4.8	10	2.9	1	--[4]
1996	290	3.6	222	3.6	34	6.2	27	3.5	5	1.4	1	--[4]
1997	323	4.0	228	3.7	44	8.0	43	5.2	7	1.8	1	--[4]
1998	315	3.9	218	3.5	47	8.5	43	5.0	7	1.9	0	0.0
1999	332	4.1	226	3.7	58	9.9	39	4.4	5	1.2	4	--[4]
2000	288	3.5	177	2.9	57	9.9	37	4.0	14	3.0	3	--[4]
2001	308	3.8	190	3.2	56	9.5	49	5.2	10	2.1	3	--[4]
2002	299	3.7	185	3.2	49	8.2	50	5.2	13	2.4	2	--[4]
2003	285	3.6	179	3.1	56	9.5	38	3.9	10	1.9	2	--[4]
2004	291	3.7	167	3.0	51	8.4	57	5.8	12	2.2	4	--[4]
2005	282	3.7	168	3.1	40	6.6	57	5.8	11	2.1	5	2.7
2006	279	3.6	173	3.3	53	8.2	42	3.9	7	1.3	3	--[4]
2007	263	3.4	141	2.7	48	7.4	53	4.9	15	2.6	4	--[4]
2008	291	3.8	153	3.0	57	8.6	65	6.0	10	1.7	6	3.8
2009	276	3.7	162	3.2	36	5.2	54	4.9	17	2.9	7	6.0
2010	238	3.3	121	2.5	43	6.3	47	4.4	20	3.4	5	4.6
2011	230	3.1	112	2.4	33	4.7	60	4.7	19	3.1	5	1.7
2012	216	3.0	111	2.5	41	5.9	46	3.5	13	2.0	3	--[4]
2013	221	3.1	119	2.6	45	6.3	39	3.1	10	1.6	2	--[4]

Table 1 (cont'd). Trends in Infant, Neonatal, and Post Neonatal Mortality by Race/Hispanic Ethnicity, Massachusetts: 1995-2013

POST NEONATAL MORTALITY (28-364 days)

	State Total[1]		White non-Hispanic		Black non-Hispanic		Hispanic		Asian		Other[2]	
Year	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**	**n**	**Rate[3]**
1995	121	1.5	77	1.2	15	2.6	19	2.3	9	2.6	1	--[4]
1996	113	1.4	67	1.1	29	5.3	13	1.7	3	--[4]	1	--[4]
1997	102	1.3	66	1.1	20	3.7	12	1.5	3	--[4]	1	--[4]
1998	99	1.2	69	1.1	12	2.2	15	1.7	3	--[4]	0	0.0
1999	86	1.1	59	1.0	14	2.4	10	1.1	3	--[4]	0	0.0
2000	89	1.1	55	0.9	17	2.9	11	1.2	5	1.1	1	--[4]
2001	99	1.2	55	0.9	15	2.6	20	2.1	5	1.0	4	--[4]
2002	98	1.2	54	0.9	20	3.4	17	1.8	3	--[4]	4	--[4]
2003	98	1.2	56	1.0	19	3.2	17	1.7	4	--[4]	2	--[4]
2004	85	1.1	43	0.8	19	3.1	18	1.8	3	--[4]	2	--[4]
2005	109	1.4	62	1.2	17	2.8	20	2.0	7	1.3	3	--[4]
2006	90	1.2	48	0.9	19	2.9	20	1.9	3	--[4]	0	0.0
2007	117	1.5	65	1.2	18	2.8	28	2.6	3	--[4]	3	--[4]
2008	91	1.2	41	0.8	21	3.2	21	1.9	6	1.0	2	--[4]
2009	90	1.2	43	0.9	18	2.6	24	2.2	3	--[4]	2	--[4]
2010	81	1.1	42	0.9	13	1.9	18	1.7	5	0.9	2	--[4]
2011	80	1.1	47	1.0	14	2.0	15	1.2	3	--[4]	1	--[4]
2012	93	1.3	47	1.0	16	2.3	25	1.9	4	--[4]	1	--[4]
2013	77	1.1	42	0.9	18	2.5	10	0.8	5	0.8	1	--[4]

