



Violent Deaths in Massachusetts: Surveillance Update 2009

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 2009

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For other Department of Public Health data, register for MassCHIP, the Department's free internet-accessible data warehouse: <http://masschip.state.ma.us/>

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).

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Violent Deaths in Massachusetts 2009

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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Table of Contents

Executive Summary.....	1
Introduction.....	3
Methods.....	3
SECTION 1: OVERVIEW OF VIOLENT DEATHS.....	5
Incidents and Demographics	
Table 1.1: Type of Incidents and Victims: Number and Percent, MA 2009.....	6
Table 1.2: Violent Deaths by Intent and Demographics: Number, Percent, and Rate, MA 2009.....	7
Homicide and Suicide Trends from 2003 to 2009	
Figure 1.1: Homicide Rates by Sex, MA, 2003-2009.....	8
Figure 1.2: Suicide Rates by Sex, MA 2003-2009.....	8
Figure 1.3: Homicide Age-adjusted Rates by Race/Ethnicity, MA 2003-2009.....	9
Figure 1.4: Suicide Age-adjusted Rates by Race/Ethnicity, MA 2003-2009.....	9
SECTION 2: SUICIDES.....	11
Demographics	
Table 2.1: Suicides by Demographics: Number, Percent, and Rate, MA 2009.....	12
Figure 2.1: Suicides by Age Group and Sex: Number and Rate, MA 2009.....	13
Table 2.2: Suicides by Race/Ethnicity and Sex: Number, Percent, and Rate, MA 2009.....	13
Figure 2.2: Suicides by Marital Status and Sex (Ages 15+): Number and Rate, MA 2009.....	14
Table 2.3: Suicides (Ages 25+) by Level of Education and Sex: Number, Percent, and Total Rate, MA 2009.....	14
Methods	
Figure 2.3: Suicide by Type of Weapon and Sex, MA 2009.....	15
Table 2.4: Suicide Method by Age Group: Number and Percent, MA 2009.....	15
Locality	
Table 2.5: Suicides by County of Injury: Number, Percent, and Rate, MA 2009.....	16
Figure 2.4: Suicides by County: Number, MA 2009 (map).....	17
Figure 2.5: Suicides by County: Rate, MA 2009 (map).....	17
Table 2.6: Suicides by City/Town of Injury: Number, Percent, and Rate, MA 2009.....	18
Table 2.7: Places Where Suicide Occur: Number and Percent, MA 2009.....	19
Circumstances	
Table 2.8: Circumstances of Suicides: Number and Percent, MA 2009.....	20
Table 2.9: Most Commonly Mentioned Suicide Circumstances by Age Group, MA 2009.....	21
Figure 2.6: Commonly Mentioned Circumstances of Suicides by Sex, MA 2009.....	21
Toxicology	
Figure 2.7: Percentage of Suicide Victims by Toxicology Tests and Results, MA 2009.....	22
Table 2.10: Blood Alcohol Concentration of Suicide Victims that Tested Positive by Age Group: Number and Percent, MA 2009.....	22
SECTION 3: HOMICIDES.....	23
Demographics	
Table 3.1: Homicides by Demographics: Number, Percent, and Rate, MA 2009.....	24
Figure 3.1: Homicides by Age Group and Sex: Number and Rate, MA 2009.....	25
Table 3.2: Homicides by Race/Ethnicity and Sex: Number, Percent, and Rate, MA 2009.....	25

