Violent Deaths in Massachusetts: Surveillance Update 2010

Massachusetts Department of Public Health
Bureau of Health Information, Statistics, Research, and Evaluation
Injury Surveillance Program
Massachusetts Violent Death Reporting System

Violent Deaths in Massachusetts: Surveillance Update 2010

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October 2013

This publication was supported by Grant #U17/CE001316-01 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.

Acknowlegements

This report was prepared by the staff of the Injury Surveillance Program (ISP) at the Bureau of Information, Statistics, Research, and Evaluation (BHISRE) of the Massachusetts Department of Public Health (MDPH). Special thanks should be given to the Centers for Disease Control and Prevention (CDC) National Violent Death Reporting System (NVDRS) program team, the members of the Massachusetts Violent Death Reporting System (MAVDRS) Advisory Committee, and Jerry O'Keefe, BHISRE Bureau Director.

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Data Providers:

We would like to give special thanks to our data providers. Below is a list of those people and their respective agencies. Apologies to those that may have been inadvertently omitted:
MDPH, Registry of Vital Records and Statistics: Stanley Nyberg, Karin Barrett, Ann-Marie Neault
Massachusetts State Police: Michael Coleman and Dacid Cahill from the Ballistics Section and Sherry Hart of the Criminal Records Section
Office of the Chief Medical Examiner: Henry Nields, MD and Deborah Mendoza-Lochrie
Boston Police Department: Deputy Superintant Kevin Buckley, Gregory Long and Eileen Griffin
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To obtain more data on injuries to Massachusetts residents, contact Beth Hume at the Injury Surveillance Program at (617) 624-5648 or online at: http://www.mass.gov/dph/isp

For other Department of Public Health data, register for MassCHIP, the Department's free internet-accessible data warehouse: http://www.mass.gov/dph/masschip

For more information on violence and injury prevention, visit the websites of the MDPH Divisions of Violence Prevention and Intervention (www.mass.gov/dph/violence) and Injury Prevention and Control (www.mass.gov/dph/injury).

MAVDRS Advisory Group Members

We would like to acknowledge and thank those who participate in our Advisory Group. Members contribute their expertise, knowledge, and invaluable experience. The membership changes and therefore this list may include current members, past members, and those who have asked to participate in future meetings. Some recently added members may not be included here, although we would like to acknowledge their commitment. Similarly, some members may have been unable to continue their participation, thus are thanked for their past contributions.

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Executive Summary

Violent Deaths in Massachusetts, 2010
Injury Surveillance Program, Massachusetts Department of Public Health

Case Definition
For inclusion in the Massachusetts Violent Death Reporting System (MAVDRS), a violent death is generally defined as a death which resulted from the intentional use of physical force or power against oneself, another person, or persons. MAVDRS includes violent deaths resulting from suicide, homicide, legal intervention (excluding execution), those of undetermined intent, and all firearm-related deaths, regardless of intent. Final inclusion in the system is determined by ICD-10 code. All participating NVDRS states use the same data inclusion standards and variable definitions established by the CDC.

Occurrent Deaths
MAVDRS collects data on all violent deaths occurring in Massachusetts. In 2010, there were 47 victims who died in Massachusetts that were residents of other states or countries. There were 11 victims who were injured in another state or country, but were brought to Massachusetts where they later died. These two groups are included in the MAVDRS database as they are occurrent deaths (deaths occurring in Massachusetts). However, there were 37 Massachusetts residents who died from a violent death in another state and are not included in the MAVDRS database, but may be captured by another NVDRS-funded state. Some of those victims may have been injured in Massachusetts, but were brought to a neighboring state due to the closer proximity of a hospital, where they later died.

Summary of Findings

Overview of Violent Deaths
In 2010, 912 violent deaths occurred in Massachusetts as a result of 883 separate incidents. Ninety-seven percent of incidents consisted of only one death (N=859). The remaining 24 incidents involved more than one violent death in multiple victim incidents (multiple homicides or suicides) or combined homicide/suicide incidents.

On average, 18 violent deaths a week occurred in the Commonwealth. The violent death rate was 13.9/100,000. Of the 912 violent deaths in 2010, 66% (N=600) were suicides, 23% (N=212) were homicides, and 11% (N=96) were deaths of undetermined intent. Suicides (N=600, 9.2/100,000) were three times more frequent than homicides (N=212, 3.2/100,000). The age group with the highest violent death rate was ages 35-44 (19.1/100,000). Among race/ethnicity groups, Black, non-Hispanics had the highest age-adjusted rate overall (21.6/100,000) compared to the range of 4.9/100,000 to 13.0/100,000 for all other groups.

Suicides
In 2010, there were 600 suicides or approximately 12 suicides per week. The suicide rate for males (15.0/100,000) was four times higher than that of females (3.7/100,000). Among all age groups, suicide rates were highest among the age group of 35-44 year olds (14.1/100,000).

The most common suicide method was hanging/strangulation/suffocation which accounted for 49% (N=294) of all suicides. The most common circumstance among suicides was having a current mental health problem (48%), which includes victims who have been diagnosed by a health professional as having a psychiatric condition and victims who were prescribed antidepressants or other psychiatric medication.

Homicides

In 2010, there were 212 homicides or approximately 4 homicides per week. Youth, ages 15-24, had the highest homicide number (N=84) and rate (9.0/100,000), which was 2.8 times higher than the statewide rate of 3.2/100,000. The weapon used in approximately 62% (N=131) of homicides was a firearm(s). There were 51 homicides that were precipitated by another crime; such as drug trade-related, assault/homicide, robbery, and burglary and 50 that were precipitated by an argument, abuse, or conflict.

Deaths of Undetermined Intent

In 2010, there 96 deaths of undetermined intent accounting for 11% of all violent deaths. Of these 96 deaths, 53% (N=51) were due to poisonings/drug overdoses.[1]

An important change occurred in 2005 affecting the number of deaths of undetermined intent in Massachusetts. Most injury deaths are referred to the Commonwealth of Massachusetts Office of the Chief Medical Examiner (OCME) for determination of cause and intent. In May 2005, a change in the OCME policy affected the assignment of manner/intent of many poisoning (drug overdose) deaths. Up to that point, poisoning deaths, where there was no explicit evidence that the case was a suicide or homicide, were assigned a manner of "could not be determined." With the new policy, these deaths are assigned a manner of accident/unintentional. Because MAVDRS does not collect information on accidental/unintentional deaths, these poisoning deaths are no longer included in data presented in these reports. This change caused the total number of violent deaths and the number of undetermined deaths for 2005 and forward to be substantially less than in previous years. The current policy is similar to how these deaths are classified in other states. Because of this, caution should be used when comparing 2010 data to data from 2003 and 2004.

To demonstrate, in 2004, there were 1,243 total violent deaths, with 50% (N=625) classified as undetermined intent. Of those undetermined intent deaths, 90% (N=560) were due to poisoning/drug overdoses. As mentioned above, in 2010, of the 912 violent deaths, 11% (N=96) were deaths of undetermined intent.

Legal Intervention Deaths

In 2010, there were four legal intervention deaths included in the Massachusetts Violent Death Reporting System.

Unintentional Firearm Deaths

Massachusetts did not have any unintentional firearm deaths in 2010 based on ICD-10 coding.

[1] For more information regarding unintentional poisonings, please see the Massachusetts Department of Public Health's *Injuries to Massachusetts Residents, 2009* from the Department's Injury Surveillance Program. You can obtain a copy of this report by contacting Beth Hume at (617) 624-5648 or via email at beth.hume@state.ma.us. The report is also available electronically at: http://www.mass.gov/eohhs/docs/dph/injury-surveillance/injury-surveillanceinjury-report-09.pdf

Introduction

Violent death represents a serious but preventable public health problem. The U.S. Centers for Disease Control and Prevention (CDC) introduced the National Violent Death Reporting System (NVDRS) in 2001 in order to improve the surveillance of violent deaths nationwide.[1] A violent death results from the intentional use of physical force or power against oneself, another person, or a group or community. Violent deaths include suicides, homicides, deaths due to legal intervention (excluding executions), deaths of undetermined intent, and firearm-related deaths, regardless of intent. Violent deaths are classified as undetermined when the Medical Examiner does not have enough information to make a determination of how the individual died: whether a death was unintentional, deliberately self-inflicted, or caused by an assault. While not enough is known about these deaths to definitively establish intent, they are included in NVDRS because useful information regarding the circumstances of the death may be available.

Currently operating in 18 states, NVDRS is a state-based surveillance system that compiles information on violent deaths in order to provide a detailed picture of how and why they occur. In Massachusetts, the Violent Death Reporting System is part of the Injury Surveillance Program within the Massachusetts Department of Public Health (MDPH). NVDRS utilizes multiple data sources, including death certificates, medical examiner files, and law enforcement records in creating its data records. The NVDRS is an incident-based surveillance system, enabling identification of multiple deaths from the same incident, as well as linking suspects associated with the incident. Decisions about whether two or more deaths belong to the same incident are determined by the timing of the injuries, rather than the timing of the deaths, and are based on a 24 hour rule and source documents indicating a clear link between the deaths.

Detailed information from multiple sources enhances the ability of researchers, prevention specialists and policymakers to develop a better understanding of when, where, why and how violent deaths occur, as well as who is at risk. Information about the circumstances associated with violent death is a particularly unique and important feature of NVDRS, since it may help in identifying specific risk factors precipitating violence. The goal of NVDRS is to provide the information needed to reduce and to prevent violent death.

OBJECTIVES

With approximately 50,000 suicides and homicides taking place in the United States each year, the need for a national violent death surveillance system emerged as a significant public health issue in the late 1990s. Until recently, there was no comprehensive, incident-based public health surveillance system to collect information on these deaths and apply it to prevention efforts. With funding from the CDC, the Massachusetts Department of Public Health began collecting detailed information on violent deaths as part of NVDRS in 2003. This report summarizes results from the seventh year of data collection in Massachusetts. In Massachusetts, we call this system MAVDRS: Massachusetts Violent Death Reporting System.

Methods

Descriptive Statistics

In this report, information on violent deaths is summarized by counts, percentages, and rates. Simple counts represent the most basic measure of violent deaths and are important for quantifying the problem, while percentages offer a way of showing distributions in the underlying population relative to a factor of interest, such as age or gender. Rates add an additional level of detail by taking account of the size of the underlying population and facilitating comparisons between groups. Crude rates are presented throughout this report, unless otherwise noted, and are useful for developing community-level prevention strategies. Age-adjusted rates are provided in Appendix B to facilitate comparisons between communities or states which may have a widely disparate age distribution in the population. Death rates are expressed as the number of deaths per 100,000 population. Refer to the Technical Notes section of Appendix A for detailed information on

[1] Additional information on NVDRS can be found at http://www.cdc.gov/ViolencePrevention/NVDRS/index.html

Introduction continued

population estimates used for calculating rates. Rates were calculated for specific demographic groups (i.e., age, gender, marital status, race/ethnicity, and level of education), as well as by county and city level. More extensive analysis of MAVDRS variables will be conducted as additional data years become available.

Case Identification, Definition, and Data Sources

Violent death cases in the MAVDRS database are identified by the manner of death on death certificates. A record is created in the MAVDRS database for any death categorized as suicide, homicide, could not be determined, or accidental firearm-related. However, for the analysis of violent deaths in this report, a case definition is determined by the ICD-10 code for the underlying cause of death, which includes suicides, homicides, deaths of undetermined intent, unintentional firearm-related deaths, as well as deaths due to legal intervention (excluding legal executions). The ICD-10 codes used for case inclusion in this report can be found in the Technical Notes section of Appendix A.

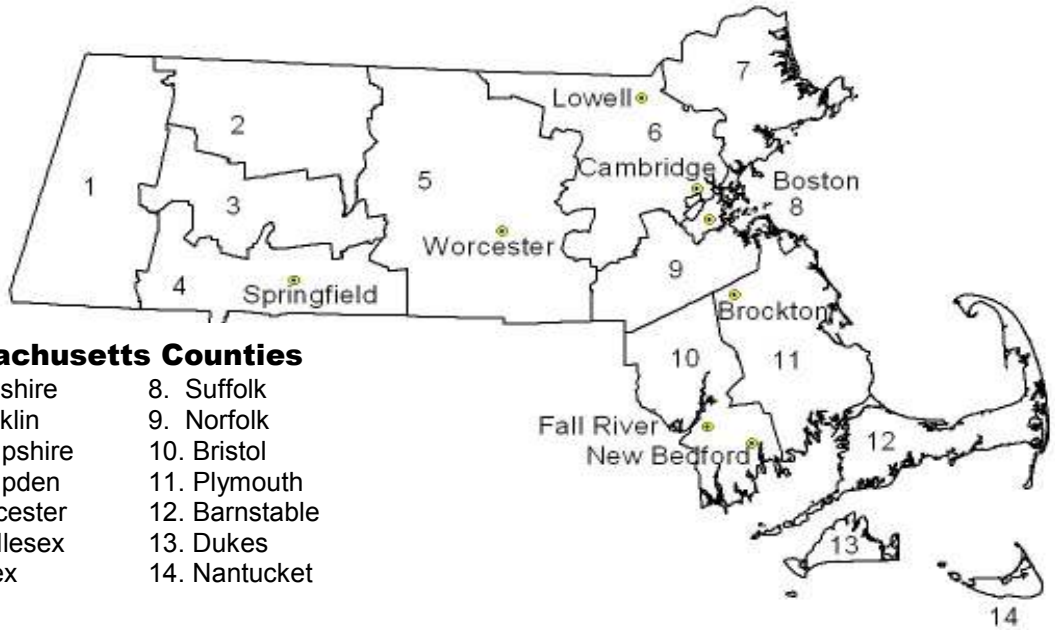
For each record, additional information is subsequently added from law enforcement and medical examiner sources. Law enforcement documents include police reports and ballistic reports from the Boston Police Department and the MA State Police Department. In addition, information from Supplemental Homicide Reports (SHR) and National Incident Based Reporting System (NIBRS) are obtained from the MA State Police Crime Reporting Unit (CRU). The Office of the Chief Medical Examiner provides autopsy reports, toxicology results, hospital records, and Emergency Medical Services (EMS) records. Additional supplemental sources are included where appropriate.

Over 270 data elements may be collected for each incident in the database, including information on the following when applicable: incident type (single suicide, multiple homicide, etc), toxicology of the victim, weapon(s) used, circumstances associated with the death (crime-related, mental health history, etc), and relationship between the suspect and victim.

The ICD-10-coded death file (International Classification of Diseases, Tenth Revision), maintained by MAVDRS, is used to establish the final database for all cases meeting the MAVDRS case definition.

MAVDRS collects detailed information regarding the location of where the fatal injury occurred: the place (such as home, street, etc), the street address, city, county, and state. MAVDRS also collects data on place of death (such as emergency room, home, etc), but not the city where the actual death occurred. ***For purposes of this report, all tables, figures, and bullets that mentions any location or place of death, refers to the location where the fatal injury occurred.***

LOCATION OF COUNTIES AND MAJOR CITIES IN MASSACHUSETTS



Massachusetts Counties

1. Berkshire
2. Franklin
3. Hampshire
4. Hampden
5. Worcester
6. Middlesex
7. Essex
8. Suffolk
9. Norfolk
10. Bristol
11. Plymouth
12. Barnstable
13. Dukes
14. Nantucket

Overview of Violent Deaths in Massachusetts

Data Highlights for 2010:

- Violent deaths claimed the lives of about 18 victims a week on average in Massachusetts in 2010 (N=912).
- Of the 912 violent deaths in 2010, 66% (N=600) were suicides, 23% (N=212) were homicides, and 11% (N=96) were deaths of undetermined intent.

Compared to the U.S.:[2]

- The Massachusetts age-adjusted rate for all violent deaths in 2010 (13.9/100,000) was lower than the U.S. age-adjusted rate (19.3/100,000).
- The Massachusetts age-adjusted suicide rate in 2010 was 8.8/100,000 compared to the age-adjusted rate of 12.7/100,000 for the U.S.
- The Massachusetts age-adjusted rate for homicide in 2010 was 3.3/100,000, which was lower than the U.S. age-adjusted rate of 5.3/100,000 for homicides.
- The Massachusetts age-adjusted rate for deaths of undetermined intent in 2010 was 1.3/100,000 and the U.S. age-adjusted rate was 1.6/100,000.

Trends in Violent Death, 2003-2010:

- The number of homicides fluctuated between 140 and 212 from 2003 to 2010. The rate during these eight years ranged from 2.2/100,000 (in 2003) to 3.2/100,000 (in 2010).
- The number of suicides ranged from 424 in 2003 to 600 in 2010. Over the eight year period, rates ranged from 6.6/100,000 to 9.2/100,000. From 2003 to 2010 there was an average annual increase of 4.5 percent per year.

[1] The classification change at the office of the Chief Medical Examiner (OCME) in 2005 affected the number of undetermined intent deaths in Massachusetts: they were substantially less than in previous years. In 2010, the number of deaths of undetermined intent was 96, only 11% of the total. Comparatively, in 2004, the number of deaths of undetemined intent was 625, which was 50% of the total number of violent deaths.

Table 1.1: Type of Incidents and Victims: Number and Percent, MA 2010				
	Incidents		Victims	
Intent	**N**	**%**	**N**	**%**
Suicides				
Single victim suicide	586	66.4	586	64.3
Multiple victim suicide	2	0.2	4	0.1
Homicides				
Single victim homicide	174	19.7	174	19.0
Multiple victim homicide	10	1.1	25	2.7
Undetermined intent deaths				
Single victim undetermined intent death	96	10.8	96	10.5
Legal intervention				
Single victim legal intervention death	3	0.3	3	0.3
Combined intent				
Homicide/suicide[1]	11	1.2	22	2.4
Homicide/legal intervention	1	0.1	2	0.2
Total	**883**	**100.0**	**912**	**100.0**

In 2010, a total of 883 incidents in the MAVDRS database accounted for 912 violent deaths.

- 97% of incidents consisted of only one death (N=859).
- Twenty-four incidents resulted in the death of more than one person (e.g. homicide/suicide, multiple victim homicide, etc.) for a total of 53 victims.
- Multiple victim incidents included the following:
  - Ten multiple victim homicide incidents (one or more persons kills two or more people in the same incident) which resulted in the death of 25 people.
  - Eleven incidents where one person killed one or more persons, then killed him/herself in the same incident (homicide/suicide incident) which accounted for 22 deaths.
  - Two multiple victim suicide incidents (two or more suicides planned together or the deaths were planned to coincide) which resulted in the deaths of four people.
  - One homicide/legal intervention incident, which accounted for two deaths.
- There were no unintentional firearm deaths.
- There were four legal intervention deaths. One of which was combined with a homicide.[2]

[1] One suicide victim of a homicide/suicide incident died out of state and is therefore not included in the counts above.
[2] There were five additional deaths that were identified as legal intervention deaths by abstractor-assigned manner but were not assigned a legal invention ICD-10 code. These cases were included in the number of homicides.