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

Table 2. Infant Mortality Rates, 30 Largest Municipalities, Massachusetts: 2013

	Infant Mortality				Neonatal Mortality			
	2013		2011-2013		2013		2011-2013	
Municipality[1]	**N**	**Rate[2]**	**N**	**Rate[2]**	**N**	**Rate[2]**	**N**	**Rate[2]**
STATE TOTAL	**298**	**4.2**	**917**	**4.2**	**221**	**3.0**	**667**	**3.1**
Arlington	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]	--[3]
Attleboro	--[3]	--[3]	5	4.5	0	0	--[3]	--[3]
Barnstable	--[3]	--[3]	5	4.1	--[3]	--[3]	--[3]	--[3]
Boston	39	4.7	120	4.6	30	2.9	87	3.5
Brockton	9	5.2	26	6.4	8	3.7	21	4.7
Brookline	0	0	--[3]	--[3]	0	0	--[3]	--[3]
Cambridge	0	0	10	3.2	0	0	8	2.6
Chicopee	--[3]	--[3]	9	3.7	--[3]	--[3]	6	2.1
Fall River	5	5.5	13	4.1	--[3]	--[3]	11	4.1
Framingham	--[3]	--[3]	8	3.6	--[3]	--[3]	5	2.5
Haverhill	5	2.5	10	3.7	--[3]	--[3]	8	2.5
Lawrence	--[3]	--[3]	18	5.6	--[3]	--[3]	14	4.1
Lowell	6	3.6	18	5.4	--[3]	--[3]	13	4.2
Lynn	5	7.3	29	6.9	--[3]	--[3]	20	4.5
Malden	--[3]	--[3]	6	2.3	--[3]	--[3]	--[3]	--[3]
Medford	--[3]	--[3]	5	2.4	--[3]	--[3]	--[3]	--[3]
Methuen	0	0	6	4.1	0	0	--[3]	--[3]
New Bedford	13	3.8	27	4.1	8	3.8	19	3.3
Newton	--[3]	--[3]	9	4.2	--[3]	--[3]	7	3.4
Peabody	--[3]	--[3]	6	3.2	--[3]	--[3]	6	3.2
Pittsfield	7	5.7	14	8.3	--[3]	--[3]	9	5.7
Plymouth	--[3]	--[3]	6	1.8	--[3]	--[3]	--[3]	--[3]
Quincy	--[3]	--[3]	10	3.2	--[3]	--[3]	5	2.1
Revere	--[3]	--[3]	14	6.2	--[3]	--[3]	12	5.3
Somerville	--[3]	--[3]	9	2.4	--[3]	--[3]	7	1.7
Springfield	16	3.8	44	7.0	12	2.1	29	3.7
Taunton	--[3]	--[3]	10	3.9	--[3]	--[3]	10	3.9
Waltham	--[3]	--[3]	8	2.4	--[3]	--[3]	7	2.0
Weymouth	7	4.9	16	5.8	6	3.2	11	3.2
Worcester	9	7.5	43	6.4	5	4.7	29	4.9

1. The 30 largest municipalities are the cities/ towns in Massachusetts with the largest populations in 2013.
2. Deaths per 1,000 live births.
3. Numbers and calculations based on 4 or fewer events are not shown

Table 3. Infant, Neonatal, and Post Neonatal Deaths by Cause, Massachusetts: 2013