Table of Contents continued

Figure 3.2:	Homicides by Marital Status and Sex (Ages 15+): Number and Rate, MA 2009	26
Table 3.3:	Homicides (Ages 25+) by Level of Education and Sex: Number, Percent, and Total Rate, MA 2009	26
Methods		
Figure 3.3:	Homicides by Type of Weapon and Sex, MA 2009	27
Table 3.4:	Homicide Weapons by Age Group: Number and Percent, MA 2009.....	28
Table 3.5:	Type of Firearm Used in Homicides: Number and Percent, MA 2009.....	28
Locality		
Table 3.6:	Homicides by County of Injury: Number, Percent, and Rate, MA 2009.....	29
Figure 3.4:	Homicides by County: Number, MA 2009 (map)	30
Figure 3.5:	Homicides by County: Rate, MA 2009 (map)	30
Table 3.7:	Homicides by City/Town: Number, Percent, and Rate, MA 2009.....	31
Table 3.8:	Places Where Homicides Occur: Number and Percent, MA 2009	32
Circumstances		
Table 3.9:	Circumstances of Homicide: Number and Percent, MA 2009	33
Table 3.10:	Homicide Circumstances by Age Group: Number and Percent, MA 2009	34
Figure 3.6:	Commonly Mentioned Homicide Circumstances by Sex, MA 2009.....	35
Suspect Information		
Table 3.11:	Suspects of Homicides: Number and Percent, and Suspect Demographics, MA 2009	36
Toxicology		
Figure 3.7:	Percentage of Homicide Victims by Toxicology Tests and Results, MA 2009	37
Table 3.12:	Blood Alcohol Concentration of Homicide Victims that Tested Positive by Age Group: Number and Percent, MA 2009.....	37
SECTION 4: DEATHS OF UNDETERMINED INTENT		39
Demographics		
Table 4.1:	Deaths of Undetermined Intent by Demographics: Number, Percent, and Rate, MA 2009	40
Figure 4.1:	Deaths of Undetermined Intent by Age Group and Sex: Number and Rate, MA 2009.....	41
Methods		
Figure 4.2:	Deaths of Undetermined Intent by Type of Weapon and Sex, MA 2009	42
Toxicology		
Figure 4.3:	Percentage of Undetermined Intent Victims by Toxicology Tests and Results, MA 2009	43
APPENDIX A: TECHNICAL NOTES		45
Case Identification		46
Deaths of Undetermined Intent.....		46
Veteran Status		46
Weapon Analysis		46
Calculating Rates		47
Age-adjusted Rates		47
Educational and Marital Status rates.....		47
City/Town Rates		47
U.S. Injury Rates and U.S. Population Rates.....		47
Annual Estimates of the Population for Counties of Massachusetts, 2009		47
Data Elements and Sources		48

Table of Contents continued

Primacy among Data Sources	48
Circumstances	49
Homicide	49
Suicide/ Undetermined	49
Unintentional Firearm.....	49
Glossary	50
Weapons	52
APPENDIX B: VIOLENT DEATH AGE-ADJUSTED RATES	53
All Violent Deaths	
Table 1: Violent Deaths by Intent and Demographics: Number, Percent, Crude Rate and Age-adjusted Rate, MA 2009.....	54
Table 2: Violent Deaths by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009.....	55
Table 3: Violent Deaths by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009.....	55
Suicides	
Table 4: Suicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009.....	56
Table 5: Suicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009.....	57
Table 6: Suicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009.....	57
Homicides	
Table 7: Homicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009	58
Table 8: Homicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009.....	59
Table 9: Homicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009.....	59
Deaths of Undetermined Intent	
Table 10: Deaths of Undetermined Intent by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009.....	60
Table 11: Deaths of Undetermined Intent by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009	61
Table 12: Deaths of Undetermined Intent by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009.....	61

Violent Deaths in Massachusetts 2009

Executive Summary

Executive Summary: Violent Deaths in Massachusetts 2009

Violent Deaths in Massachusetts, 2009 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 2009, there were 41 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 32 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 2009, 827 violent deaths occurred in Massachusetts as a result of 805 separate incidents. Ninety-seven percent of incidents consisted of only one death (N=784). The remaining 21 incidents involved more than one violent death in multiple victim incidents (multiple homicides or suicides) or combined homicide/suicide incidents.