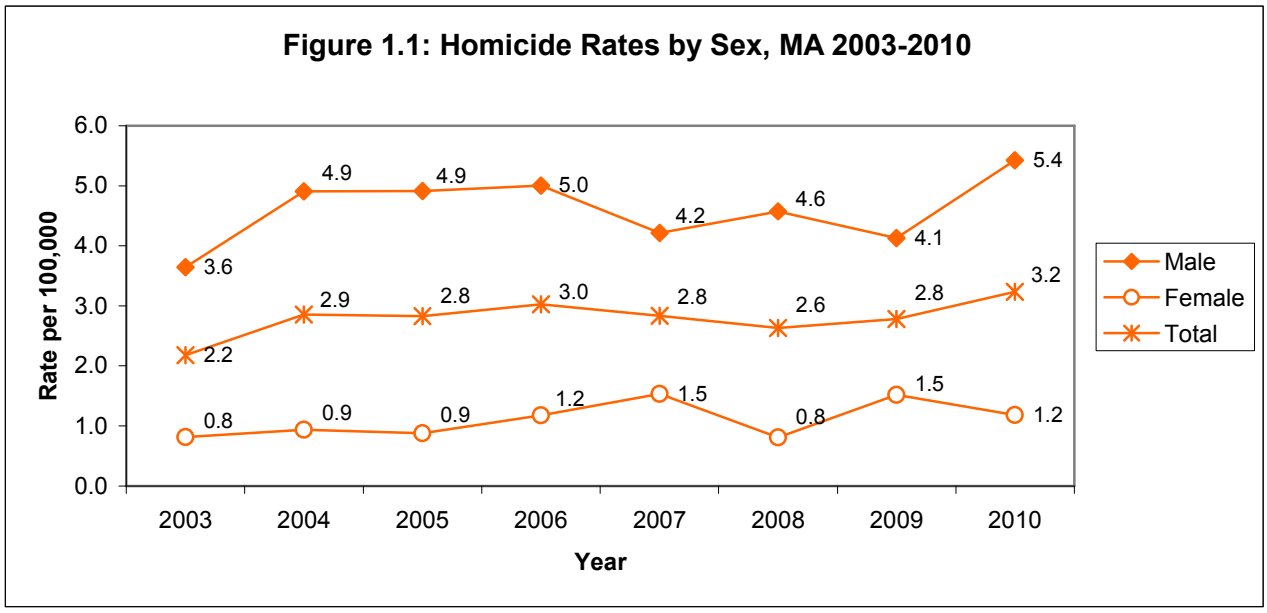
Table 1.2: Violent Deaths by Intent and Demographics: Number, Percent, and Rate, MA 2010			
	N	Percent	Rate per 100,000[1]
Intent			
Suicide	600	65.8	9.2
Homicide	212	23.2	3.2
Undetermined	96	10.5	1.5
Unintentional firearm	0	0.0	0.0
Legal intervention	4	0.4	--
Sex			
Male	706	77.4	22.3
Female	206	22.6	6.1
Race/Ethnicity			
White, non-Hispanic	697	76.4	13.7
Black, non-Hispanic	106	11.6	23.8
Asian, non-Hispanic	20	2.2	5.4
Hispanic	75	8.2	11.9
Other/mixed[2]	14	1.5	--
Age Group			
0-14	24	2.6	2.1
15-24	172	18.9	18.3
25-34	159	17.4	18.7
35-44	169	18.5	19.1
45-54	171	18.8	16.9
55-64	129	14.1	15.9
65-74	45	4.9	9.8
75-84	29	3.2	9.6
85+	14	1.5	9.6
Unknown	0	0.0	--
Total	**912**	**100.0**	**13.9**

ADDITIONAL FINDINGS FOR 2010:

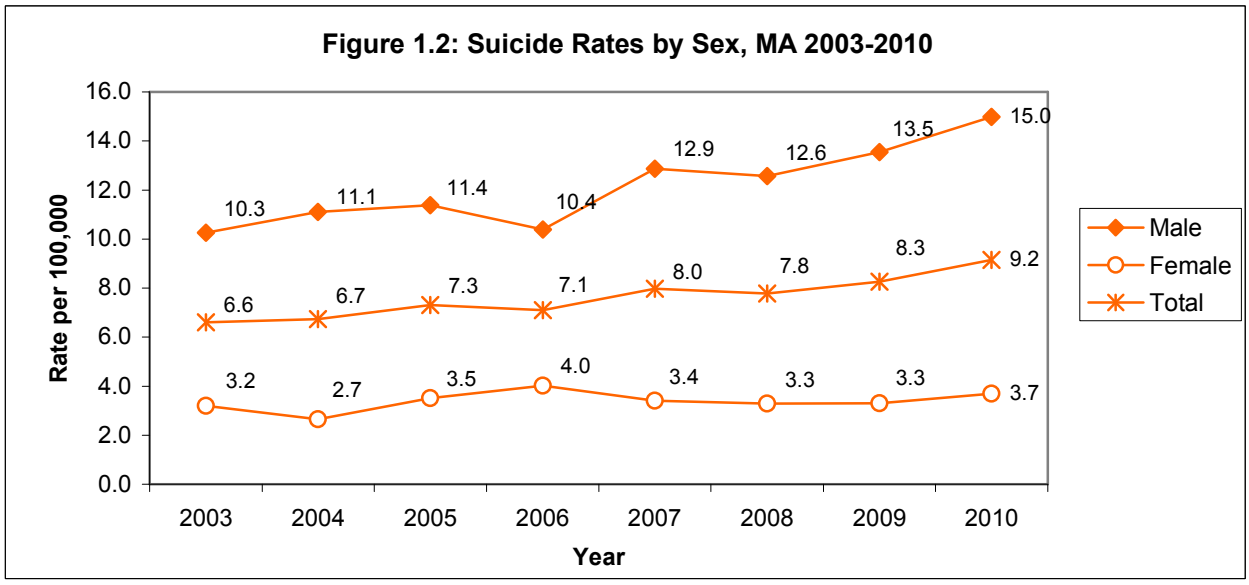
- The youngest victim was one month old and the oldest was 97 years old. The mean age of all victims was 41.4 years and the median age was 41.0 years.
- Seventeen victims of a violent death were homeless.
- Twenty-seven victims were fatally injured while in custody, such as jail, state institution, foster care or injured prior to arrest.[3]
- There were 90 war veterans[4] who died a violent death.
- Seventeen victims died of a violent death at their place of work.

[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.
[3] This 'in custody' variable is different than the question that asks the place where the victim was injured, which could be "jail, prison, detention facilty." (Place of suicides can be found on page 19 (Table 2.7) and place of homicides are on page 32 (Table 3.8).
[4] This report only includes information where the deceased was a U.S. veteran ***and*** the war in which they served was specified on the death certificate.

HOMICIDE AND SUICIDE TRENDS FROM 2003 TO 2010[1]



- The number of homicides fluctuated between 140 and 212 from 2003 to 2010. The rate during these eight years ranged from 2.2/100,000 (in 2003) to 3.2/100,000 (in 2010).
- Male homicide rates have been three to five times higher than female rates of homicide over the past eight years.

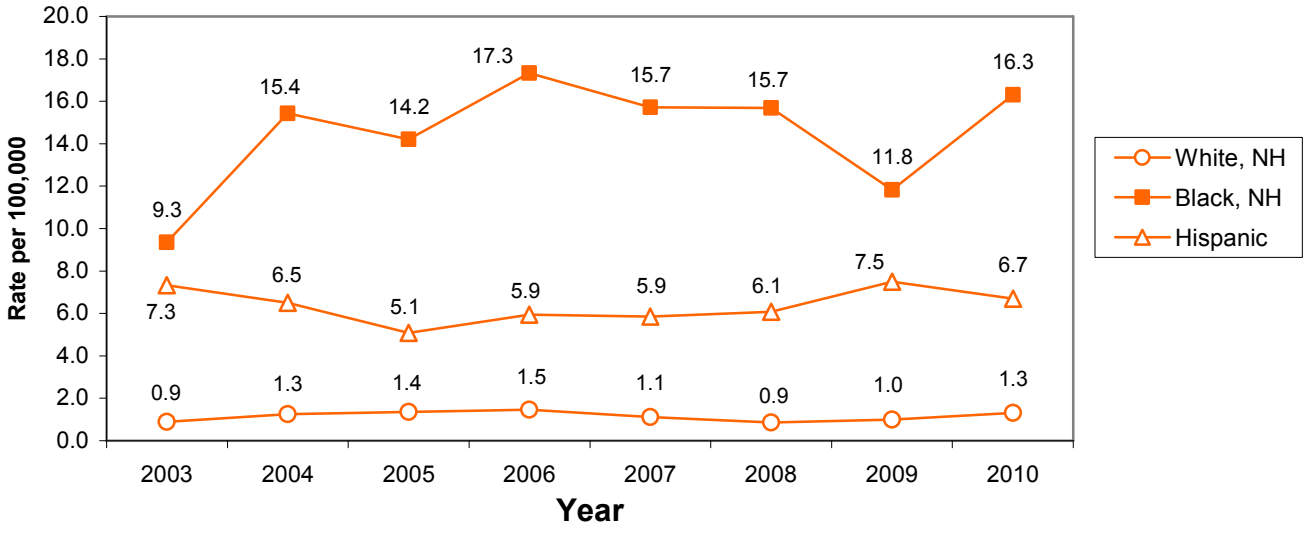


- The number of suicides ranged from 424 in 2003 to 600 in 2010. Over the eight year period, rates ranged from 6.6/100,000 to 9.2/100,000. From 2003 to 2010 there was an average annual increase of 4.5 percent per year.
- Male suicide rates have been three to four times higher than female rates of suicide over the past eight years. From 2003 to 2010, male suicide rates had an average annual increase of 5.1 percent per year.

[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

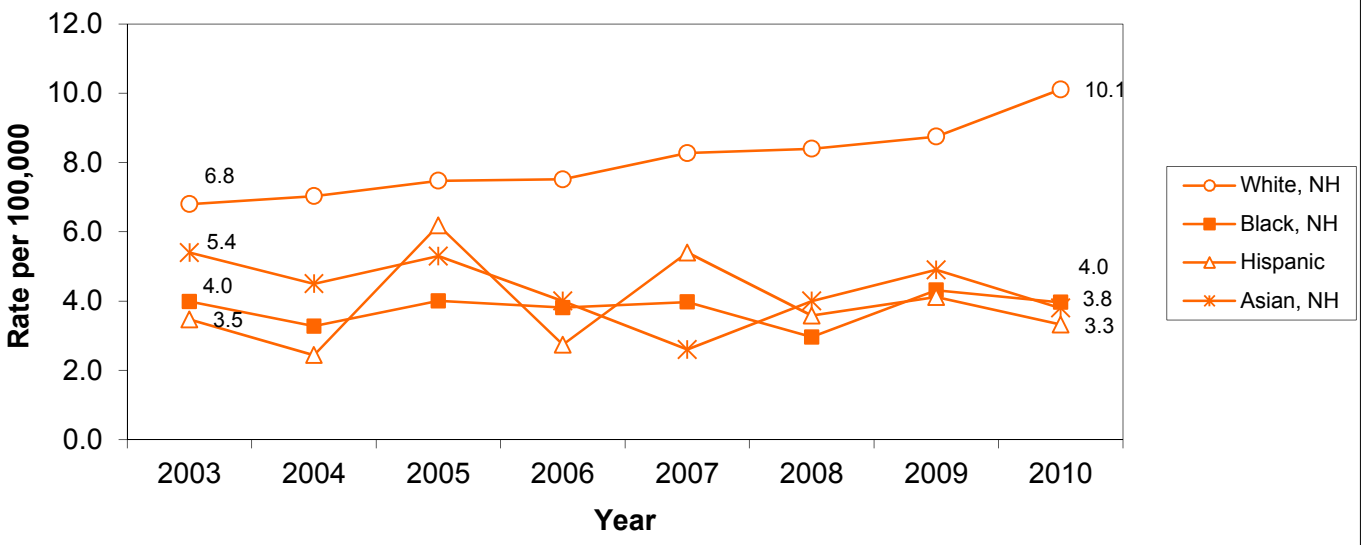
HOMICIDE AND SUICIDE TRENDS FROM 2003 TO 2010[1]

Figure 1.3: Homicide Age-adjusted Rates by Race/Ethnicity, MA 2003-2010



- Homicide rates were highest for Black, non-Hispanics from 2003 to 2010. The second highest rates were among Hispanics.

Figure 1.4: Suicide Age-adjusted Rates by Race/Ethnicity, MA 2003-2010



- Suicide rates were highest for White, non-Hispanics from 2003 to 2010. Rates ranged between 6.8 and 10.1 per 100,000. Suicide rates among White, non-Hispanics had an average annual increase of 5.3 percent per year from 2003 to 2010.

[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

Suicides in Massachusetts

Data Highlights for 2010:

- An average of about 12 suicides occurred per week in 2010; more than one each day (N=600).
- The highest suicide rate overall was among White, non-Hispanic males (17.4/100,000).
- Of any race/ethnicity, White, non-Hispanics had the highest suicide rate (10.6/100,000).
- The age group 35-44 had the highest rate (14.1/100,000) among all age groups.
- The suicide rate for males (15.0/100,000) was four times higher than the rate for females (3.7/100,000).
- Approximately 71% of suicides occurred in a home or its surrounding area (yard, driveway, and porch).

Compared to the U.S.:

- In 2010, Massachusetts had a lower age-adjusted rate for male suicides (14.6/100,000) than the U.S. (19.8/100,000).
- The age-adjusted suicide rate for females in 2010 was lower in Massachusetts (3.6/100,000) than the U.S. age-adjusted rate (5.0/100,000).
- In 2010, Massachusetts had an age-adjusted rate of firearm suicides (1.9/100,000) four times lower than the U.S. age-adjusted rate (6.1/100,000).
- In 2010, Massachusetts had a slightly higher age-adjusted rate of hanging suicides (4.3/100,000) than the age-adjusted rate for the U.S. (3.1/100,000).

SUICIDE DEMOGRAPHICS

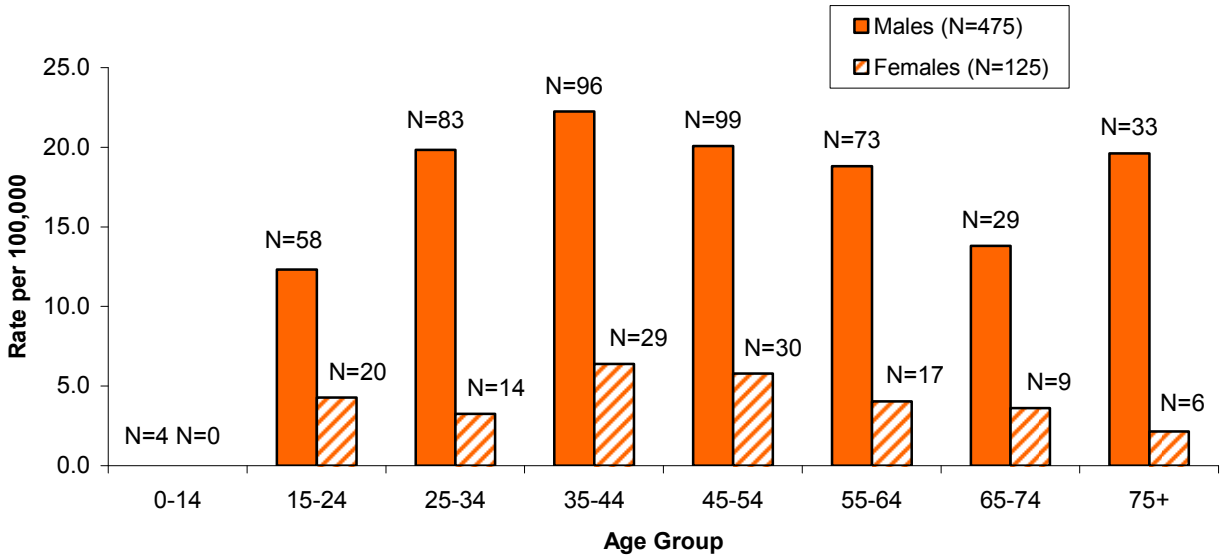
Table 2.1: Suicides by Demographics: Number, Percent, and Rate, MA 2010			
	N	**Percent**	**Rate per 100,000[1]**
Sex			
Male	475	79.2	15.0
Female	125	20.8	3.7
Race/Ethnicity			
White, non-Hispanic	540	90.0	10.6
Black, non-Hispanic	19	3.2	4.3
Asian, non-Hispanic	15	2.5	4.0
Hispanic	22	3.7	3.5
Other/mixed[2]	4	0.7	--
Age Group			
0-14	4	0.7	--
15-24	78	13.0	8.3
25-34	97	16.2	11.4
35-44	125	20.8	14.1
45-54	129	21.5	12.8
55-64	90	15.0	11.1
65-74	38	6.3	8.3
75-84	27	4.5	9.0
85+	12	2.0	8.2
Total	**600**	**100.0**	**9.2**

ADDITIONAL FINDINGS FOR 2010:

- The youngest suicide victim was 13 years old and the oldest was 97 years old.
- The mean age was 45.1 years and the median age was 44. Forty-two percent of suicides were among persons aged 35 to 54 (N=254).
- Seventy-eight war veterans[3] completed suicide, which accounted for 87% of the total violent deaths among war veterans (N=90).
- Suicides in 2010 also included:
  - Eight victims that were homeless.
  - Twenty-three victims that were in custody, such as jail, state institution, or foster care.[4]
  - Twelve victims that died at their workplace.

[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.
[3] This report only includes information where the deceased was a U.S. veteran *and* the war in which they served was specified.
[4] Suicides occurring "in custody" include those mentioned on page 19 (Table 2.7: Places where suicides occur) in addition to those who are involuntarily committed to a psychiatric facility, in a foster home, and those who were injured prior to being arrested.