		Infant (<1 year)		Neonatal (<28 days)		Post Neonatal (28-365 days)	
Cause of Death	**ICD-10 Code**	**#**	**%**	**#**	**%**	**#**	**%**
TOTAL		**298**	**100.0**	**221**	**100.0**	**77**	**100.0**
Infectious and parasitic diseases	**A00-B99**	**3**	**--[1]**	**0**	**0.0**	**3**	**--[1]**
Cancer	**C00-C97**	**3**	**--[1]**	**1**	**--[1]**	**2**	**--[1]**
Diseases of the blood and blood forming organs (anemia)	**D50-D89**	**2**	**--[1]**	**1**	**--[1]**	**1**	**--[1]**
Diseases of nervous system and ear	**G00-G98, H60-H93**	**3**	**--[1]**	**1**	**--[1]**	**2**	**--[1]**
Diseases of the respiratory system	**J00-J98**	**2**	**--[1]**	**0**	**0.0**	**2**	**--[1]**
Diseases of digestive system	**K00-K92**	**4**	**--[1]**	**2**	**--[1]**	**2**	**--[1]**
Congenital malformations	**Q00-Q99**	**54**	**18.1**	**38**	**17.2**	**16**	**20.8**
Congenital malformations of nervous system	Q00-Q07	4	--[1]	3	--[1]	1	--[1]
Anencephalus and similar malformations	Q00	1	--[1]	1	--[1]	0	0.0
Congenital malformations of heart	Q20-Q24	14	4.7	8	3.6	6	7.8
Congenital malformations of respiratory system	Q30-Q34	4	--[1]	4	--[1]	0	0.0
Congenital malformations of genitourinary system	Q50-Q64	3	--[1]	2	--[1]	1	--[1]
Congenital malformations of musculoskeletal system	Q65-Q85	6	2.0	3	--[1]	3	--[1]
Chromosomal abnormalities	Q90-Q99	10	3.4	8	3.6	2	--[1]
Certain conditions originating in the perinatal period	**P00-P96**	**177**	**59.4**	**170**	**76.9**	**7**	**9.1**
Newborn affected by maternal conditions which may be unrelated to present pregnancy	P00	1	--[1]	0	0.0	1	--[1]
Newborn affected by maternal complications of pregnancy	P01	31	10.4	31	14.0	0	0.0
Newborn affected by complications of placenta, cord and membrane	P02	9	3.0	9	4.1	0	0.0
Newborn affected by other complications of labor and delivery	P03	2	--[1]	1	--[1]	1	--[1]
Disorders relating to short gestation and low birthweight	P07	77	25.8	77	34.8	0	0.0
Intrauterine hypoxia and birth asphyxia	P20-P21	4	--[1]	4	--[1]	0	0.0
Respiratory distress of newborn	P22	7	2.3	7	3.2	0	0.0
Other respiratory conditions of newborn	P23-P28	11	3.7	9	4.1	2	--[1]
Infections specific to the perinatal period	P35-P39	5	1.7	3	--[1]	2	--[1]
Neonatal hemorrhage	P50-P52, P54	6	2.0	6	2.7	0	0.0
Other and ill-defined conditions originating in the perinatal period	P90-P96	4	--[1]	4	--[1]	0	0.0
Symptoms, signs, and ill-defined conditions	**R00-R99**	**35**	**11.7**	**5**	**2.3**	**30**	**39.0**
Sudden Infant Death Syndrome (SIDS)	R95	15	5.0	0	0.0	15	19.5
Unintentional Injuries	**V01-X59**	**2**	--[1]	**0**	**0.0**	**2**	**--[1]**
Homicide	**X85-Y09**	**6**	**2.0**	**0**	**0.0**	**6**	**7.8**
All other causes	**Residual**	**7**	**2.3**	**3**	**--[1]**	**4**	**--[1]**

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

Table 4. 95% Confidence Intervals for Infant Mortality Rates by Race and Hispanic Ethnicity, Massachusetts: 2000-2013