On average, 16 violent deaths a week occurred in the Commonwealth. The violent death rate was 12.5/100,000. Of the 827 violent deaths in 2009, 65% (N=538) were suicides, 22% (N=181) were homicides, and 13% (N=104) were deaths of undetermined intent. Suicides (N=538, 8.2/100,000) were three times more frequent than homicides (N=181, 2.7/100,000). The age group with the highest violent death rate was ages 45-54 (20.1/100,000). Among race/ethnicity groups, Black, non-Hispanics had the highest age-adjusted rate overall (19.1/100,000) compared to the range of 7.3/100,000 to 15.2/100,000 for all other groups.

Suicides

In 2009, there were 538 suicides or approximately ten suicides per week. The suicide rate for males (13.3/100,000) was four times higher than that of females (3.3/100,000). Among all age groups, suicide rates were highest among the age group of 45-54 year olds (16.1/100,000).

The most common suicide method was hanging/strangulation/suffocation which accounted for 48% (N=257) of all suicides. The most common circumstance among suicides was having a current mental health problem, 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.

Executive Summary continued

Executive Summary: Violent Deaths in Massachusetts 2009

Homicides

In 2009, there were 181 homicides or approximately 3.5 homicides per week. Youth, ages 15-24, had the highest homicide number (N=66) and rate (7.1/100,000), which was 2.6 times higher than the statewide rate of 2.7/100,000. The weapon used in approximately 59% (N=107) of homicides was a firearm(s). There were 50 homicides that were precipitated by an argument, abuse, or conflict and 43 homicides that were precipitated by another crime; such as drug trade-related, assault/homicide, robbery, and burglary.

Deaths of Undetermined Intent

In 2009, there were a total of 827 violent deaths, including 13% (N=104) that were deaths of undetermined intent. Of these 104 deaths, 49% (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 2009 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 2009, of the 827 violent deaths, 13% (N=104) were deaths of undetermined intent.

Legal Intervention Deaths

In 2009, there were four legal intervention deaths included in the Massachusetts Violent Death Reporting System.²

Unintentional Firearm Deaths

Massachusetts did not have any unintentional firearm deaths in 2009 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, 2008* 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/Eeohhs2/docs/dph/injury_surveillance/injury_report_08.pdf

² There were 5 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.

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.

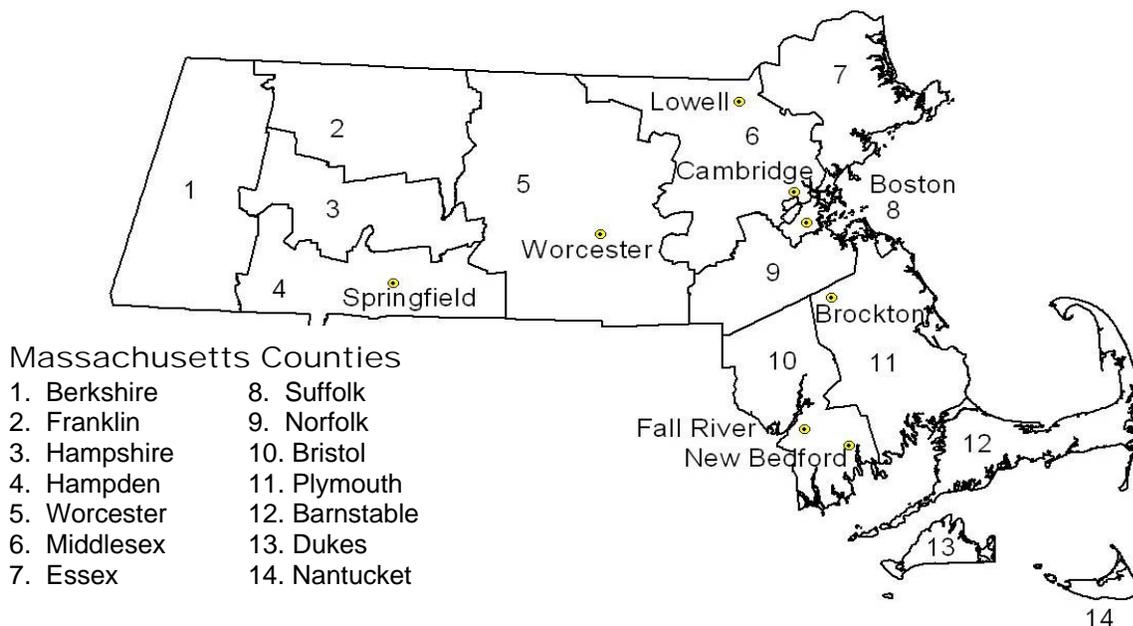
For each record, additional information is subsequently added from law enforcement and medical examiner sources. Law enforcement documents include police reports and ballistic reports from the Boston Police Department and the MA State Police Department. In addition, information from Supplemental Homicide 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