Figure 2.1: Suicides by Age Group and Sex: Number and Rate, MA 2010



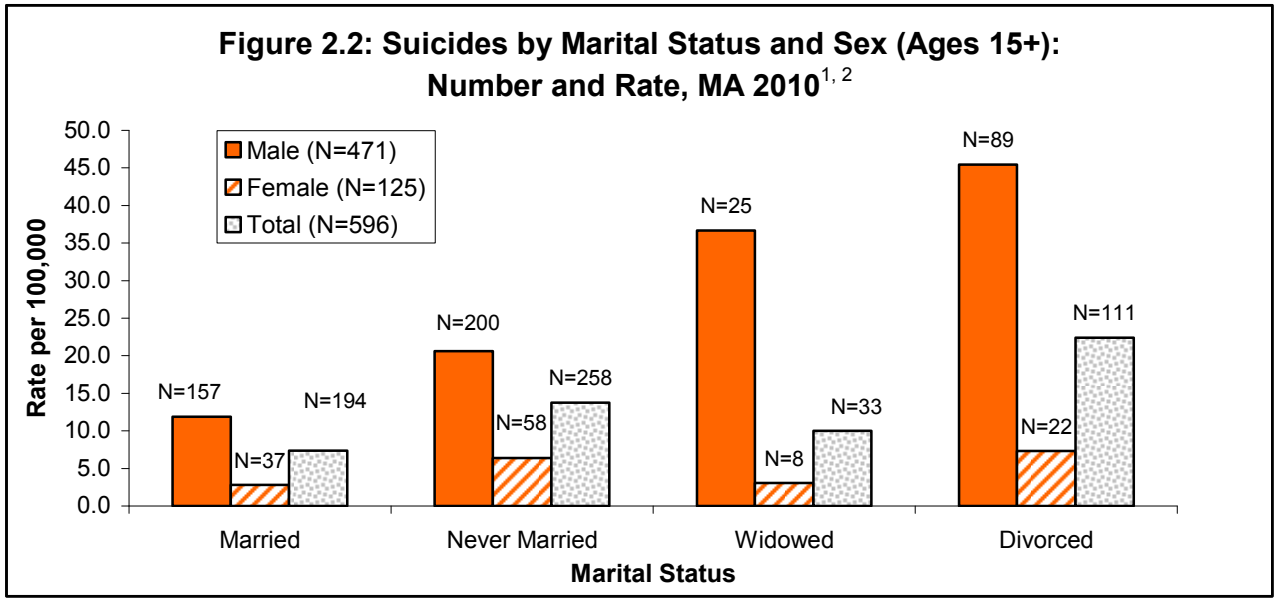
- Among persons age 15-24, the suicide rate was 8.3100,000 (N=78), which was lower than the statewide rate of 9.2/100,000.
- Among males, the age group 35-44 had the highest suicide rate (22.3/100,000).
- Among females, ages 35-44 had the highest suicide rate (6.4/100,000).
- Overall, male rates of suicide were four times higher than female rates.

Table 2.2: Suicides by Race/Ethnicity and Sex: Number, Percent, and Rate, MA 2010[1]

	Female			Male		
	N	Percent	Rate per 100,000	N	Percent	Rate per 100,000
White, non-Hispanic	113	90.4	4.3	427	89.9	17.4
Black, non-Hispanic	3	2.4	--	16	3.4	7.4
Asian, non-Hispanic	4	3.2	--	11	2.3	6.2
Hispanic	3	2.4	--	19	4.0	6.1
Other/mixed[2]	2	1.6	--	2	0.4	--
Total	**125**	**100.0**	**3.7**	**475**	**100.0**	**15.0**

- White, non-Hispanics had the highest rates for males (17.4/100,000).
- There were 600 suicides in 2010; approximately 71% were White, non-Hispanic males and 19% were White, non-Hispanic females. The Massachusetts population was comprised of 38% White, non-Hispanic males and 40% White, non-Hispanic females in 2010.

[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.



- In 2010, male suicide rates were always higher than female suicide rates, regardless of marital status.
- For males, suicide rates were highest among divorced males (45.5/100,000).
- Among females, suicide rates were highest among divorced females (7.3/100,000).

Table 2.3: Suicides (Ages 25+) by Level of Education and Sex: Number, Percent, and Total Rate, MA 2010

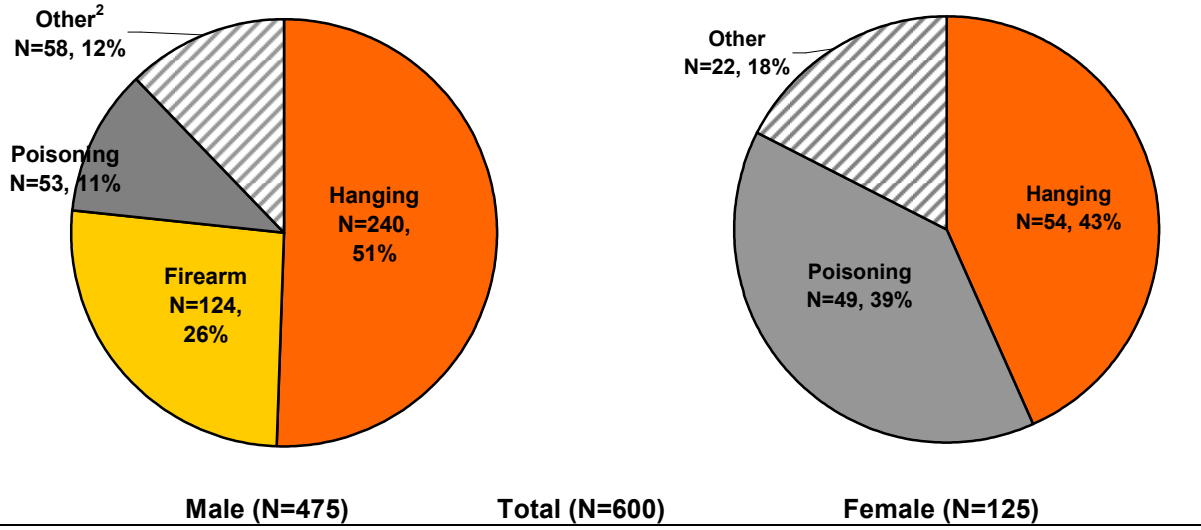
	Female		Male		Total		
Years of Education	N	%	N	%	N	%	Rate per 100,000[1]
0-8	1	0.9	8	1.9	9	1.7	4.2
9-11	4	3.8	30	7.3	34	6.6	16.5
12	45	42.9	200	48.4	245	47.3	20.0
13-16	38	36.2	118	28.6	156	30.1	7.6
17+	17	16.2	53	12.8	70	13.5	9.6
Unknown	0	0.0	4	1.0	4	0.8	--
Total[2]	**105**	**100.0**	**413**	**100.0**	**518**	**100.0**	**11.7**

- The highest suicide rate was among victims with 12 years of education.
- Approximately 56% of suicide victims age 25 and older had 12 or less years of education, while approximately 37% of the Massachusetts population age 25 and older has had 12 years of education or less.

[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.
[2] There was one victim whose data element for marital status was unknown.

METHODS OF SUICIDES[1]

Figure 2.3: Suicide by Type of Weapon and Sex, MA 2010[1]



Total (N=600)

- In this report, "hanging/strangulation/suffocation" is simply referred to as "hanging." This was the most common suicide method, accounting for 49% (N=294) of suicides.
- Among females, hanging and poisoning/drug overdose were the most common methods (43% and 39%, respectively).
- For males, hanging was the most common method (51%). The second most common method was the use of a firearm (26%), followed by poisoning/drug overdose (11%).
- Of suicide poisoning deaths, 47% were due to the ingestion of more than one poison/drug (N=48). Of the total suicide deaths by poisoning/drug overdose (N=102) and based on the first poison listed:
  - 72% (N=73) were due to the ingestion of one or more substances including street/recreation drugs, alcohol, pharmaceutical prescriptions, and over-the counter medications.
  - 22% (N=22) were due to carbon monoxide poisoning or other gas, or vapor. 36% (N=8) had a car as the carbon monoxide source.
  - 7% (N=7) were due to another poison, which includes substances such as anti-freeze or cyanide.

Table 2.4: Suicide Method by Age Group: Number and Percent, MA 2010

	Age Group											
	0-14		15-24		25-44		45-64		65+		Total	
Weapon	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Firearm	0	0	13	16.7	42	18.9	46	21.0	32	41.6	133	22.2
Poisoning	0	0	6	7.7	32	14.4	51	23.3	13	16.9	102	17.0
Hanging	3	75.0	53	67.9	113	50.9	103	47.0	22	28.6	294	49.0
Other[2]	1	25.0	6	7.7	35	15.8	19	8.7	10	13.0	71	11.8
Total	**4**	**100.0**	**78**	**100.0**	**222**	**100.0**	**219**	**100.0**	**77**	**100.0**	**600**	**100.0**

- Hanging was the most common method of suicide through age 64.
- Firearm was the most common method of suicide among persons ages 65 and over.

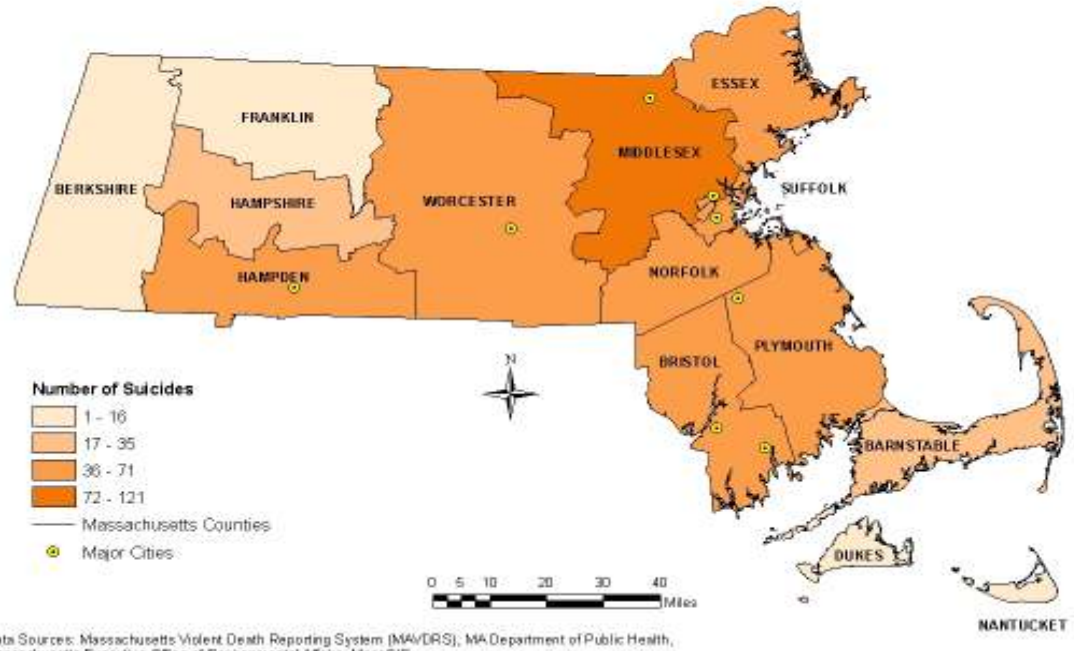
[1] In cases where more than one weapon type was used (including multiple poisons), only the first weapon type was selected for the analysis in this report.
[2] Other weapon for males includes: Drowning, fall, fire/burn, motor vehicle, non-powder gun, other transport, sharp instrument and unspecified weapon. Other weapon for females includes: Drowning, fall, motor vehicle, other transport, and sharp instrument. See Appendix A for a complete list of weapons.

Table 2.5: Suicides by County of Injury: Number, Percent, and Rate, MA 2010			
County	**N**	**Percent[1]**	**Rate per 100,000[2]**
Population: 1,000,000+			
Middlesex	121	20.5	8.0
Population: 500,000 – 1,000,000			
Essex	71	12.1	9.5
Suffolk	61	10.4	8.4
Worcester	55	9.3	6.9
Norfolk	47	8.0	7.0
Bristol	44	7.5	8.0
Population: 100,000 – 500,000			
Plymouth	54	9.2	10.9
Hampden	47	8.0	10.1
Barnstable	35	5.9	16.2
Hampshire	24	4.1	15.2
Berkshire	12	2.0	9.2
Population: <100,000			
Franklin	16	2.7	22.4
Nantucket	1	0.2	--
Dukes	1	0.2	--
Other			
Outside MA[2]	6	--	--
Unknown[2]	5	--	--
Total known MA county	**589**	**100.0**	**--**
Total	**600**	**--**	**9.2**

- Middlesex, Essex, and Suffolk Counties had the highest number of suicides (N=121, 71, and 61respectively). These three counties accounted for 43% of total suicides in a known Massachusetts county and 45% of the Massachusetts population.
- Among counties with a population of 500,000-1,000,000, Essex had the highest number (N=71) and rate (9.5/100,000).
- Among counties with a population of 100,000-500,000, Plymouth had the highest number (N=54) and Barnstable had the highest rate (16.2/100,000, N=35).These counties (Berkshire, Barnstable, Hampshire, Hampden, and Plymouth) accounted for 29% of suicide occurrences in a known Massachusetts county and 22% percent of the Massachusetts population.
- Numbers of suicides for some counties are low, therefore rates may be unstable. Caution should be exercised in interpretation of these rates.

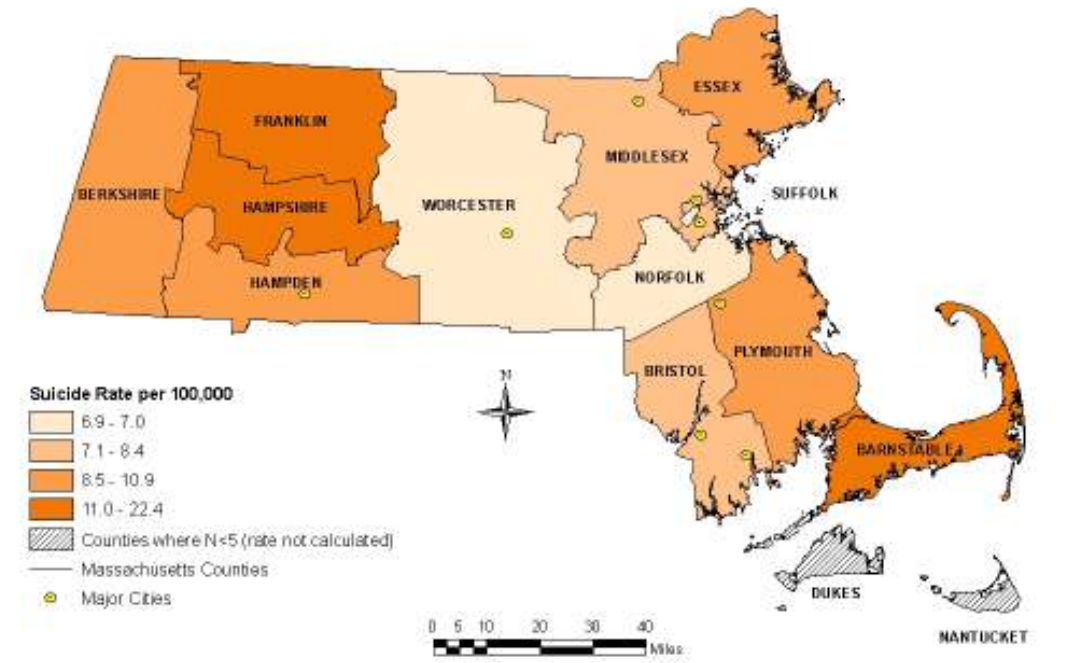
[1] Percent is based on known Massachusetts county of injury (N=589). Rate was not calculated on unknown county of injury nor out of state injuries.
[2] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. Rates may be much higher among counties with a small population. See Appendix B for age-adjusted rates.

Figure 2.4: Suicides by County: Number, MA 2010



Data Sources: Massachusetts Violent Death Reporting System (MAVDRS), MA Department of Public Health, Massachusetts Executive Office of Environmental Affairs, MassGIS

Figure 2.5: Suicides by County: Rate, MA 2010



Data Sources: Massachusetts Violent Death Reporting System (MAVDRS), MA Department of Public Health , Massachusetts Executive Office of Environmental Affairs, MassGIS

LOCALITY OF SUICIDES

Table 2.6: Suicides by City/Town of Injury: Number, Percent, and Rate, MA 2010			
	N	**Percent[1]**	**Rate per 100,000[2]**
Group 1: Cities/Towns over 175,000 population:			
Boston	56	9.5	9.1
Worcester	11	1.9	6.1
Total Group 1	**67**	11.4	8.4
Group 2: Cities/Towns 75,000-175,000 population:			
Lowell	12	2.0	11.3
New Bedford	12	2.0	12.6
Quincy	12	2.0	13.0
Brockton	10	1.7	10.7
Cambridge	10	1.7	9.5
Lynn	9	1.5	10.0
Springfield	8	1.4	5.2
Fall River	6	1.0	6.8
Newton	4	0.7	--
Somerville	2	0.3	--
Total Group 2	**85**	14.4	8.6
Group 3: Cities/Towns 50,000-75,000 population:			
Plymouth	9	1.5	15.9
Chicopee	7	1.2	12.7
Haverhill	7	1.2	11.5
Lawrence	7	1.2	9.2
Peabody	6	1.0	11.7
Weymouth	6	1.0	11.2
Framingham	4	0.7	--
Waltham	4	0.7	--
Brookline	3	0.5	--
Revere	3	0.5	--
Taunton	2	0.3	--
Malden	1	0.2	--
Medford	1	0.2	--
Total Group 3	**60**	10.2	7.8
Group 4: Cities/Towns with < 50,000 population			
Total Group 4	**377**	64.0	9.4
Other			
Outside MA	6	--	--
Unknown city/town	5	--	--
Total known MA city/town	**589**	**100.0**	**--**
Total	**600**	**--**	**9.2**

- Among cities with a population of 75,000-175,000, Lowell, New Bedford, and Quincy had the highest number of suicides (N=12) and Quincy had the highest rate (13.0/100,000, N=12).
- Among cities with a population of 50,000-75,000, Plymouth had the highest number and rate of suicide (N=9, 15.9/100,000).

[1] Percent is based on known Massachusetts city of injury (N=589). Rate was not calculated on unknown city of injury nor out of state injuries.
[2] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates.

PLACE OF SUICIDES

Table 2.7: Places Where Suicides Occur: Number and Percent, MA 2010		
	N	**Percent[1]**
Buildings and surroundings:		
House, apartment, including driveway, porch, yard	422	70.9
Hotel/motel	17	2.9
Jail, prison, detention facility[2]	11	1.8
Hospital, medical facility or nursing home/supervised residential facility	9	1.5
Other commercial establishment (e.g., grocery store, retail outlet) including parking lot	5	0.8
Transportation utilities:		
Motor vehicle (excl. school and public transportation)	27	4.5
Street/road, sidewalk, alley, highway	18	3.0
Railroad track/Public transportation or station	10	1.7
Parking lot/public parking garage	7	1.2
Outdoor and recreational areas:		
Natural area/park, playground, public use area	46	7.7
Other:		
Other	23	3.9
Total Known Place of Suicide Occurrence	**595**	100.0
Unknown place of Suicide	5	--
Total Suicides	**600**	**--**

Of the 595 suicides where location of injury was reported:

- The majority (71%) of suicides occurred in a house, apartment, or its surroundings (yard, porch, driveway).
- Approximately 5% of suicides occurred in a motor vehicle.
- Approximately 8% percent of suicides occurred in a natural area, such as such as woods, rivers, or a recreactional area suck as a park, playground, or public use area..

[1] Percent is based on number of suicides with known place where suicide occurred (N=595).
[2] Suicides occurring in jail are not necessarily the same suicide victims who were injured "in custody". The "in custody" variable mentioned in the footnote on page 7 and on page 12 includes those victims who are involuntarily committed to a psychiatric facility, in a foster home, and those who were injured prior to being arrested.