	Total[1]		White non-Hispanic		Black non-Hispanic		Hispanic		Asian	
Year	**n**	**Rate[2]** (95% CI)	**n**	**Rate[2]** (95% CI)	**n**	**Rate[2]** (95% CI)	**n**	**Rate[2]** (95% CI)	**n**	**Rate[2]** (95% CI)
2000	377	4.6 (4.1, 5.1)	232	3.8 (3.3, 4.3)	74	12.8 (6.8, 20.7)	48	5.2 (1.7, 10.5)	19	4.1 (1.1, 8.9)
2001	407	5.0 (4.5, 5.5)	245	4.1 (3.6, 4.6)	71	12.1 (6.3, 19.8)	69	7.3 (3.0, 13.5)	15	3.1 (0.7, 7.4)
2002	397	4.9 (4.4, 5.4)	239	4.1 (3.6, 4.6)	69	11.6 (5.9, 19.2)	67	7.0 (2.8, 13.1)	16	3.0 (0.6, 7.2)
2003	383	4.8 (4.3, 5.3)	235	4.1 (3.6, 4.6)	75	12.7 (6.7, 20.6)	55	5.6 (2.0, 11.1)	14	2.7 (0.5, 6.7)
2004	376	4.7 (4.2, 5.2)	210	3.8 (3.3, 4.3)	70	11.5 (5.8, 19.0)	75	7.6 (3.2, 13.9)	15	2.7 (0.5, 6.7)
2005	391	5.1 (4.6, 5.6)	230	4.3 (3.7, 4.9)	57	9.4 (4.4, 16.3)	78	7.8 (3.3, 14.2)	18	3.4 (0.8, 7.9)
2006	369	4.8 (4.3, 5.3)	221	4.2 (3.7, 4.8)	72	11.1 (5.6, 18.5)	62	5.8 (2.1, 11.4)	10	1.8 (0.2, 5.2)
2007	380	4.9 (4.4, 5.4)	206	3.9 (3.4, 4.4)	66	10.2 (4.9, 17.4)	81	7.4 (3.1, 13.6)	18	3.1 (0.7, 7.4)
2008	382	5.0 (4.5, 5.5)	194	3.7 (3.2, 4.2)	78	11.7 (6.0, 19.3)	86	7.9 (3.4, 14.3)	16	2.7 (0.5, 6.7)
2009	366	4.9 (4.4, 5.4)	205	5.0 (4.5, 5.5)	54	11.7 (6.0, 19.3)	78	7.9 (3.4, 14.3)	20	2.7 (0.5, 6.7)
2010	319	4.4 (3.9, 4.9)	163	3.4 (2.8, 3.9)	56	8.2 (3.6, 14.7)	65	6.1 (2.3, 11.9)	25	4.3 (1.2, 9.2)
2011	310	4.2 (3.8, 4.7)	159	3.4 (2.9, 4.0)	47	6.7 (2.6, 12.6)	75	5.8 (2.1, 11.4)	22	3.6 (0.9, 8.2)
2012	309	4.3 (3.8, 4.7)	158	3.5 (3.0, 4.0)	57	8.2 (3.6, 14.8)	71	5.4 (1.9, 10.8)	17	2.6 (0.5, 6.6)
2013	298	4.2 (3.7, 4.6)	161	3.6 (3.0, 4.1)	63	8.9 (6.7,11.1)	49	3.9 (2.8, 5.0)	15	2.4 (1.2, 3.6)

1. Deaths of infants of unknown race are excluded except for the total calculation. For rate computations, births of infants of unknown race are allocated into the race categories according to the distribution of births of known race. 2. Rates are expressed per 1,000 live births.

NOTE: This table has been modified from previous reports. For comparisons of more than 100 events, whether they are rates, proportions, or numbers, the binomial distribution is assumed, and confidence intervals are examined to see whether they overlap (Refer to the "Confidence Intervals and Infant Mortality Rates" section in this Appendix for an explanation of using confidence intervals to determine statistical significance.) When the number of events is less than 100, a Poisson distribution is assumed, and confidence intervals are constructed based upon the Poisson distribution.

DATA SOURCES AND METHOD NOTES

Data on deaths are based on information from the Massachusetts Standard Certificate of Death filed with the Registry of Vital Records and Statistics. All data in this publication are resident data unless otherwise stated. Resident data include all events that occur to residents of the Commonwealth, wherever they occur.

The 2013 Birth data are used to calculate infant mortality rates. Please see: http://www.mass.gov/eohhs/gov/departments/dph/programs/admin/dmoa/repi/birth-data.html

ACKNOWLEDGMENTS

This report was prepared by Malena Hood and Dana Bernson, Epidemiologists of the Office of Data Management and Outcomes Assessment. Special thanks go to: Tom Land, Director, Office of Data Management and Outcomes Assessment; Antonio Sousa, Registrar, Registry of Vital Records and Statistics; and Karin Barrett, Sharon Pagnano, Kevin Foster, and Maria Vu, Registry of Vital Records and Statistics.

Data in this report have been collected through the efforts of the Registry of Vital Records and Statistics staff, including: Michael Baker, Donna Barlow, Pamela Corbin, June Deloney, Alex Forman, Marsha Grabau, Annette Luc, Maureen McKean, Denise O'Gara, Monica Smith, and Jennifer Smith.