Overview of Violent Deaths in Massachusetts

Section One: Overview of Violent Death

Data Highlights for 2009:¹

- Violent deaths claimed the lives of about 16 victims a week on average in Massachusetts in 2009 (N=827).
- Of the 827 violent deaths in 2009, 65% (N=538) were suicides, 22% (N=181) were homicides, and 13% (N=104) were deaths of undetermined intent.

Compared to the U.S.:²

- The Massachusetts age-adjusted rate for all violent deaths in 2009 (12.1/100,000) was lower than the U.S. age-adjusted rate (19.0/100,000).
- The Massachusetts age-adjusted suicide rate in 2009 was 7.8/100,000 compared to the age-adjusted rate of 11.8/100,000 for the U.S.
- The Massachusetts age-adjusted rate for homicide in 2009 was 2.8/100,000, half that of the U.S. age-adjusted rate of 5.9/100,000 for homicides.
- The Massachusetts age-adjusted rate for deaths of undetermined intent in 2009 was 1.5/100,000 and the U.S. age-adjusted rate was 1.6/100,000.

Trends in Violent Death, 2003-2009:

- The number of homicides fluctuated between 140 and 194 from 2003 to 2009. The rate during these six years ranged from 2.2/100,000 (in 2003) to 3.0/100,000 (in 2006).
- The number of suicides ranged from 424 in 2003 to 538 in 2009. Over the six year period, rates ranged from 6.6/100,000 to 8.2/100,000. From 2003 to 2009 there was an average annual increase of 3.7 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 2009, the number of deaths of undetermined intent was 104, only 13% of the total. Comparatively, in 2004, the number of deaths of undetermined intent was 625, which was 50% of the total number of violent deaths.

2009 MAVDRS INCIDENTS AND VICTIMS

Table 1.1: Type of Incidents and Victims: Number and Percent, MA 2009				
Intent	Incidents		Victims	
	N	%	N	%
Suicides				
Single victim suicide	525	65.2	525	63.5
Multiple victim suicide	3	0.4	6	0.7
Homicides				
Single victim homicide	152	18.9	152	18.4
Multiple victim homicide	9	1.1	19	2.3
Undetermined intent deaths				
Single victim undetermined intent death	104	12.9	104	12.6
Legal intervention				
Single victim legal intervention death	3	0.4	3	0.4
Combined intent				
Homicide/suicide ¹	8	1.0	15	1.8
Homicide/legal intervention	1	0.1	3	0.4
Total	805	100.0	827	100.0

In 2009, a total of 805 incidents in the MAVDRS database accounted for 827 violent deaths.

- 97% of incidents consisted of only one death (N=784).
- Twenty-one incidents resulted in the death of more than one person (e.g. homicide/suicide, multiple victim homicide, etc.) for a total of 43 victims.
- Multiple victim incidents included the following:
 - Nine multiple victim homicide incidents (one or more persons kills two or more people in the same incident) which resulted in the death of 19 people.
 - Eight incidents where one person killed one or more persons, then killed him/herself in the same incident (homicide/suicide incident) which accounted for 15 deaths.
 - Three multiple victim suicide incidents (two or more suicides planned together or the deaths were planned to coincide) which resulted in the deaths of six people.
 - One homicide/legal intervention incident, which accounted for three deaths.
- There were no unintentional firearm deaths.
- There were four legal intervention deaths. One of which was combined with a double 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 intervention ICD-10 code. These cases were included in the number of homicides.