SUICIDE CIRCUMSTANCES

The circumstances of a suicide can help in getting a better understanding of what was occurring in the decedent's life prior to the death. NVDRS allows for the endorsement of more than one circumstance for a suicide victim. It is important to note that some circumstances are more likely to be known and/or noted than others. The following table percentages are circumstances noted out of all suicides (N=600). See Appendix A for more information and definitions of circumstances.

Table 2.8: Circumstances of Suicides: Number and Percent, MA 2010

	N	Percent
Total number of suicide victims	**600**	**100**
Total victims with reported circumstances	**562**	
Health Characteristics		
Current mental health problem	290	48.3
Ever treated for mental health problem[1]	234	39.0
Current treatment for mental illness[1]	206	34.3
Alcohol problem/other substance problem	146	24.3
History of suicide attempts	115	19.2
Physical health problem[2]	62	10.3
Relationship Characteristics		
Intimate partner problem	161	26.8
Other relationship problem	47	7.8
Perpetrator of interpersonal violence past month	36	6.0
Other death of friend or family in past five years	26	4.3
Suicide of friend or family in past 5 years	6	1.0
Life Stressors		
Job/Financial problem	124	20.7
Recent criminal legal problem	51	8.5
Family stressors	48	8.0
Eviction/Loss of home	36	6.0
Other legal problems	10	1.7
Anniversary of traumatic event	5	0.8
School problem	5	0.8
Event Characteristics		
Person left a suicide note	185	30.8
Disclosed intent to commit suicide	175	29.2
Current depressed mood	171	28.5
Crisis in past two weeks	95	15.8

Of the 600 suicides:

- Forty-eight percent were reported to have a current mental health problem. This is a broad category and includes victims who have been diagnosed by a health professional as having a psychiatric condition and victims who were prescribed antidepressants or other psychiatric medication.
- Twenty-nine percent were reported as being depressed by a family member or other witness. This does not necessarily indicate that there was a clinical diagnosis of depression or treatment for this condition.
- Twenty-seven percent were reported to be having problems with a current or former intimate partner including divorce, jealousy, or argument.
- Twenty-four percent were reported to have an alcohol or other substance problem.

[1] "Ever treated for mental health problem" and "current treatment for mental illness" includes treatment for mental health problems as well as alcohol/substance abuse problems.

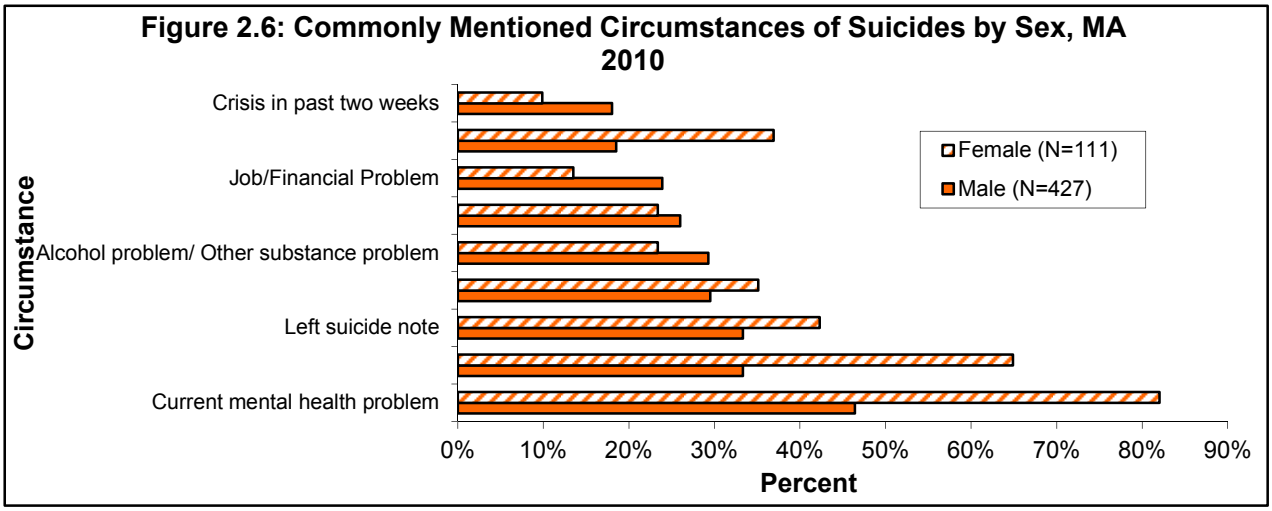
[2] From 2003 to 2005, MAVDRS coded "physical health problem" if there was a serious physical health problem present, regardless if it contributed directly to the suicide or not. In 2006, we began to code this variable only if there was evidence that the problem directly contributed to the suicide or if the problem was debilitating, including situations where the victim was terminally ill, bed-ridden, oxygen dependent, or receiving daily care by a third party.

CIRCUMSTANCES

Table 2.9: Most Commonly Mentioned Suicide Circumstances by Age Group, MA 2010				
	Age Group and Rank			
Circumstance	**15 to 24**	**25 to 44**	**45 to 64**	**65 and over**
Current mental health problem	**1**	**1**	**1**	**1**
Ever treated for mental health problem[1]	4	2	2	2
Alcohol /Other substance problem	--	5	8	--
Current treatment for mental illness[1]	9	3	4	3
Person left a suicide note	3	8	3	5
Disclosed intent to commit suicide	2	6	7	7
Current depressed mood	5	7	6	6
History of suicide attempts	5	9	--	8
Intimate partner problem	5	4	9	--
Physical health problem[2]	--	--	--	4
Crisis in past two weeks	5	--	10	9
Financial/job problem	--	10	5	--
Other relationship problem	10	--	--	--
Family stressors contributed to death	--	--	--	10

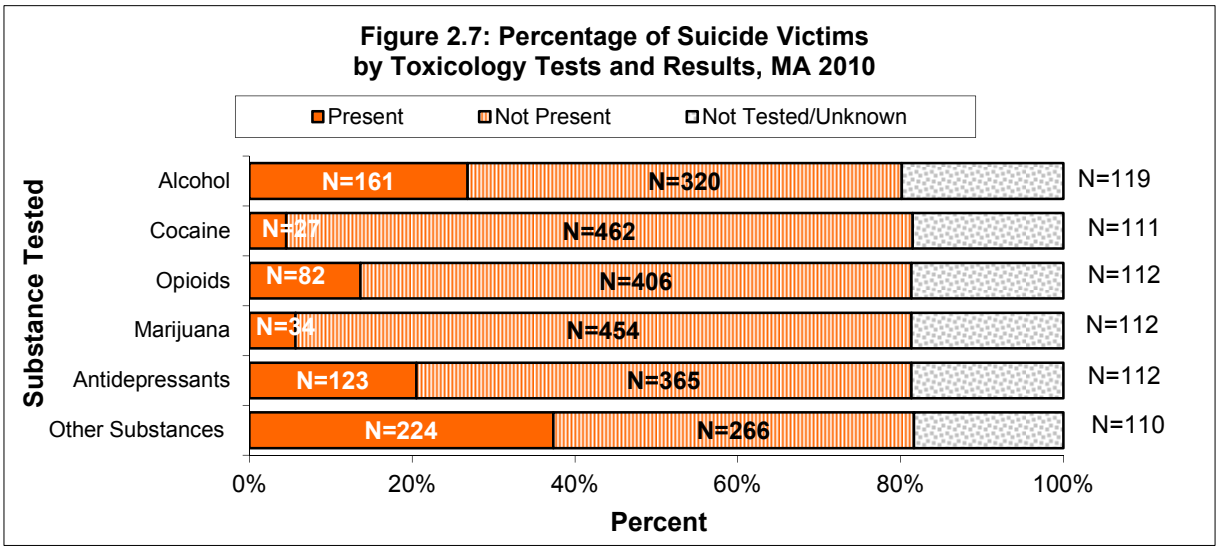
- Numerical rank (1-10) was determined by frequency of mention. Circumstances with the same frequencies were both given the higher rank number.
- For all ages, current mental health problem was the most frequently noted circumstance.[3]

Figure 2.6: Commonly Mentioned Circumstances of Suicides by Sex, MA 2010



- Information about suicide circumstances was available for 94% (N=562) of all suicides; 93% of males (N=443) and 95% of females (N=119).
- Females were more likely than males to have a history of suicide attempts (not depicted), a current mental health problem, to have disclosed their intent to commit suicide, and/or treatment for a mental health disorder noted.
- A larger percentage of males were reported to have an intimate partner problem, financial/job problems, and a crisis in the past two weeks compared to females.

[1] "Ever treated for mental health problem" and "current treatment for mental illness" includes treatment for mental health problems as well as alcohol/substance abuse problems.
[2] From 2003 to 2005, MAVDRS coded "physical health problem" if there was a serious physical health problem present, regardless if it contributed directly to the suicide or not. In 2006, we began to code this variable only if there was evidence that the problem directly contributed to the suicide or if the problem was debilitating, including situations where the victim was terminally ill, bed-ridden, oxygen dependent, or receiving daily care by a third party.
[3] "Current mental health problem" is a broad category and includes victims who have been diagnosed by a health professional as having a psychiatric condition and victims who were prescribed antidepressants or other psychiatric medication.



- Of the 600 suicide victims in Massachusetts in 2010, approximately 80% were tested for blood alcohol concentration, cocaine, opioids, marijuana, and/or antidepressants. The above figure demonstrates the percentage of victims who tested positive and negative for those substances, as well as victims not tested for those substances or had an unknown result.
- Other substances include benzodiazepines, anti-psychotics, over-the-counter drugs, carbon monoxide and amphetamines.

Table 2.10: Blood Alcohol Concentration of Suicide Victims that Tested Positive by Age Group: Number and Percent, MA 2010[1]

	Age Group									
	< 21		21-44		45-64		65+		Total	
BAC %[1]	N	%	N	%	N	%	N	%	N	%
0.010 – 0.040[2]	<5	--	17	24.3	18	23.1	<5	--	40	24.8
0.041 - 0.079	0	0.0	6	8.6	6	7.7	<5	--	14	8.7
0.08 and over	<5	--	46	65.7	52	66.7	<5	--	104	64.6
Unknown[3]	0	0.0	<5	--	<5	--	0	0.0	<5	--
Total	**5**	**100.0**	**70**	**100.0**	**78**	**100.0**	**8**	**100.0**	**161**	**100.0**

- The above table only refers to those victims who were tested for blood alcohol concentration and tested positive (N=161). Eighty percent (N=481) of suicide victims were tested for blood alcohol concentration (BAC) and 33% of those had a positive BAC.
- Victims with a BAC in the 0.010 - 0.040 range comprise 25% of the total. These results must be interpreted with caution due to uncertainty of the cause of the result.[2]
- Among suicide victims where BAC was tested and results were positive, less than five victims age 21 or younger had a BAC of 0.08 or higher. Seventy-four percent (N=52) of victims ages 21-44 had a BAC 0.041 or above. Among victims ages 45-64, 74% (N=58) had a BAC 0.041 and above.
- Sixty-five percent (N=104) of all suicide victims who tested positive for alcohol had a BAC of 0.08 or over, which is over the legal limit for operating a motor vehicle in Massachusetts.

[1] Caution should be used when interpreting BAC due to variation in time among ingestion of alcohol, time of death, and drawing of blood for testing which will affect the outcome of the test.
[2] BAC of 0.04% or less could be due to decomposition, rather than ingestion of alcohol.
[3] Unknown numbers are those where the victim was tested, but the results were not available at the time of abstraction.

Homicides in Massachusetts

Data Highlights for 2010:

- Homicides claimed an average of four lives per week (N=212) in 2010.
- Black, non-Hispanics had the highest homicide rate (18.2/100,000) compared to White, non-Hispanics (1.3/100,000) and Hispanics (8.1/100,000).
- Black, non-Hispanic males had a homicide rate of 34.9/100,000 and White, non-Hispanic males had a homicide rate of 1.5/100,000.
- The homicide rate of males (5.4/100,000) was 4.5 times higher than the rate of females (1.2/100,000).
- In 2010, over half of homicides (62%) in Massachusetts involved firearms. This is similar to 2009 (59%).

Compared to the U.S.:

- Massachusetts had a lower age-adjusted homicide rate in 2010 (3.3/100,000) than the U.S. age-adjusted rate for homicides (5.3/100,000).
- In 2010, Massachusetts had an age-adjusted homicide rate for males (5.4/100,000) that was more than two times lower than that of the U.S. age-adjusted rate (8.3/100,000).
- The Massachusetts age-adjusted rate for female homicides in 2010 (1.2/100,000) was lower than that of the U.S. age-adjusted rate for female homicides (2.2/100,000).
- Massachusetts had an age-adjusted rate for Black, non-Hispanic males in 2010 (30.6/100,000) that was similar to the U.S. age-adjusted rate (31.5/100,000).

DEMOGRAPHICS OF HOMICIDE VICTIMS

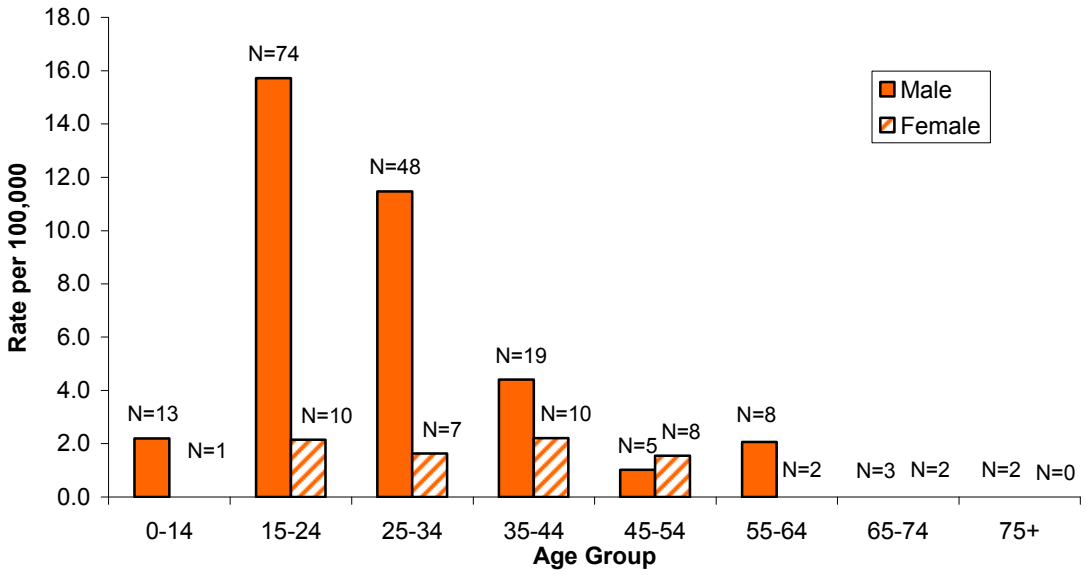
Table 3.1: Homicides by Demographics: Number, Percent, and Rate, MA 2010			
	N	**Percent**	**Rate per 100,000[1]**
Sex			
Male	172	81.1	5.4
Female	40	18.9	1.2
Race/Ethnicity			
White, non-Hispanic	66	31.1	1.3
Black, non-Hispanic	81	38.2	18.2
Asian, non-Hispanic	4	1.9	--
Hispanic	51	24.1	8.1
Other/mixed[2]	10	4.7	--
Age Group			
0-14	14	6.6	1.2
15-24	84	39.6	9.0
25-34	55	25.9	6.5
35-44	29	13.7	3.3
45-54	13	6.1	1.3
55-64	10	4.7	1.2
65-74	5	2.4	1.1
75-84	1	0.5	--
85+	1	0.5	--
Total	**212**	**100.0**	**3.2**

ADDITIONAL FINDINGS FOR 2010 (USED 2010 ESTIMATES (2011 VINTAGE)

- The youngest homicide victim was 3 months old and the oldest was 85 years old. The mean age for homicide victims was 29.2 years and the median age was 25 years old.
- Forty-six percent of all homicide victims were age 24 or younger and 72% were age 34 or younger.
- There were two war veterans[3] who were the victims of homicide.
- Homicides in 2010 included:
  - five victims that were homeless.
  - four victims that were injured at their workplace.
  - no homicide victims died in custody.
- Black, non-Hispanics accounted for approximately 38% of homicide victims, but make up only 7% of the Massachusetts population. Hispanics accounted for about 24% of homicide victims and make up only 10% of the Massachusetts population.

[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.
[3] This report only includes information where the deceased was a U.S. veteran **and** the war in which they served was specified.

Figure 3.1: Homicides by Age Group and Sex: Number and Rate, MA 2010[1]



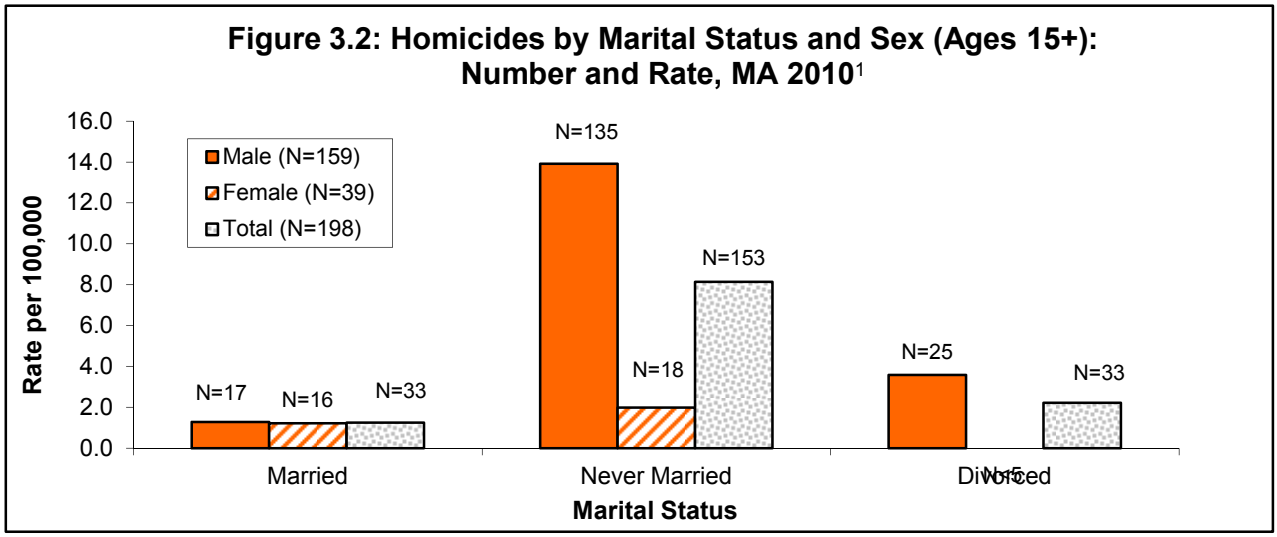
- The highest homicide rate by age group was among 15-24 year olds (9.0/100,000, N=84).
  - The homicide rate for ages 15-19 was 6.7/100,000 (N=31), which was two times higher than the statewide rate of 3.2/100,000.
  - The homicide rate for ages 20-24 was 11.1/100,000 (N=53), which was over three times higher than the statewide rate of 3.2/100,000.
  - Males ages 15-24 had the highest homicide rate (15.7/100,000, N=74), which was approximately five times higher than the statewide rate of 3.2/100,000.
- Males age 25-34 years had the second highest homicide rate (11.5/100,000, N=48).
- For females, the highest rate was among females ages 15-24 (2.1/100,000) and 35-44 year olds (2.2/100,000). Female age groups ranged from 1.5/100,000 to 2.2/100,000.

Table 3.2: Homicides by Race/Ethnicity and Sex: Number, Percent, and Rate, MA 2010

	Female			Male		
	N	%	Rate per 100,000[1]	N	%	Rate per 100,000[1]
White, non-Hispanic	28	70.0	1.1	38	22.1	1.5
Black, non-Hispanic	6	15.0	2.6	75	43.6	34.9
Asian, non-Hispanic	3	7.5	--	1	0.6	--
Hispanic	2	5.0	--	49	28.5	15.8
Other/mixed[2]	1	2.5	--	9	5.2	--
Total	**40**	**100.0**	**1.2**	**172**	**100.0**	**5.4**

- Black, non-Hispanics had the highest homicide rate for males (34.9/100,000).
- For males ages 15-24, Black, non-Hispanics had the highest rate (83.4/100,000, N=34) followed by Hispanics (39.5/100,000, N=25). White, non-Hispanic males ages 15-24 had a rate of 3.0/100,000 (N=10).

[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for crude and/or age-adjusted rates.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.



- Homicide rates for males and females were similar for married status. Rates were higher among males compared to females for divorced status. Rates for widowed persons were not calculated due to small numbers.
- Among males, homicide rates were highest among those who were never married (13.9/100,000, N=135).
- Among females, homicide rates were higher among those who were never married compared to married females (2.0/100,000, N=18 and 1.2/100,000, N=16 respectively).

Table 3.3: Homicides (Ages 25+) by Level of Education and Sex: Number, Percent, and Total Rate, MA 2010

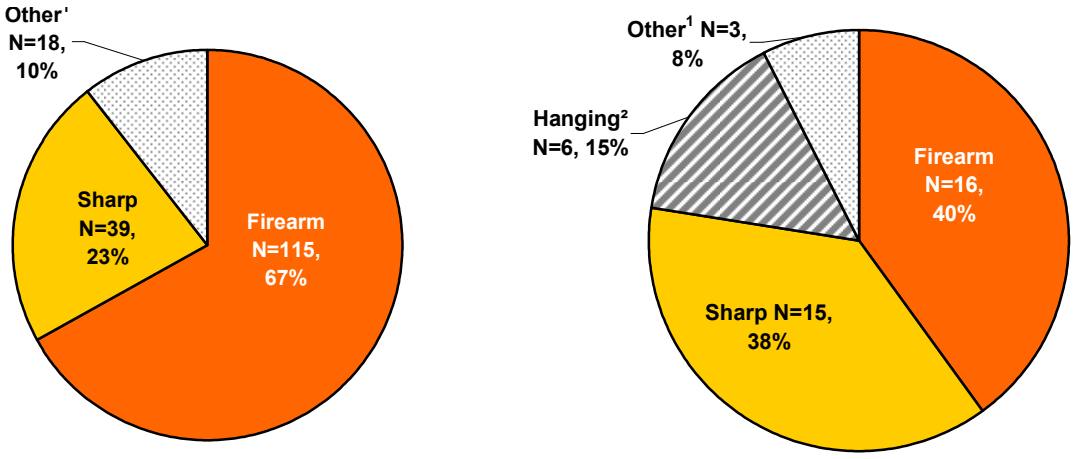
Years of Education	Female		Male		Total		
	N	%	N	%	N	%	Rate per 100,000[1]
0-8	1	3.4	5	5.9	6	5.3	2.8
9-11	1	3.4	11	12.9	12	10.5	5.8
12	10	34.4	50	58.9	60	52.6	4.9
13-16	13	44.8	17	20.0	30	26.3	1.5
17+	4	13.8	2	2.4	6	5.3	0.8
Unknown	0	0.0	0	0.0	0	0.0	--
Total[2]	**29**	**100.0**	**85**	**100.0**	**114**	**100.0**	**2.6**

- Victims ages 25 and older with 9-11 years of education had the highest homicide rate (5.8 /100,000).
- The majority of homicide victims 25 years and older (68%) had 12 or less years of education.

[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for crude and/or age-adjusted rates.

METHODS OF HOMICIDES

Figure 3.3: Homicides by Type of Weapon and Sex, MA 2010



Male (N= 172) **Total (N=212)** **Female (N=40)**

- In cases where more than one weapon type was used (including multiple poisons), only the first weapon type was selected for the analysis in this report.
- Firearms were the leading method of homicide and accounted for 62% of total homicides (N=131), followed by sharp instruments, such as knives (25%, N=54).
- Firearms were the most commonly used weapon for male homicide deaths, and accounted for 67% of male homicides (N=115), followed by sharp instruments (23%, N=39).
- Among females, firearms and sharp instruments were the most commonly used weapons and accounted for 40% (N=16) and 38% (N=15) of female homicides respectively.
- There were eleven homicide victims that had more than one weapon contribute to their death These are included in the analysis above but only the primary weapon type was selected for the analysis in this report.
    - two victims died from a sharp instrument combined with a blunt instrument.
    - one victim died from hanging/suffocation combined with a blunt instrument.
    - one victim died from fire/burn combined with poisoning.
    - one victim died from a combination of a firearm and a sharp instrument.
    - one victim died from a combination of a firearm and a blunt instrument.
    - one victim died from shaking combined with blunt instrument.
    - one victim died from a personal weapon and blunt instrument.
    - one victim died from a combination of a firearm, sharp instrument, and blunt instrument.

[1] Weapons that are less than 10% of the male or female total are included in "0ther." Other weapons for males include: personal weapons which are from bodily assaults (such as hands and feet), blunt instrument, hanging/strangulation/suffocation, intentional neglect,and shaking. Other weapons for females include: blunt instrument and fire/burn. See Appendix A for a complete list of weapons.
[2] Hanging/strangulation/suffocation is referred to as "hanging" in this report.

METHODS OF HOMICIDES

Table 3.4: Homicide Weapons by Age Group: Number and Percent, MA 2010												
	Age Group											
	0-14		15-24		25-44		45-64		65+		Total	
Weapon	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Firearm	4	28.6	62	73.8	56	66.7	7	30.4	2	28.6	131	61.8
Sharp	2	14.3	21	25.0	18	21.4	11	47.8	2	28.6	54	25.5
Other[1]	8	57.1	1	1.2	10	11.9	5	21.7	3	42.9	27	12.7
Total	**14**	**100.0**	**84**	**100.0**	**84**	**100.0**	**23**	**100.0**	**7**	**100.0**	**212**	**100.0**

- Firearms were the most common weapon of homicides for the age groups of 0-14 (29%), 15-24 (74%) and 25-44 (67%). Sharps were the most common methods among 45-64 year olds (48%).
- Weapons in the "other" category include blunt instruments, fire/burns, hanging/suffocation/ strangulation, intentional neglect, personal weapons (hands, feet), and shaking.

Table 3.5: Type of Firearm Used in Homicides: Number and Percent, MA 2010		
		N
Firearms Used In Homicides		**133**
Firearms with known firearm type		75
Firearms with unknown firearm type		58
Firearms with known firearm type		**75**
Handgun		70
	Semi-automatic pistol	*32*
	Revolver	*17*
	Other/Unknown handgun type	*21*
Rifle/Shotgun		5

Table 3.5 includes the total number of firearms used in homicide incidents. Multiple firearms might be used in one incident or one firearm may be used in an incident where multiple persons were killed.

- Among the total of 133 firearms associated with 122 firearm homicide incidents, 64 incidents (52%) had information about the type of firearm used.
- Handguns were the most common type of firearm used in homicides. Handguns made up 93% of the known firearm types used in firearm-related homicides. Forty-six percent of these handguns were semi-automatic pistols, 24% were revolvers, and 30% were an other/unknown type of handgun.
- Rifles and shotguns made up 7% of firearms with known firearm type.

[1] "Other" weapon includes personal weapons (which are from bodily assaults, such as hands and feet), blunt instrument, hanging/strangulation/suffocation, fire/burns, neglect, and shaking. See Appendix A for a complete list of weapon variables.

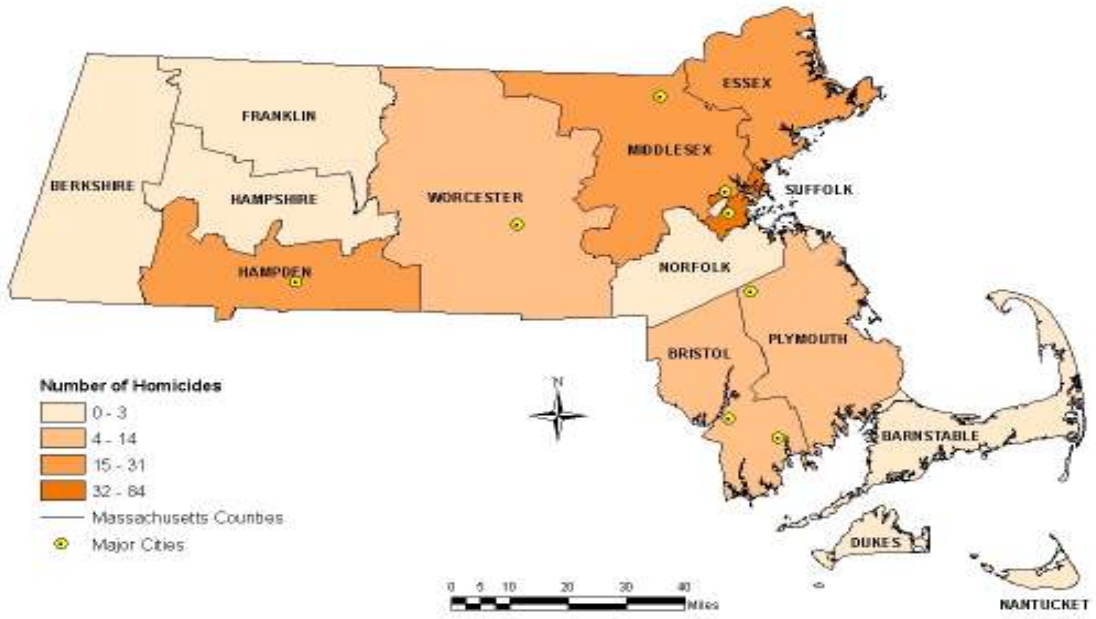
Table 3.6: Homicides by County of Injury: Number, Percent, and Rate, MA 2010			
County	**N**	**Percent[1]**	**Rate per 100,000[2]**
Population: 1,000,000+			
Middlesex	31	15.1	2.1
Population: 500,000 – 1,000,000			
Suffolk	84	41.0	11.6
Essex	22	10.7	3.0
Worcester	14	6.8	1.8
Bristol	10	4.9	1.8
Norfolk	3	1.5	--
Population: 100,000 – 500,000			
Hampden	26	12.7	5.6
Plymouth	10	4.9	2.0
Hampshire	2	1.0	--
Berkshire	1	0.5	--
Barnstable	0	0.0	0.0
Population: <100,000			
Franklin	2	1.0	--
Nantucket	0	0.0	0.0
Dukes	0	0.0	0.0
Other			
Unknown [1]	4	--	--
Outside MA [1]	3	--	--
Total known MA county	**205**	**100.0**	**--**
Total	**212**	**--**	**3.2**

- Among all counties, Suffolk County had the highest homicide number and rate (N=84, 11.61/100,000) and accounted for 41% of deaths, followed by Hampden County (N=26, 5.6/100,000) which accounted for 13% of deaths.
- Among counties with a population of 500,000-1,000,000, Suffolk County, which includes Boston, had the highest number and rate (N=84, 11.6/100,000). While 53% of the Massachusetts population lives in these 5 counties (Suffolk, Essex, Worcester, Bristol, and Norfolk), 65% of all homicides with a known Massachusetts county occurred here.
- Among counties with a population of 100,000-500,000, Hampden County, which includes Springfield, had the highest number and rate of homicides (N=26, 5.6/100,000).

[1] Percent is based on known Massachusetts county of injury (N=205). Rate was not calculated on unknown county of injury nor out of state injuries. Out of state homicides are those homicide incidents that occurred in another state, but the victim was transported to Massachusetts where they died.
[2] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. Rates may be much higher among counties with small a population. See Appendix B for age-adjusted rates.

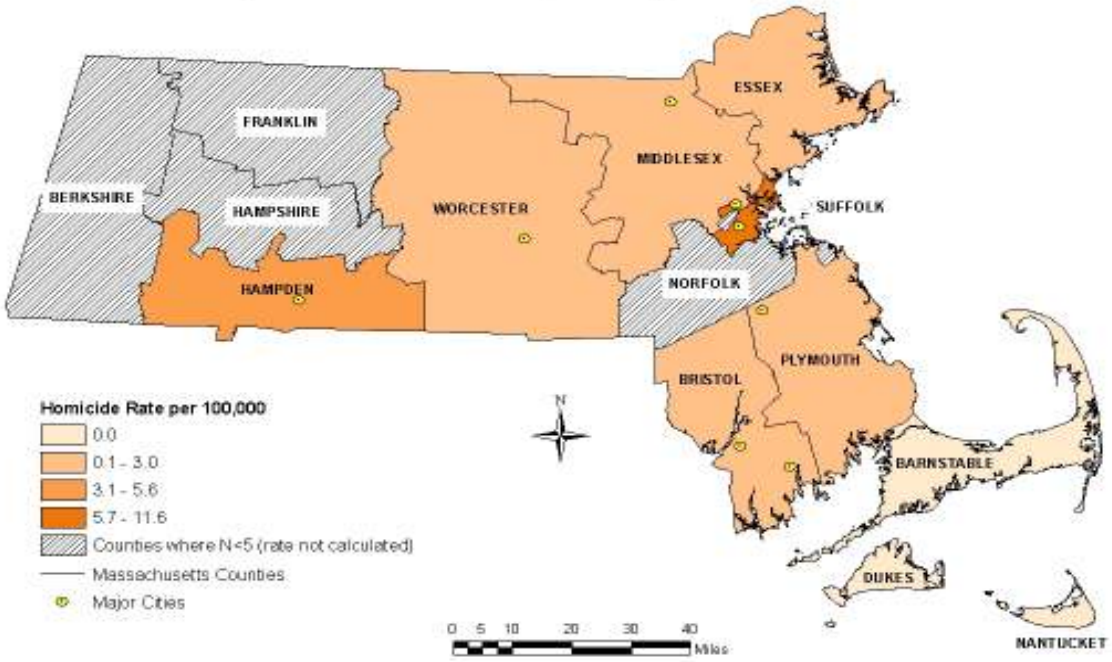
LOCALITY OF HOMICIDES

Figure 3.4: Homicides by County: Number, MA 2010



Data Sources: Massachusetts Violent Death Reporting System (MAVDRS), MA Department of Public Health, Massachusetts Executive Office of Environmental Affairs, MassGIS

Figure 3.5: Homicides by County: Rate, MA 2010



Data Sources: Massachusetts Violent Death Reporting System (MAVDRS), MA Department of Public Health, Massachusetts Executive Office of Environmental Affairs, MassGIS

LOCALITY OF HOMICIDES

Table 3.7: Homicides by City/Town: Number, Percent, and Rate, MA 2010			
	N	**Percent[1]**	**Rate per 100,000[2]**
Group 1: Cities/Towns over 175,000 population:			
Boston	74	36.1	12.0
Worcester	7	3.4	3.9
Total Group 1	**81**	39.5	10.1
Group 2: Cities/Towns 75,000-175,000 population:			
Springfield	18	8.8	11.8
Lawrence	10	4.9	13.1
Brockton	7	3.4	7.5
Lowell	7	3.4	6.6
Fall River	3	1.5	--
Lynn	3	1.5	--
New Bedford	3	1.5	--
Cambridge	0	0.0	0.0
Newton	0	0.0	0.0
Quincy	0	0.0	0.0
Somerville	0	0.0	0.0
Total Group 2	**51**	24.9	4.8
Group 3: Cities/Towns 50,000-75,000 population:			
Malden	4	2.0	--
Taunton	3	1.5	--
Haverhill	2	1.0	--
Waltham	2	1.0	--
Chicopee	1	0.5	--
Framingham	1	0.5	--
Medford	1	0.5	--
Plymouth	1	0.5	--
Revere	1	0.5	--
Brookline	0	0.0	0.0
Peabody	0	0.0	0.0
Weymouth	0	0.0	0.0
Total Group 3	**16**	7.8	2.3
Group 4: Cities/Towns with < 50,000 population			
Total Group 4	**57**	27.8	1.4
Other			
Outside MA	4	--	--
Unknown State/City	3	--	--
Total known MA city	**205**	**100.0**	**--**
Total Homicides	**212**	**--**	**3.2**

- Boston had the highest number of homicides (N=74) and Lawrence, Boston, and Springfield had highest rates (13.1/100,000, N=10), (12.0/100,000, N=74), (11.8/100,000, N=18). These three cities (N=102) account for 50% of all homicide victims occurring in a known city/town in Massachusetts, but account for only 13% of the total population of Massachusetts.

[1] Percent is based on known Massachusetts city of injury (N=205). Rate was not calculated on unknown city of injury nor out of state injuries.
[2] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates.

PLACE OF HOMICIDES

Table 3.8: Places Where Homicides Occur: Number and Percent, MA 2010		
Location of injury	**N**	**Percent[1]**
Buildings and surroundings:		
House, apartment, including driveway, porch, yard	94	45.9
Transportation utilities:		
Street/road, sidewalk, alley	71	34.6
Motor vehicle (excluding school bus and public transportation)	10	4.9
Parking lot/public parking garage	7	3.4
Retail and entertainment:		
Bar, nightclub, and other commercial establishment	12	5.9
Other:		
Sports/athletic area, park/public use area, and natural area	5	2.4
Other	6	2.9
Total Known Place of Homicide	**205**	100.0
Unknown	7	--
Total Homicides	**212**	**--**

Of the 205 homicides where location of injury information was reported:

- Forty-six percent of homicides occurred in a residence (N=94).
- Thirty-five percent of homicides occurred on a street, sidewalk, or alley (N=71).
- Approximately 5% of homicides occurred in a motor vehicle (N=10).
- Six percent of homicides occurred in a bar, nightclub or other commercial establishment (N=12).

[1] Percentages are based on the total number of cases for which location was known (N=205).

HOMICIDE CIRCUMSTANCES

The circumstances of a homicide can help in getting a better understanding of the events preceding the death. NVDRS allows for the endorsement of more than one circumstance for a homicide victim. It is important to note that some circumstances are more likely to be known and/or noted than others. The following table percentages are circumstances noted out of all homicides (N=212). See Appendix A for more information on circumstances.