DEMOGRAPHICS OF VIOLENT DEATHS

Table 1.2: Violent Deaths by Intent and Demographics: Number, Percent, and Rate, MA 2009			
	N	Percent	Rate per 100,000¹
Intent			
Suicide	538	65.1	8.2
Homicide	181	21.9	2.7
Undetermined	104	12.6	1.6
Unintentional firearm	0	0.0	0.0
Legal intervention	4	0.5	--
Sex			
Male	628	75.9	19.6
Female	199	24.1	5.9
Race/Ethnicity			
White, non-Hispanic	614	74.2	11.7
Black, non-Hispanic	84	10.2	20.1
Asian, non-Hispanic	23	2.8	6.7
Hispanic	90	10.9	15.4
Other/mixed ²	16	1.9	--
Age Group			
0-14	15	1.8	1.3
15-24	132	16.0	14.3
25-34	117	14.1	13.7
35-44	164	19.8	17.6
45-54	207	25.0	20.1
55-64	97	11.7	12.4
65-74	48	5.8	10.7
75-84	33	4.0	10.9
85+	13	1.6	9.2
Unknown	1	0.1	--
Total	827	100.0	12.5

ADDITIONAL FINDINGS FOR 2009:

- The youngest victim was minutes old and the oldest was 100 years old. The mean age of all victims was 43.4 years and the median age was 44.0 years.
- Fifteen victims of a violent death were homeless.
- Twenty-eight victims were fatally injured while in custody, such as jail, state institution, foster care or injured prior to arrest.³
- There were 59 war veterans⁴ who died a violent death.
- Fifteen victims died of a violent death at their place of work.

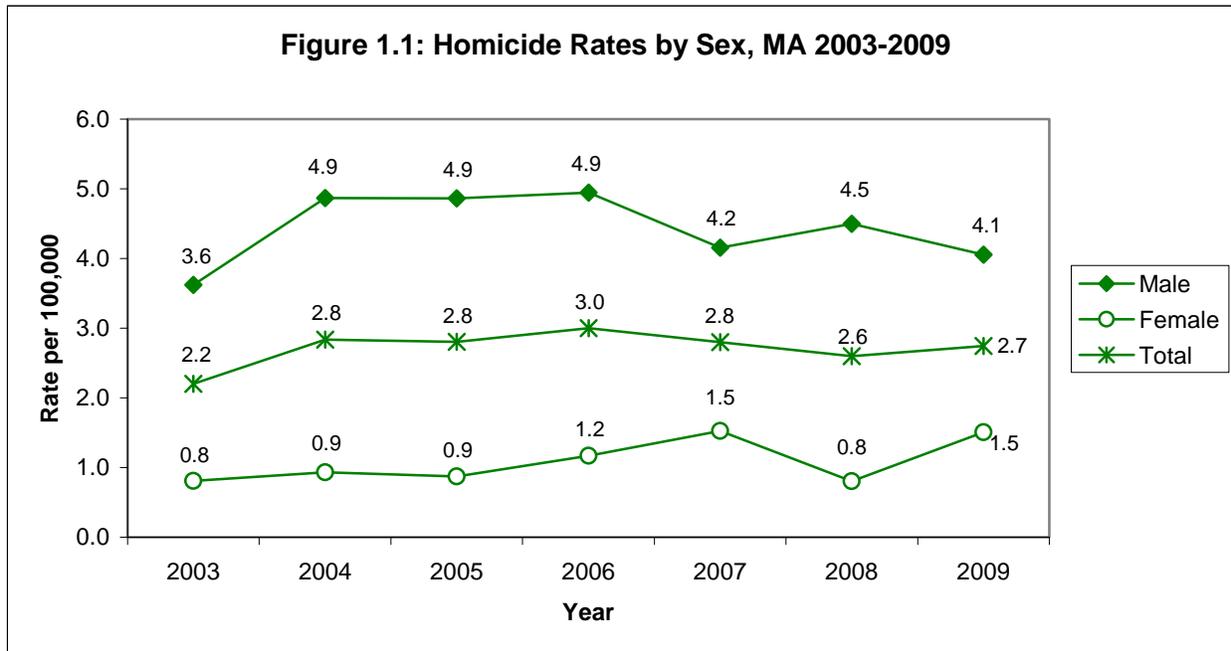
¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

² Rates for other/mixed race were not calculated due to lack of denominator information.