Table 3.9 : Circumstances of Homicide: Number and Percent, MA 2010[1]		
	N	**%**
Total number of homicides	**212**	**100.0**
Total number of victims with reported circumstances	**167**	**78.8**
Argument/abuse/conflict[2]	50	23.6
Precipitated by another crime	51	24.1
Precipitating crime was in progress at time of homicide	*27*	*12.7*
Gang rivalry or gang activities suspected to have played role in precipitating the homicide	39	18.4
Intimate partner violence related	30	14.2
Drug involvement	30	14.2
Jealousy	11	5.2
Victim was a bystander	6	2.8
Drive-by shooting	6	2.8
The victim used a weapon during the course of the incident	5	2.4
Victim of interpersonal violence	5	2.4
Perpetrator of interpersonal violence	5	2.4
Job/financial problem	5	2.4
Ever treated for mental illness	5	2.4

Of the 212 homicides:

- Twenty-four percent (N=50) were precipitated by an argument, abuse, or conflict. This excludes those circumstances that can be counted in intimate partner-related or gang-related.
- Twenty-four percent were noted to be precipitated by another crime, i.e. the homicide occurred as a result of another felony. Those crimes include robbery (N=24), drug trade (N=15), and assault (N=7).
- Eighteen percent were noted to be related to gang activity.
- Fourteen percent were noted to have involved intimate partner violence.
- Fourteen percent were noted to be related to drug involvement (drug dealing or illegal drug use is suspected to have played a role in precipitating the incident).

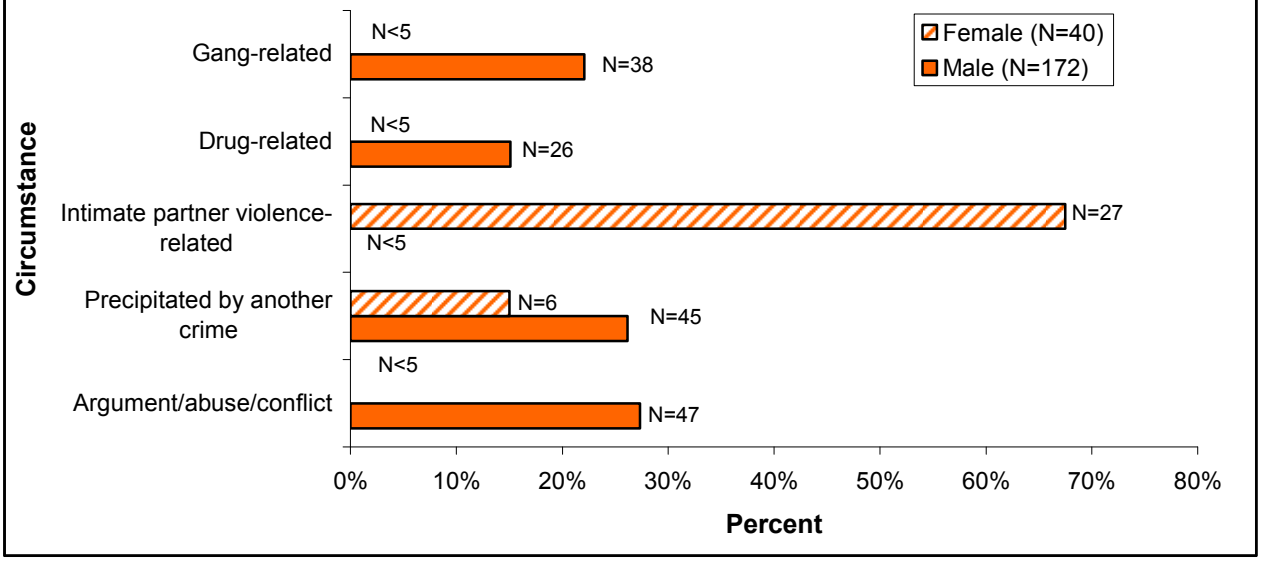
[1] Circumstances were not included for counts less than five.
[2] "Argument/abuse/conflict" excludes those circumstances that can be counted in intimate partner-related, gang-related, or drug-related.

Table 3.10: Homicide Circumstances by Age Group: Number and Percent, MA 2010		
	N	**%**
Age 15 to 24		
Total number of victims	**84**	--
Gang-related	23	27.4
Precipitated by another crime	16	19.0
Precipitating crime was in progress at time of homicide	*10*	*11.9*
Argument/abuse/conflict [1]	15	17.9
Drug-related	9	10.7
Intimate partner violence-related	6	7.1
Drive-by shooting	5	6.0
Age 25 to 44		
Total number of victims	**84**	**--**
Precipitated by another crime	28	33.3
Precipitating crime was in progress at time of homicide	*11*	*13.1*
Argument/abuse/conflict [1]	25	29.8
Drug-related	18	*21.4*
Intimate partner violence-related	14	16.7
Gang-related	12	14.3
Age 45 to 64		
Total number of victims	**23**	**--**
Argument/abuse/conflict [1]	7	30.4
Intimate partner violence-related	7	30.4

- Of the 212 homicide victims, circumstance information was known for 167 victims of homicide (79%). There were 14 victims in the 0-14 age group and 7 in the 65+ age group, which are not shown on the above table due to small numbers.
- The most frequently noted circumstance among homicides of victims ages 15-24 was gang-related (N= 23, 27%), followed by precipitated by another crime (N=16, 19%).
- Among victims ages 25-44 precipitated by another crime (N= 28, 33%) was the most often noted circumstance followed by argument/abuse/conflict (N=25, 30%).
- Among victims ages 45-64 argument/abuse/conflict and intimate partner violence-related were the most often noted circumstances (N= 7, 30%).

[1] "Argument/abuse/conflict" excludes those circumstances that can be counted in intimate partner-related, gang-related, or drug-related.

Figure 3.6: Commonly Mentioned Homicide Circumstances by Sex, MA 2010



- There were 172 male (81%) and 40 female homicide victims (19%) for a total of 212 homicides.
- Of the total number of homicides (N=212), at least one circumstance was known for 77% of males (N=132) and 88% of females (N=35).
- The most frequently noted circumstance for males was that the homicide was argument (N=47,27%) then precipitated by another crime (N=45, 26%).
- For females, the most frequently noted circumstance was intimate partner violence-related (N=27, 68%).

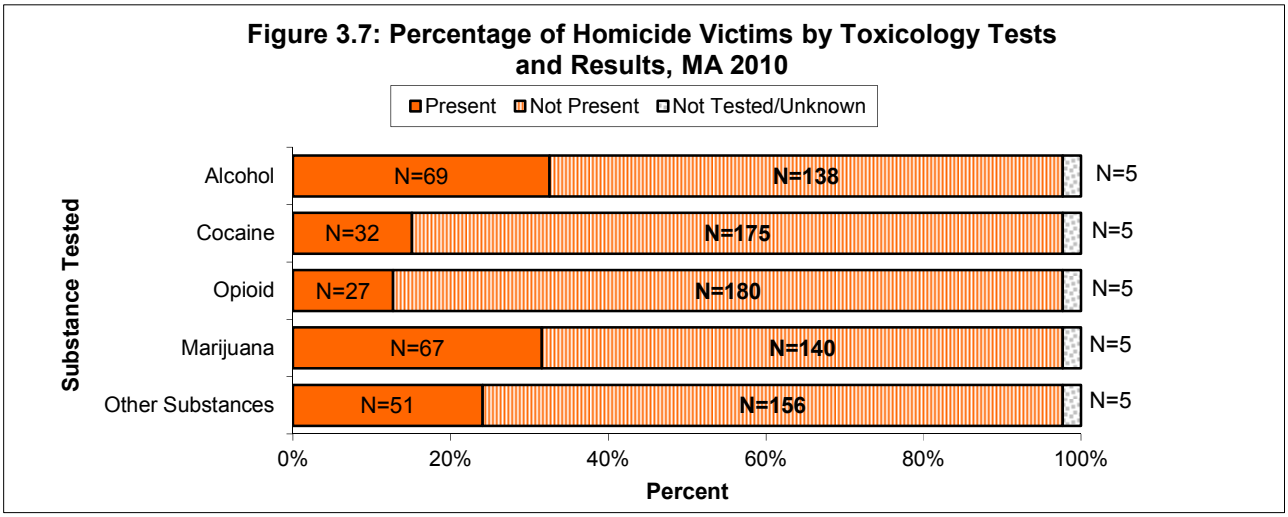
SUSPECT INFORMATION

A suspect, as defined in this report, is a person(s) identified as such in a police report. Suspect information may be quite limited containing only sex, or approximate age, for example. A suspect may or may not be the person eventually arrested, tried, and convicted for the homicide. A suspect may also be one who kills one or more other people and then himself/herself. These data are often based on preliminary statements prior to completion of an investigation and adjudication.

Table 3.11: Suspects of Homicides: Number and Percent, MA 2010		
	N	Percent
Total Homicide Victims	**212**	**100.0**
With suspect information	173	81.6
With **no** suspect information	39	18.4
Suspect Demographics		
Sex	**N**	**Percent**
Total suspects	**200**	**100.0**
Male	192	96.0
Female	8	4.0
Unknown Sex	0	0.0
Age Group		
Total suspects	**200**	**100.0**
Known Age	134	67.0
Unknown Age	66	33.0
Suspects with Known Age	**134**	**100.0**
0-14	0	0.0
15-24	65	48.5
25-34	37	27.6
35-44	13	9.7
45-54	13	9.7
55 and over	6	4.5

- **Homicide victims**: Information on suspect(s) was known for 82% of homicide victims (N=173).
- **Homicide incidents**: Of the 158 incidents with suspect information, 80% had *only one* suspect associated with it (N=126). Thirty-two incidents had *more* than one suspect (20%).
- Most suspects were male (96%, N=192) and 4% were female (N=8).
- Among the 134 identified suspects with known age, most (49%) were between the ages of 15-24 years, followed by age group 25-34 (28%). These two age groups account for 76% of suspects with information on age.

- There were 129 victims of homicides where the relationship between the victim to the primary suspect was known. In the majority of these cases (84%, N=109), the victim and suspect were known to each other (e.g. family member, intimate partner, friend, acquaintance, etc.). Of these identified suspects who were known to the victim:
  - 20% (N= 22) of suspects were a current or former intimate partner of the victim.
  - 14% (N=15) of suspects were a family member or caregiver of the victim.
  - 66% (N=72) of suspects were someone else known to the victim.



- Among the 212 homicide victims, approximately 98% of victims were tested for marijuana, opioids, and cocaine, blood alcohol concentration, and/or other substances.The above figure shows the percentages of those victims who had positive or negative results, as well as those not tested or whose results were unknown.
- Over 98% of homicide victims were tested for alcohol, cocaine, marijuana, and/or opioids. 62% of homicide victims (N=129) that were tested for alcohol, cocaine, marijuana and opioids tested positive for one or more of these substances. For alcohol, only those who had a BAC over 0.04 were included.
- Thirty-three percent of victims tested for alcohol were positive for alcohol (N=69); 32% (N=22) of these had results of .04 or less, which may be due to decomposition rather than ingestion of alcohol. Approximately 32% (N=67) of victims who were tested for marijuana had positive results.[1] Fifteen percent of victims tested were positive for cocaine (N=32) and 13% were positive for opioids (N=27).
- Other substances include benzodiazepines, anti-psychotics, over-the-counter drugs, carbon monoxide, antidepressants, and amphetamines.

Table 3.12: Blood Alcohol Concentration of Homicide Victims that Tested Positive by Age Group: Number and Percent, MA 2010[1]

	Age Group									
	< 21		21-44		45-64		65+		Total	
BAC %[2]	N	%	N	%	N	%	N	%	N	%
0.010 - 0.040[3]	<5	--	18	36.7	<5	--	0	0.0	22	31.9
0.041 - 0.079	<5	--	5	10.2	0	0.0	0	0.0	6	8.7
0.08 and over	6	66.7	26	53.1	9	81.8	0	0.0	41	59.4
Unknown[4]	0	0.0	0	--	0	0.0	0	0.0	0	--
Total	**9**	**100.0**	**49**	**100.0**	**11**	**100.0**	**0**	**0.0**	**69**	**100.0**

- Among all homicide victims where BAC tested positive, approximately 68% of victims had a BAC of 0.041 and over (N=47). Levels over .040 are more likely indicative of alcohol ingestion.

[1] The discussion of toxicology results in the text describes the percent of positive results based on victims tested, while the chart depicts the percent of positive results based on the total number of victims. These percents may not be similar.
[2] Caution should be used when interpreting BAC due to variation in time among ingestion of alcohol, time of death, and drawing of blood for testing which will affect the outcome of the test.
[3] BAC of 0.04% or less could be due to decomposition, rather than ingestion of alcohol.
[4] Unknown numbers are those where the victim was tested, but the results were not available at the time of abstraction.

Deaths of Undetermined Intent in Massachusetts

Data Highlights for 2010:[1]

- Deaths of undetermined intent claimed an average of about two lives per week in 2010 (N=96).
- The rate of undetermined intent deaths for males (1.8/100,000) was approximately 1.5 times higher than the rate for females (1.2/100,000).
- Fifty-three percent of deaths of undetermined intent (N=51) were the result of poisonings/drug overdoses.

Compared to the U.S.:

- In 2010, Massachusetts had a similar age-adjusted rate (1.3/100,000) of undetermined intent deaths compared to the national age-adjusted rate (1.6/100,000).
- The age-adjusted rates for deaths of undetermined intent for males in 2010 were similar in the U.S. (1.9/100,000) and in Massachusetts (1.6/100,000).
- The age-adjusted rate for deaths of undetermined intent for females in 2010 was 1.2/100,000 in the U.S. and 1.1/100,000 in Massachusetts.

DEMOGRAPHICS OF DEATHS OF UNDETERMINED INTENT VICTIMS

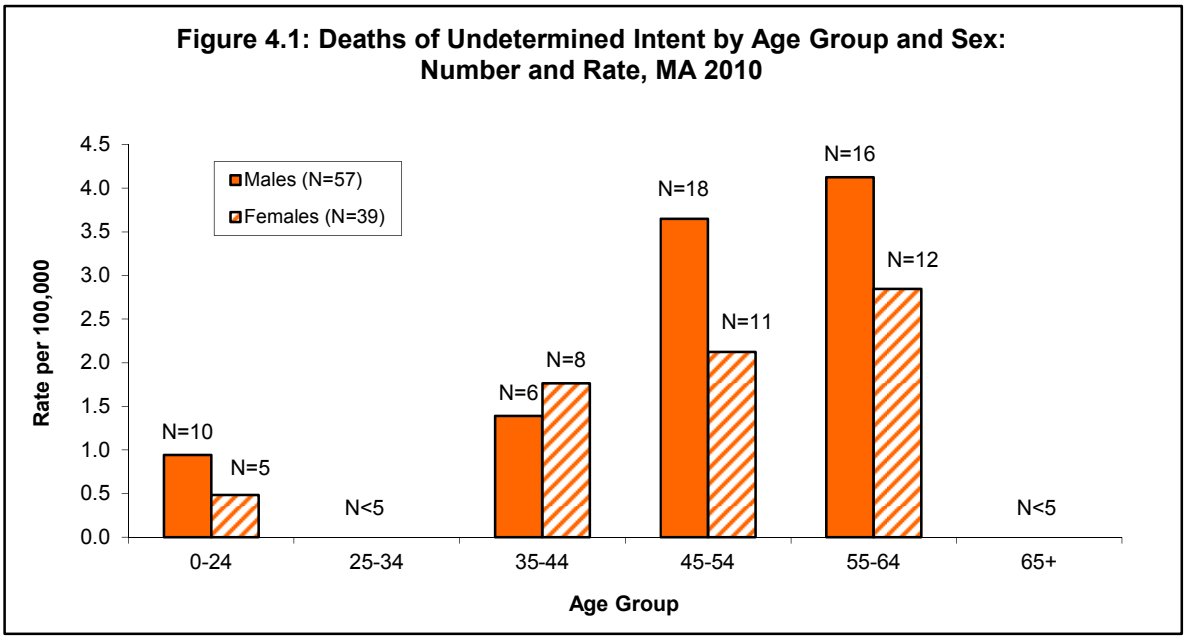
Table 4.1: Deaths of Undetermined Intent by Demographics: Number, Percent, and Rate, MA 2010			
	N	Percent	Rate per 100,000[1]
Sex			
Male	57	59.4	1.8
Female	39	40.6	1.2
Race/Ethnicity			
White, non-Hispanic	88	91.7	1.7
Black, non-Hispanic	5	5.2	1.1
Asian, non-Hispanic	1	1.0	--
Hispanic	2	2.1	--
Other/mixed[2]	0	0.0	0.0
Age Group			
0-14	6	6.3	0.5
15-24	9	9.4	1.0
25-34	6	6.3	0.7
35-44	14	14.6	1.6
45-54	29	30.2	2.9
55-64	28	29.2	3.5
65-74	2	2.1	--
75-84	1	1.0	--
85+	1	1.0	--
Total	**96**	**100.0**	**1.5**

ADDITIONAL FINDINGS FOR 2010:

- The youngest undetermined intent victim was one month old and the oldest was 89 years old.
- The mean age for undetermined intent victims was 45.3 years and the median age was 48.5 years old.
- There were four homeless persons whose death was of undetermined intent.
- No victims of undetermined intent died in custody, such as jail, state institution, or foster care.[3]
- There was one death of undetermined intent that occurred at work.
- Ten war veterans'[4] deaths were of undetermined intent.

[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.
[3] The 'in custody' variable differs from the 'place where injury occurred;' however, due to the low number of undetermined deaths, 'place where injury occurred' is not included in this report for undetermined intent deaths.
[4] This report only includes information where the deceased was a U.S. veteran ***and*** the war in which they served was specified.

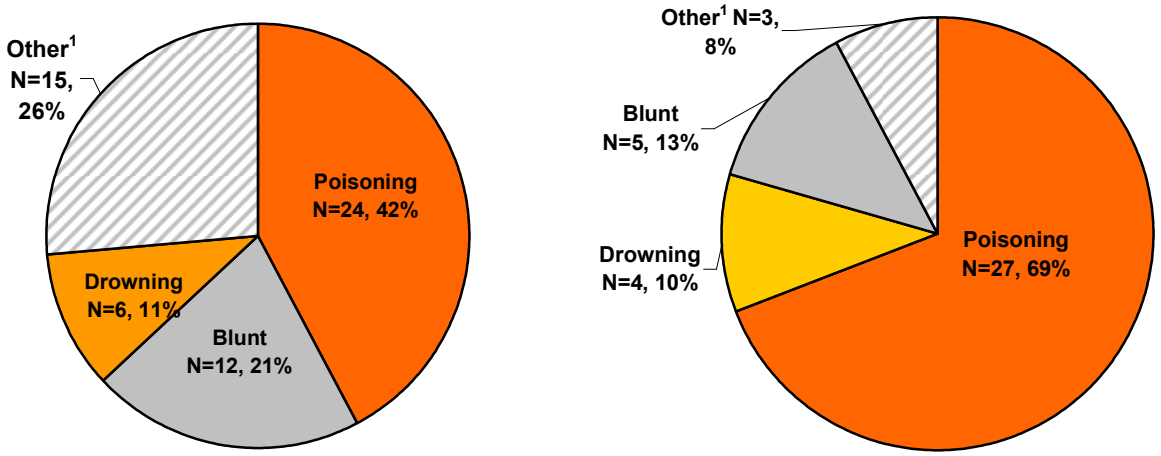
DEMOGRAPHICS OF DEATHS OF UNDETERMINED INTENT VICTIMS[1]



- For deaths of undetermined intent, approximately 70% of males were between the ages of 35 to 64. The male Massachusetts population is comprised of 41% males ages 35 to 64.
- For deaths of undetermined intent, approximately 79% of females were between the ages of 35 to 64. The female Massachusetts population is comprised of 41% females ages 35 to 64.
- Males ages 55-64 had the highest rate among males (4.1/100,000). Females ages 55-64 had the highest rates among females (2.8/100,000).
- While males generally had higher rates than females, sex differences were less pronounced among undetermined intent deaths than for homicide or suicide. The overall rate among males was 1.5 times higher than that of females.

[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

Figure 4.2: Deaths of Undetermined Intent by Type of Weapon and Sex, MA 2010

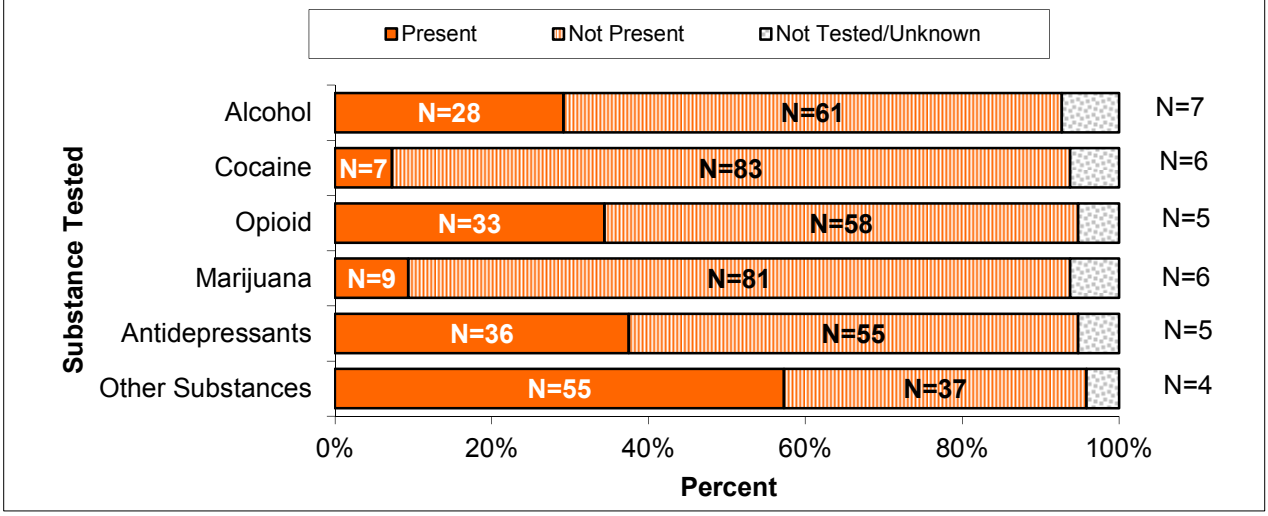


Total (N =96)

- In cases where more than one weapon type was used (including multiple poisons), only the first weapon type was selected for the analysis in this report.
- Poisonings/drug overdoses account for the most (53%) deaths of undetermined intent in Massachusetts in 2010 (N=51).
- The leading weapon type was poisoning/drug overdoses for both males (42%, N=24) and females (69%, N=27).
- Other leading weapon types for males and females included drowning and blunt instrument.
- Of the poisoning deaths, 51% of victims (N=26) ingested more than one poison/drug.
- Of the poisoning/drug overdose deaths (N=51), the majority 92% (N=47), were due to the ingestion of a street/recreation drug, alcohol, pharmaceutical prescription, or over-the-counter medication.

[1] Weapons that are less than 10% of the male or female total are included in "Other." Other weapons for males include: "personal weapons" which are from bodily assaults (such as hands and feet), blunt, fire/burn, firearm, fall, motor vehicle, other transport, other weapon, and unknown weapon. Other weapons for females include: fall, fire/burn, and unknown weapon. See Appendix A for a complete list of weapon

Figure 4.3: Percentage of Undetermined Intent Victims by Toxicology Tests and Results, MA 2010



- Of the 96 victims of undetermined intent deaths, 93% to 95% were tested for blood alcohol concentration, cocaine, opioids, marijuana, and/or antidepressants.
- Ninety-six percent (N=92) of victims were tested for other substances, such as benzodiazepines, anti-psychotics, over-the-counter drugs, and carbon monoxide. Of those, 60% (N= 55) tested positive for other substances.[1]
- Forty percent (N=36) of victims tested were positive for antidepressants.
- Approximately 36% (N=33) of victims tested were positive for opioids. However, it is usually not possible to determine if the opioid was from a street drug, like heroin, or a prescription medication, such as codeine.[1]
- Ninety-three percent (N=89) of undetermined intent victims were tested for blood alcohol concentration (BAC) and 31% (N=28) of those tested had a positive BAC.
- Sixty-four percent (N=18) of victims of an undetermined intent death, who had a positive BAC, had a BAC of over 0.08. A BAC of 0.08 is over the legal limit for operating a motor vehicle in Massachusetts.
- Other substances include benzodiazepines, anti-psychotics, over-the-counter drugs, carbon monoxide, and amphetamines.

[1] The discussion of toxicology results in the text describes the percent of positive results based on victims tested, while the chart depicts the percent of positive results based on the total number of victims. These percents may not be similar.

Appendix A: Technical Notes

Technical Notes

- Case Identification
- Deaths of Undetermined Intent
- Veteran Status
- Weapon Analysis
- Age-adjusted Rate
- Education and marital status rates
- City/town rates
- U.S. injury rates and U.S. popuation

Annual Estimates of the Population for Counties of Massachusetts, 2010

Data Elements and Sources

- Death certificates
- Medical Examiner
- Police Reports
- SHR/NIBRS reports
- Ballistics

Primacy among Data Sources

Circumstances

- Homicide
- Suicide
- Deaths of Undetermined Intent
- Unintentional Firearm

Glossary

Weapons

Technical Notes

Case Identification
Violent death cases in the MAVDRS database are first identified by reviewing the manner of death field on death certificates maintained by the Massachusetts Department of Public Health's Registry of Vital Records and Statistics (RVRS). A record is created in the MAVDRS database for any death categorized as homicide, suicide, or could not be determined. These deaths represent a preliminary violent death data file. The final data file is determined on the basis of International Classification of Diseases, Tenth Revision (ICD-10) codes for the underlying cause of death field on death certificates.

The ICD-10 codes that identify cases to be included in the NVDRS database are determined by the CDC and are listed below:

Manner of Death	ICD-10 Code: Death < 1 Year after the injury	ICD-10 Code: Death >1 year after the injury
Intentional Self-Harm	X60-X84	Y87.0
Assault	X85-X99, Y00-Y09	Y87.1
Undetermined Intent	Y10-Y34	Y87.2, Y89.9
Unintentional Firearm	W32-W34	Y86
Legal Intervention, excluding executions	Y35.0-Y-35.4, Y35.6, Y35.7	Y89.0
Terrorism	U01, U03	U02

Before finalizing the database, a death file maintained by the RVRS is generated for all codes meeting the ICD-10 case definition. If discrepancies occur between the ICD-10 code and the manner of death field on the death certificate, i.e., the death certificate manner indicates suicide and the ICD-10 indicates undetermined intent, effort is made to resolve the discrepancy through follow-up with the Office of Vital Records and Statistics and the Office of the Chief Medical Examiner (OCME). Cases are excluded when the ICD-10 code falls outside of the NVDRS ICD-10 case definition. In addition, a case is deleted from the database if an Affidavit and Correction of Death is submitted to Vital Records from the OCME changing the manner from homicide, suicide, or undetermined to natural or accident (unless the accident is firearm-related).

Deaths of Undetermined Intent
An important change occurred in 2005 affecting the number of deaths of undetermined intent in Massachusetts. Most injury deaths are referred to the Commonwealth of Massachusetts Office of the Chief Medical Examiner (OCME) for determination of cause and intent. In May 2005, a change in the OCME policy affected the assignment of manner/intent of many poisoning (drug overdose) deaths. Up to that point, poisoning deaths, where there was no explicit evidence that the case was a suicide or homicide, were assigned a manner of "could not be determined." With the new policy, these deaths are assigned a manner of accident/unintentional. Because MAVDRS does not collect information on accidental/unintentional deaths, these poisoning deaths are no longer included in data presented in these reports. This change caused the total number of violent deaths and the number of undetermined deaths for 2005 and forward to be substantially less than in previous years. The current policy is similar to how these deaths are classified in other states.

Veteran Status
Massachusetts collects data on a *war veterans,* which is different than most other states which captures all veterans. The wording of the death certificate used in Massachusetts says, "If [decedent is a] US war veteran, specify name of war." In the MAVDRS database, the victim was identified as a veteran only if a war was specified under this section on the death certificate.In addition, this report includes occurrent deaths only (deaths occurring in Massachusetts) and thus excludes deaths from military-related actions or other causes occurring outside Massachusetts.

Weapon Analysis
In cases where more than one weapon type was used (e.g. combination of blunt instrument and firearm) only the first weapon type was selected for the analysis in this report, which was the first one listed in the cause of death from the Medical Examiner, even though all weapons mentioned in the cause of death contributed to the death equally. In cases of multiple poisons, only the first poison listed in the cause of death was analyzed in the weapon analysis.

Calculating Rates

In calculating rates for **race, Hispanic origin, sex, age group, and county**, 2010 population estimates were based on National Center for Health Statistics Postcensal estimates of the resident population of the United States for July 1, 2010-July 1, 2011, by year, county, single-year of age (0, 1, 2, .., 85 years and over), bridged race, Hispanic origin, and sex (Vintage 2011). Prepared under a collaborative arrangement with the U.S. Census Bureau. Available from: http://www.cdc.gov/nchs/nvss/bridged_race.htm as of July 18, 2012.

Age-adjusted Rate

A summary rate was designed to minimize the distortions created by differences in age distribution when comparing rates for populations with different age compositions. Age-adjusted rates are useful when comparing death rates from different populations or in the same population over time. Similarly, age-adjusted rates would be useful in comparing Massachusetts to another state with a very different age distribution. Age-adjusted rates are calculated by weighting the age-specific rates for a given year by the age distribution of the Year 2000 U.S. Standard Population. The weighted age-specific rates are then added to produce the adjusted rate for all ages combined.

Education and marital status rates were calculated using the U.S. Census Bureau's American Community Survey 2008-2010 3-Year Estimates found on the internet at: http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_3YR_B15002&prodType=table And http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_3YR_B12001&prodType=table

City/town rates are calculated using 2010 population estimates from the U.S. Census Bureau's Annual Estimates of the Resident Population for Minor Civil Divisions in Massachusetts, by County: April 1, 2010 to July 1, 2011(SUB-EST2011-04-25) Source: Population Division, U.S. Census Bureau, Release Date: June 2012. http://www.census.gov/popest/data/cities/totals/2011/tables/SUB-EST2011-04-25.xls

U.S. injury rates and U.S. popuation were accessed from Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS), available from URL: www.cdc.gov/ncipc/wisqars

ANNUAL ESTIMATES OF THE POPULATION FOR COUNTIES OF MASSACHUSETTS, 2010

Annual Estimates of the Population for Counties of Massachusetts, 2010[1]		
County	**2010 Population Estimate**	**Percent of population**
Barnstable	215,988	3.3
Berkshire	131,128	2.0
Bristol	548,537	8.4
Dukes	16,576	0.3
Essex	744,484	11.4
Franklin	71,336	1.1
Hampden	463,711	7.1
Hampshire	157,963	2.4
Middlesex	1,505,720	23.0
Nantucket	10,154	0.2
Norfolk	672,107	10.3
Plymouth	495,731	7.6
Suffolk	722,731	11.0
Worcester	799,300	12.2
Total	**6,555,466**	**100.0**

[1] Annual Estimates of the Resident Population for Minor Civil Divisions in Massachusetts, by County: April 1, 2010 to July 1, 2011 (SUB-EST2011-04-25) Population Division, U.S. Census Bureau, Release Date: June 2012 http://www.census.gov/popest/data/cities/totals/2011/tables/SUB-EST2011-04-25.xls

Data Elements and Sources

Data sources utilized by MAVDRS include death certificates, medical examiner records, police reports, Supplementary Homicide Reports (SHR), National Incident Based Reporting System (NIBRS) reports, emergency department records, Emergency Medical Services reports (EMS), and the Massachusetts State Police Crime Laboratory. Over 270 data elements may be collected for each incident in the database, including information on: the incident, person or persons (victim and suspect), toxicology, weapon(s), circumstances associated with a homicide or suicide, relationship between a suspect and victim, and relationship between a person and weapon. More information on the NVDRS data elements and coding protocols is available at the NVDRS website: http://www.cdc.gov/ViolencePrevention/NVDRS/

Death certificates: Death certificates serve as an important data source for the cause of death, place and date of death, and demographic information on the victim. Also included on the death certificates are fields for injury information, including date, time, location, address of injury, and if the injury occurred at work. It is the only source used for the assignment of the ICD-10 code, as well as the official legal and public document of the death.

Medical Examiner files: Medical examiner records include toxicology reports that typically test for alcohol, cocaine, and opioids, as well as other drugs. Records will also have details on wounds and other injury circumstances.

Police Reports: Data from law enforcement agencies (city and town police reports) include demographics of victims and suspects, relationships between victims and suspects, weapons, and circumstances, as well as data from SHR and NIBRS.

SHR/NIBRS: The SHR and NIBRS are incident-based reports voluntarily submitted by local law enforcement agencies to the Federal Bureau of Investigation as part of an aggregate crime reporting system. Massachusetts cities and towns participate either in NIBRS or SHR, and approximately half of the jurisdictions currently participate in either system. The MAVDRS database includes data elements for SHR but not for NIBRS. In Massachusetts, NIBRS information is entered in police report data fields. For incidents where information is available from both police and NIBRS, information from the police takes precedence.

Crime Lab (ballistics): The Massachusetts State Police Crime Lab provides weapon and ballistics information for firearm-related deaths. Details of the Crime Lab report include make and model of the firearm, caliber or gauge, and other ballistics information.

Primacy among Data Sources

NVDRS has predetermined rules governing data source primacy when multiple sources are available for the same variable. Data sources have been ranked in terms of their likely accuracy for each data element. The source with first primacy is considered most reliable for a given variable and will be the source of choice. Lower primacy sources are used when a higher primacy source is not available. In the case of a victim's sex, for instance, primacy rules establish the death certificate as the preferred data source, OCME records as the second choice, and police records as the third choice.

NVDRS data file: Data from all sources is entered into the MAVDRS database using software and standards provided to participating states by the Centers for Disease Control and Prevention (CDC).

Circumstances

The list of circumstances is generated based on the manner of death assigned when the record is created. For instance, if the death certificate says "homicide," then the person abstracting data (referred to as the "Abstractor") would choose "homicide" and only homicide circumstances are available to endorse. For suicides and deaths of undetermined intent, a different list of circumstances is available to endorse. Variables collected for homicides are not the same as those for suicides or deaths of undetermined intent and vice versa. Note that analysis changed in 2007. Circumstance percentages have since been presented using the total number of victims rather than the number of victims where circumstance information was noted.

Homicide Circumstances include the following:

Precipitated by another crime
- Nature of first other crime
- Nature of second other crime

Crime in progress of homicide
Argument over money/property
Jealousy (lovers` triangle)
Intimate partner violence-related
Other argument, abuse, conflict
Drug involvement
Gang-related
Hate crime
Brawl (mutual physical fight)
Terrorist attack
Victim was a bystander
Victim was a police officer on duty
Victim used weapon
Intervener assisting crime victim
Mercy killing
Other (includes drive-by shooting, random violence, and mentally ill suspect

Suicide/Undetermined Circumstances include the following:

Current depressed mood
Current mental health problem
Type of first mental illness diagnosed
Type of second mental illness diagnosed
Other mental health diagnosis
Current treatment for mental illness
Ever treated for mental illness
Alcohol problem
Other substance problem
Other addiction
Person left a suicide note
Disclosed intent to commit suicide
History of suicide attempts
Crisis in the past two weeks
Physical health problem
Intimate partner problem
Other relationship problem
Job problem
School problem
Financial problem
Suicide of friend or family in past 5 years
Other death of friend or family
Recent criminal legal problem
Other legal problems
Perpetrator of interpersonal violence
Victim of interpersonal violence
Eviction/loss of home
Anniversary of a traumatic event
History of abuse as a child
Other

Unintentional Firearm Circumstances include the following:

Hunting
Target shooting
Self-defensive shooting
Celebratory firing
Loading/unloading gun
Cleaning gun
Showing gun to others
Playing with gun
Thought safety was engaged
Thought unloaded: magazine disengaged
Thought gun was unloaded, other
Unintentionally pulled trigger
Bullet ricochet
Gun defect or malfunction
Fired while holstering/unholstering
Dropped gun
Fired while operating safety/lock
Gun mistaken for toy
Other

Glossary

Asphyxiation: the condition of being deprived of oxygen and synonymous with suffocation.

Blunt instrument: a weapon that does not have a sharp or penetrating point, such as a club or a bat.

Brawl: three or more persons involved in a mutual, physical fight. The brawl may or may not escalate to involve weapons. This excludes one-sided physical fight (e.g., a group beats a single victim to death) or a fight between only two people.

Current depressed mood: identifies victims who were documented as having a current depressed mood by a family member or someone close to the victim. Family may frequently report that a victim "had been depressed lately" but the record does not supply information about whether the person was diagnosed with a depressive disorder. Rather than coding such a victim as suffering from depression (which may or may not be clinically true), this variable captures the available information more appropriately. The depressed mood may be part of a clinical depression or a short-term sadness. Depressed mood should not be inferred by the coder based on the circumstances; rather it must be noted in the record.

Current Mental Health Problem: identifies victims who were identified as having a mental health problem. Mental health problems include those disorders and syndromes listed in the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, Fourth Revision) with the exception of alcohol and other substance dependence (as these are captured in separate variables). Diagnoses are: Depression/dysthymia, Bipolar disorder, Schizophrenia, Anxiety disorder, Post-traumatic stress disorder, ADD or hyperactivity disorder, Eating disorder, Obsessive-compulsive disorder, Other (specify in diagnosis text), including mental retardation, autism, personality disorders, Alzheimer's, etc. "Yes" is indicated if it is mentioned in the OCME or police report that the victim was being treated for a mental health problem even if the nature of the problem is unclear (e.g., "was being treated for various psychiatric problems"). This variable would also be coded as "Yes" if the victim has a prescription for an antidepressant or other psychiatric medication.