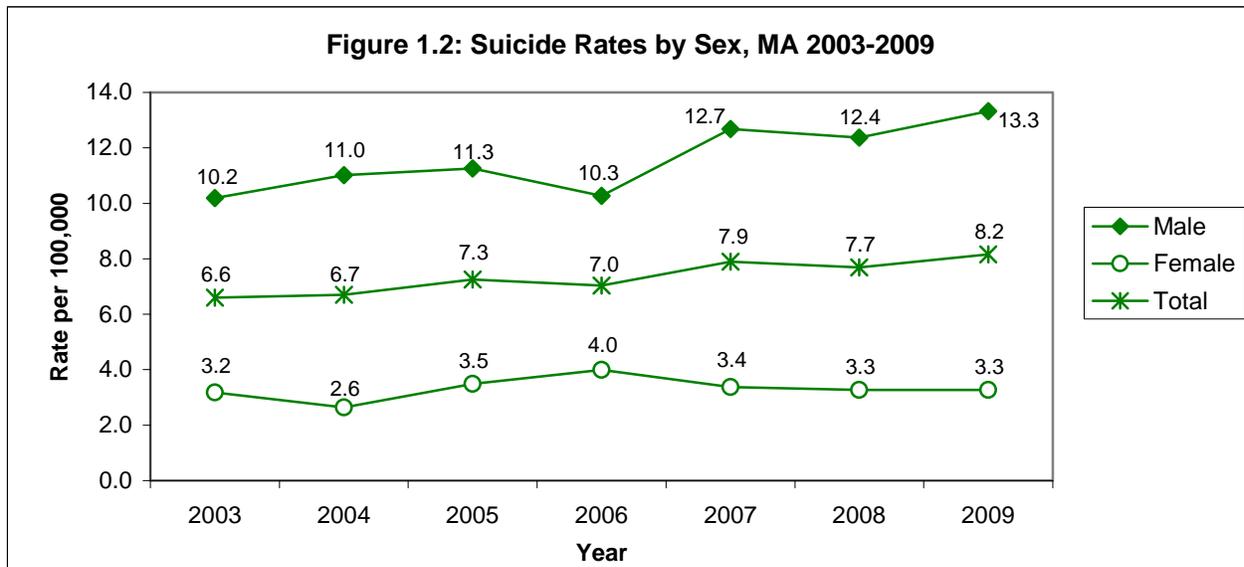
³ This 'in custody' variable is different than the question that asks the place where the victim was injured, which could be "jail, prison, detention facility." (Place of suicides can be found on page 19 (Table 2.7) and place of homicides are on page 32 (Table 3.8).)

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 2009¹



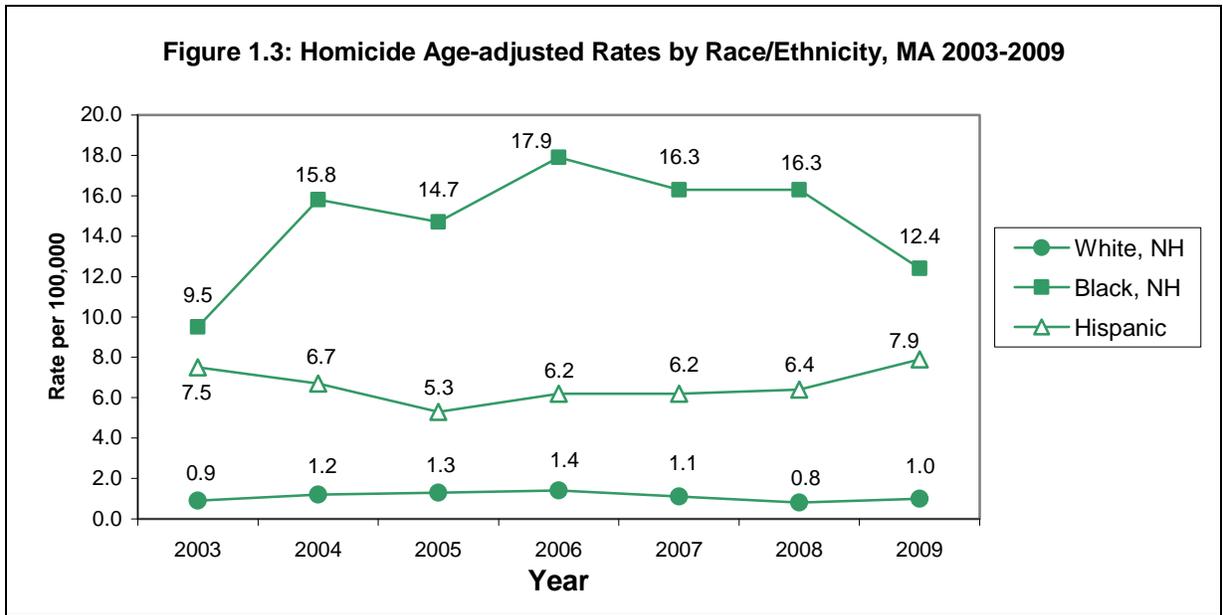
- The number of homicides fluctuated between 140 and 194 from 2003 to 2009. The rate during these six years ranged from 2.2/100,000 (in 2003) to 3.0/100,000 (in 2006).
- Male homicide rates have been three to five times higher than female rates of homicide over the past seven years.



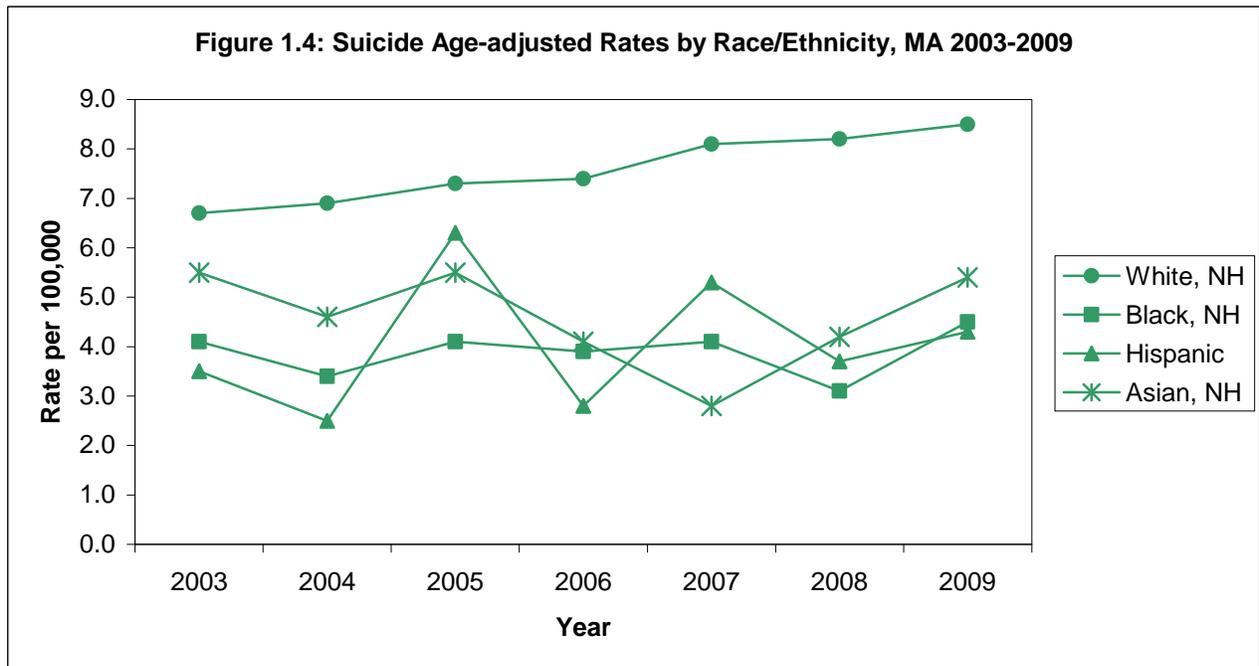
- The number of suicides ranged from 424 in 2003 to 538 in 2009. Over the six year period, rates ranged from 6.6/100,000 to 8.2/100,000. From 2003 to 2009 there was an average annual increase of 3.7 percent per year.
- Male suicide rates have been three to four times higher than female rates of suicide over the past seven years. From 2003 to 2009, male suicide rates had an average annual increase of 4.2 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 2009¹