Current Treatment for Mental Health Problem: identifies victims who were in current treatment for a mental health problem in the last two months. Treatment includes seeing a psychiatrist, psychologist, medical doctor, therapist, or other counselor for a mental health or substance abuse problem; receiving a prescription for an anti-depressant or other psychiatric medication; or residing in an inpatient or halfway house facility for mental health problems. Treatment also includes past treatment, unless noted that the problem has been resolved. Mental health problems include those disorders and syndromes listed in the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, Fourth Revision) and alcohol and other substance dependence.

Drowning: weapon resulting from submersion in water or other liquid.

Fall: weapon resulting from a fall, push, or jump from a high place.

Homicide: death resulting from the intentional use of force or power, threatened or actual, against another person, group, or community.

Incident: violent death incident can be made up of any of the following:

1. One isolated violent death.
2. Two or more homicides, including legal interventions, when the deaths involve at least one person who is a suspect or victim in the first death and a suspect and victim in the second death and the fatal injuries are inflicted less than 24 hours apart.
3. Two or more suicides or undetermined manner deaths, when: there is some evidence that the second or subsequent death was planned to coincide with and follow the preceding death and the fatal injuries are inflicted less than 24 hours apart.
4. One or more homicides or unintentional firearm deaths combined with one or more suicides when: the suspect in the first death is the person who commits suicide, and the fatal injuries are inflicted less than 24 hours apart.
5. Two or more unintentional firearm deaths when the same firearm inflicts two or more fatal injuries and the fatal injuries are inflicted by one shot or burst of shots.

Glossary continued

Intimate partner violence-related: a circumstance in which a homicide is related to conflict between current or former intimate partners. An intimate partner is defined as a current or former girlfriend/boyfriend, date, or spouse. Includes if other people are also killed (a child, friend of the victim, a bystander) and if the intimate partner is not (e.g., the child of the intimate partner is the victim). The definition of intimate partner includes first dates.

Intimate partner problem: This circumstance identifies deaths that are related to friction or conflict between intimate partners. It includes incidents where the victim was experiencing problems with a current or former intimate partner, such as a divorce, break-up, argument, jealousy, conflict, or discord. It does not necessarily mean there was violence in the relationship.

Legal Intervention Death: death when the decedent was killed by a police officer or other peace officer (persons with specified legal authority to use deadly force), including military police, acting in the line of duty.

Other argument, abuse, conflict: an argument or other interpersonal conflict such as abuse, insult, grudge, or personal revenge that precipitated the death. This excludes arguments over money/property, intimate partner violence, and jealousy between intimate partners. Cases that appear to involve child abuse, elder abuse, and abuse by a caretaker should be coded for this circumstance.

Personal weapons: includes the body, such as fists, feet, or hands used as a weapon.

Poisoning: weapon including drugs (prescription, street, or alcohol), toxins, chemical substances, or gas (such as carbon monoxide).

Suffocation: condition of being deprived of oxygen and synonymous with asphyxiation.

Sharp instrument: weapons that have a cutting edge or penetrating point, such as a knife, razor, chisel, or broken glass.

Suicide: death resulting from the intentional use of force against oneself; a preponderance of evidence should indicate that the use of force was intentional.

Terrorism-related death: homicides or suicides that result from events that are labeled by the Federal Bureau of Investigation (FBI) as acts of terrorism, which is a mechanism of death rather than a manner of death, where the manner of such death is either homicide or suicide. This designation can only be applied when federal authorities define the death as such.

Unintentional firearm death: deaths resulting from gunshot wounds inflicted by the victim or another person unintentionally.

Undetermined manner of death: an event where available information is insufficient to enable a medical or legal authority to make a distinction between accident, self-harm, and assault (from the ICD-10 code definition).

Veteran Status: MAVDRS collected veteran status on victims only if they were a **war veteran** due to the death certificate used in Massachusetts. The victim was identified as a veteran in our database only if a war was specified under the section on the death certificate that says, “If US war veteran, specify war.”

Violent Death: A death that results from the intentional use of physical force or power, threatened or actual, against oneself, another person, or a group or community. The person using the force or power need only have intended to use force or power; they need not have intended to produce the consequence that actually occurred. “Physical force” should be interpreted broadly to include the use of poisons or drugs. The word “power” includes acts of neglect or omission by one person who has control over another. In addition, MAVDRS captures unintentional firearm deaths.

Weapons

Weapons, as defined by NVDRS, differ slightly from the typical use of the term (firearm, knife, etc) and can include neglect or a means (drowning, fall) as well.

The following are the weapon choices for NVDRS:

Firearm
Non-powder gun
Sharp instrument
Blunt instrument
Hanging, strangulation, suffocation
Personal weapons
Shaking, (e.g., shaken baby syndrome)
Motor vehicle, including buses, motorcycles
(not vehicular homicides- only when person is deliberately hit with a motor vehicle)
Other transport vehicle, (e.g., trains, planes, boats)
Drowning
Fire or burns
Explosive
Fall
Poisoning
Intentional neglect, (e.g., starving a baby)
Biological weapons
Other
Unknown

Appendix B: Age-adjusted Rates

Appendix B: Age-adjusted Rates

Violent Deaths

- Table 1: Violent Deaths by Intent and Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010
- Table 2: Violent Deaths by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010
- Table 3: Violent Deaths by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010

Suicides

- Table 4: Suicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010
- Table 5: Suicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted, Rate, MA 2010
- Table 6: Suicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010

Homicides

- Table 7: Homicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010
- Table 8: Homicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010
- Table 9: Homicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010

Deaths of Undetermined Intent

- Table 10: Deaths of Undetermined Intent by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010
- Table 11: Deaths of Undetermined Intent by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010
- Table 12: Deaths of Undetermined Intent by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010

VIOLENT DEATH AGE-ADJUSTED RATES

Table 1. Violent Deaths by Intent and Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010[1]				
	N	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95% CI)**
Intent				
Suicide	600	65.8	9.2	8.8 (8.1,9.6)
Homicide	212	23.2	3.2	3.3 (2.8,3.7)
Undetermined	96	10.5	1.5	1.3 (1.1,1.6)
Unintentional firearm	0	0.0	0.0	0.0
Legal Intervention	4	0.4	--	--
Sex				
Male	706	77.4	22.3	21.7 (20.1,23.3)
Female	206	22.6	6.1	5.9 (5.1,6.8)
Race/Ethnicity				
White, non-Hispanic	697	76.4	13.7	13.0 (12.0,14.0)
Black, non-Hispanic	106	11.6	23.8	21.6 (17.5,25.8)
Asian, non-Hispanic	20	2.2	5.4	4.9 (2.7,7.1)
Hispanic	75	8.2	11.9	10.3 (7.9,12.8)
Other/mixed[2]	14	1.5	--	--
Age Group				
0-14	24	2.6	2.1	NA
15-24	172	18.9	18.3	NA
25-34	159	17.4	18.7	NA
35-44	169	18.5	19.1	NA
45-54	171	18.8	16.9	NA
55-64	129	14.1	15.9	NA
65-74	45	4.9	9.8	NA
75-84	29	3.2	9.6	NA
85+	14	1.5	9.6	NA
Total	**912**	**100.0**	**13.9**	**13.5 (12.6,14.4)**

[1] See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.

Table 2. Violent Deaths by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010[1]				
Female	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	179	86.9	6.8	6.5 (5.6,7.5)
Black, non-Hispanic	11	5.3	4.8	4.8 (1.9,7.7)
Asian, non-Hispanic	8	3.9	4.1	3.8 (1.0,6.5)
Hispanic	5	2.4	1.6	1.2 (0.1,2.3)
Other/mixed[2]	3	1.5	--	--
Total	**206**	**22.6**	**6.1**	**5.9 (5.1,6.8)**
Male	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95% CI)**
White, non-Hispanic	518	73.4	21.1	20.1 (18.3,21.8)
Black, non-Hispanic	95	13.4	44.2	39.1 (31.1,47.2)
Asian, non-Hispanic	12	1.7	6.7	6.1 (2.6,9.6)
Hispanic	70	9.9	22.6	19.9 (14.9,24.9)
Other/mixed[2]	11	1.6	--	--
Total	**706**	**77.4**	**22.3**	**21.7 (20.1,23.3)**

Table 3. Violent Deaths by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010				
County	**N**	**Percent[3]**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95% CI)**
Barnstable	38	4.3	17.6	17.5 (11.4,23.6)
Berkshire	14	1.6	10.7	10.6 (4.8,16.5)
Bristol	59	6.7	10.8	10.4 (7.7,13.1)
Dukes	1	0.1	--	--
Essex	101	11.5	13.6	13.7 (11.0,16.5)
Franklin	21	2.4	29.4	30.3 (16.9, 43.7)
Hampden	82	9.3	17.7	17.3 (13.5,21.2)
Hampshire	27	3.1	17.1	16.9 (10.1,23.7)
Middlesex	176	20.0	11.7	11.1 (9.5,12.8)
Nantucket	1	0.1	--	--
Norfolk	59	6.7	8.8	8.4 (6.2,10.6)
Plymouth	69	7.8	13.9	13.9 (10.5,17.3)
Suffolk	155	17.6	21.4	19.3 (16.1,22.5)
Worcester	77	8.8	9.6	9.8 (7.6,12.1)
Unknown/Outside MA[4]	32	3.6		
Total known MA county	**880**	**100.0**	**--**	**--**
Total	**912**	**--**	**13.9**	**13.5 (12.6, 14.4)**

[1] See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.
[3] Percent is based on known Massachusetts county of violent death (N=880); total rate is based on total violent deaths (N=912).
[4] Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

Table 4. Suicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010[1]				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	475	79.2	15.0	14.6 (13.3,15.9)
Female	125	20.8	3.7	3.6 (2.9,4.2)
Race/Ethnicity				
White, non-Hispanic	540	90.0	10.6	10.1 (9.2,11.0)
Black, non-Hispanic	19	3.2	4.3	4.0 (2.1, 5.8)
Asian, non-Hispanic	15	2.5	4.0	3.8 (1.8,5.8)
Hispanic	22	3.7	3.5	3.3(1.9,4.8)
Other/mixed[2]	4	0.7	--	--
Age Group				
0-14	4	0.7	4	NA
15-24	78	13.0	78	NA
25-34	97	16.2	97	NA
35-44	125	20.8	125	NA
45-54	129	21.5	129	NA
55-64	90	15.0	90	NA
65-74	38	6.3	38	NA
75-84	27	4.5	27	NA
85+	12	2.0	12	NA
Total	**600**	**100.0**	**9.2**	**8.8 (8.1,9.6)**

[1] See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.

Table 5. Suicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010[1]				
Female	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	113	90.4	4.3	4.1 (3.3,4.9)
Black, non-Hispanic	3	2.4	--	--
Asian, non-Hispanic	4	3.2	--	--
Hispanic	3	2.4	--	--
Other/mixed[2]	2	1.6	--	--
Total	**125**	**100.0**	**3.7**	**3.6 (2.9,4.2)**
Male	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	427	89.9	17.4	16.6 (15.0,18.2)
Black, non-Hispanic	16	3.4	7.4	6.7 (3.3,10.2)
Asian, non-Hispanic	11	2.3	6.2	5.5 (2.2,8.9)
Hispanic	19	4.0	6.1	6.1 (3.3,9.0)
Other/mixed [2]	2	0.4	--	--
Total	**475**	**100.0**	**15.0**	**14.6 (13.3,15.9)**

Table 6. Suicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010				
County	**N**	**Percent[3]**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95% CI)**
Barnstable	35	5.9	16.2	16.5 (10.5,22.5)
Berkshire	12	2.0	9.2	9.2 (3.7,14.6)
Bristol	44	7.5	8.0	7.7 (5.4,9.9)
Dukes	1	0.2	--	--
Essex	71	12.1	9.5	9.3 (7.1,11.5)
Franklin	16	2.7	22.4	23.0 (11.3,34.6)
Hampden	47	8.0	10.1	9.9 (7.0,12.8)
Hampshire	24	4.1	15.2	14.1 (8.1,20.0)
Middlesex	121	20.5	8.0	7.6 (6.2,9.0)
Nantucket	1	0.2	--	--
Norfolk	47	8.0	7.0	6.8 (4.9,8.8)
Plymouth	54	9.2	10.9	10.9 (7.9,13.8)
Suffolk	61	10.4	8.4	7.9 (5.8,9.9)
Worcester	55	9.3	6.9	7.1 (5.2,9.0)
Unknown/Outside MA[4]	11	1.9	--	--
Total known MA county	**589**	**100.0**	**--**	**--**
Total	**600**	**--**	**9.2**	**8.8 (8.1,9.6)**

[1] See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.
[3] Percent is based on known Massachusetts county of suicide (N=525); total rate is based on total number of suicides (N=538).
[4] Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

Table 7. Homicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010[1]				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	172	81.1	5.4	5.4 (4.6,6.2)
Female	40	18.9	1.2	1.2 (0.8,1.6)
Race/Ethnicity				
White, non-Hispanic	66	31.1	1.3	1.3 (1.0,1.6)
Black, non-Hispanic	81	38.2	18.2	16.3 (12.7,19.9)
Asian, non-Hispanic	4	1.9	--	--
Hispanic	51	24.1	8.1	6.7 (4.8,8.6)
Other/mixed[2]	10	4.7	--	--
Age Group				
0-14	14	6.6	1.2	NA
15-24	84	39.6	9.0	NA
25-34	55	25.9	6.5	NA
35-44	29	13.7	3.3	NA
45-54	13	6.1	1.3	NA
55-64	10	4.7	1.2	NA
65-74	5	2.4	1.1	NA
75-84	1	0.5	--	NA
85+	1	0.5	--	NA
Total	**212**	**100.0**	**3.2**	**3.3 (2.8,3.7)**

[1] See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.

Table 8. Homicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010[1]				
Female	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	28	70.0	1.1	1.1 (0.7,1.5)
Black, non-Hispanic	6	15.0	2.6	2.5 (0.5,4.6)
Asian, non-Hispanic	3	7.5	--	--
Hispanic	2	5.0	--	--
Other/mixed[2]	1	2.5	--	--
Total	**40**	**100.0**	**1.2**	**1.2 (0.8,1.6)**
Male	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	38	22.1	1.5	1.5 (1.0,2.1)
Black, non-Hispanic	75	43.6	34.9	30.6 (23.5,37.6)
Asian, non-Hispanic	1	0.6	--	--
Hispanic	49	28.5	15.8	13.1 (9.1,17.1)
Other/mixed[2]	9	5.2	--	--
Total	**172**	**100.0**	**5.4**	**5.4 (4.6,6.2)**

Table 9. Homicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010[1]				
County	**N**	**Percent[3]**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95% CI)**
Barnstable	0	0.0	0.0	0.0
Berkshire	1	0.5	--	--
Bristol	10	4.9	1.8	1.9 (0.7,3.2)
Dukes	0	0.0	0.0	0.0
Essex	22	10.7	3.0	3.3 (1.9,4.6)
Franklin	2	1.0	--	--
Hampden	26	12.7	5.7	(3.5,7.9)
Hampshire	2	1.0	--	--
Middlesex	31	15.1	2.1	2.1 (1.4,2.8)
Nantucket	0	0.0	0.0	0.0
Norfolk	3	1.5	--	--
Plymouth	10	4.9	2.0	2.2 (0.8,3.6)
Suffolk	84	41.0	11.6	9.8 (7.6,12.0)
Worcester	14	6.8	1.8	1.8 (0.9,2.8)
Unknown/Outside MA[4]	7	--	--	--
Total known MA county	**205**	**100.0**	**--**	**--**
Total	**212**	**100.0**	**3.2**	**3.3 (2.8,3.7)**

[1] See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.
[3] Percent is based on known Massachusetts county of homicide (N=205), total rate is based on total number of homicides (N=212).
[4] Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

Table 10. Deaths of Undetermined Intent by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010[1]				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	57	59.4	1.8	1.6 (1.2,2.1)
Female	39	40.6	1.2	1.1 (0.7,1.4)
Race/Ethnicity				
White, non-Hispanic	88	91.7	1.7	1.6 (1.2,1.9)
Black, non-Hispanic	5	5.2	1.1	1.1 (0.1,2.1)
Asian, non-Hispanic	1	1.0	--	--
Hispanic	2	2.1	--	--
Other/mixed[2]	0	0.0	0.0	0.0
Age Group				
0-14	6	6.3	0.5	NA
15-24	9	9.4	1.0	NA
25-34	6	6.3	0.7	NA
35-44	14	14.6	1.6	NA
45-54	29	30.2	2.9	NA
55-64	28	29.2	3.5	NA
65-74	2	2.1	--	NA
75-84	1	1.0	--	NA
85+	1	1.0	--	NA
Total	**96**	**100.0**	**1.5**	**1.3 (1.1,1.6)**

[1] See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.

Table 11. Deaths of Undetermined Intent by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010[1]				
Female	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	37	94.9	1.4	1.3 (0.8,1.7)
Black, non-Hispanic	1	2.6	--	--
Asian, non-Hispanic	1	2.6	--	--
Hispanic	0	0.0	0.0	0.0
Other/mixed[2]	0	0.0	0.0	0.0
Total	**39**	**100.0**	**1.2**	**1.1 (0.7,1.4)**
Male	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	51	89.5	2.1	1.8 (1.3,2.4)
Black, non-Hispanic	4	7.0	--	--
Asian, non-Hispanic	0	0.0	0.0	0.0
Hispanic	2	3.5	--	--
Other/mixed[2]	0	0.0	0.0	0.0
Total	**57**	**100.0**	**2.1**	**1.6 (1.2,2.1)**

Table 12. Deaths of Undetermined Intent by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2010[1]				
County	**N**	**Percent[3]**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95% CI)**
Barnstable	3	3.7	--	--
Berkshire	1	1.2	--	--
Bristol	5	6.1	0.9	0.8 (0.1,1.5)
Dukes	0	0.0	0.0	0.0
Essex	8	9.8	1.1	1.2 (0.4,2.0)
Franklin	3	3.7	--	--
Hampden	9	11.0	1.9	1.8 (0.6,3.0)
Hampshire	1	1.2	--	--
Middlesex	21	25.6	1.4	1.2 (0.7,1.8)
Nantucket	0	0.0	0.0	0.0
Norfolk	9	11.0	1.3	1.1 (0.4,1.9)
Plymouth	5	6.1	1.0	0.8 (0.1,1.6)
Suffolk	10	12.2	1.4	1.6 (0.6,2.6)
Worcester	7	8.5	0.9	0.8 (0.2,1.4)
Unknown/Outside MA[4]	14	--	--	--
Total known MA county	**82**	**100.0**	**--**	**--**
Total	**96**	**--**	**1.5**	**1.3 (1.1,1.6)**

[1] See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.
[2] Rates for other/mixed race were not calculated due to lack of denominator information.
[3] Percent is based on known Massachusetts county of undetermined intent death (N= 75); total rate is based on total number of undetermined intent deaths (N=104).
[4] Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

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Massachusetts Department of Public Health