- Homicide rates were highest for Black, non-Hispanics from 2003 to 2009. The second highest rates were among Hispanics.



- Suicide rates were highest for White, non-Hispanics from 2003 to 2009. Rates ranged between 6.7 and 8.5 per 100,000. Suicide rates among White, non-Hispanics had an average annual increase of 4.2 percent per year from 2003 to 2009.

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 2009:

- An average of ten suicides occurred per week in 2009; more than one each day (N=538).
- The highest suicide rate overall was among White, non-Hispanic males (14.9/100,000).
- Of any race/ethnicity, White, non-Hispanics had the highest suicide rate (9.2/100,000).
- The suicide rate for males (13.3/100,000) was four times higher than the rate for females (3.3/100,000).
- Approximately 69% of suicides occurred in a home or its surrounding area (yard, driveway, and porch).
- The age group 45-54 had the highest rate (16.1/100,000) among all age groups.

Compared to the U.S.:

- In 2009, Massachusetts had a lower age-adjusted rate for male suicides (12.8/100,000) than the U.S. (19.2/100,000).
- The age-adjusted suicide rate for females in 2009 was lower in Massachusetts (3.1/100,000) than the U.S. age-adjusted rate (4.9/100,000).
- In 2009, Massachusetts had an age-adjusted rate of firearm suicides (1.4/100,000) four times lower than the U.S. age-adjusted rate (5.9/100,000).
- In 2009, Massachusetts had a slightly higher age-adjusted rate of hanging suicides (3.8/100,000) than the age-adjusted rate for the U.S. (2.9/100,000).

SUICIDE DEMOGRAPHICS

Table 2.1: Suicides by Demographics: Number, Percent, and Rate, MA 2009			
	N	Percent	Rate per 100,000¹
Sex			
Male	427	79.4	13.3
Female	111	20.6	3.3
Race/Ethnicity			
White, non-Hispanic	479	89.0	9.2
Black, non-Hispanic	18	3.3	4.3
Asian, non-Hispanic	17	3.2	4.9
Hispanic	21	3.9	3.6
Other/mixed ²	3	0.6	--
Age Group			
0-14	2	0.4	--
15-24	56	10.4	6.1
25-34	59	11.0	6.9
35-44	114	21.2	12.2
45-54	165	30.7	16.1
55-64	77	14.3	9.8
65-74	30	5.6	6.7
75-84	27	5.0	8.9
85+	7	1.3	4.9
Unknown	1	0.2	--
Total	538	100.0	8.2

ADDITIONAL FINDINGS FOR 2009:

- The youngest suicide victim was 11 years old and the oldest was 97 years old.
- Fifty-two percent of suicides were among persons aged 35 to 54 (N=279). The mean age was 46.6 years and the median age was 48.
- Fifty-two war veterans³ completed suicide, which accounted for 88% of the total violent deaths among war veterans (N=59).
- Suicides in 2009 also included:
 - seven victims that were homeless.
 - seventeen victims that were in custody, such as jail, state institution, or foster care.⁴
 - seven victims that died at their workplace.

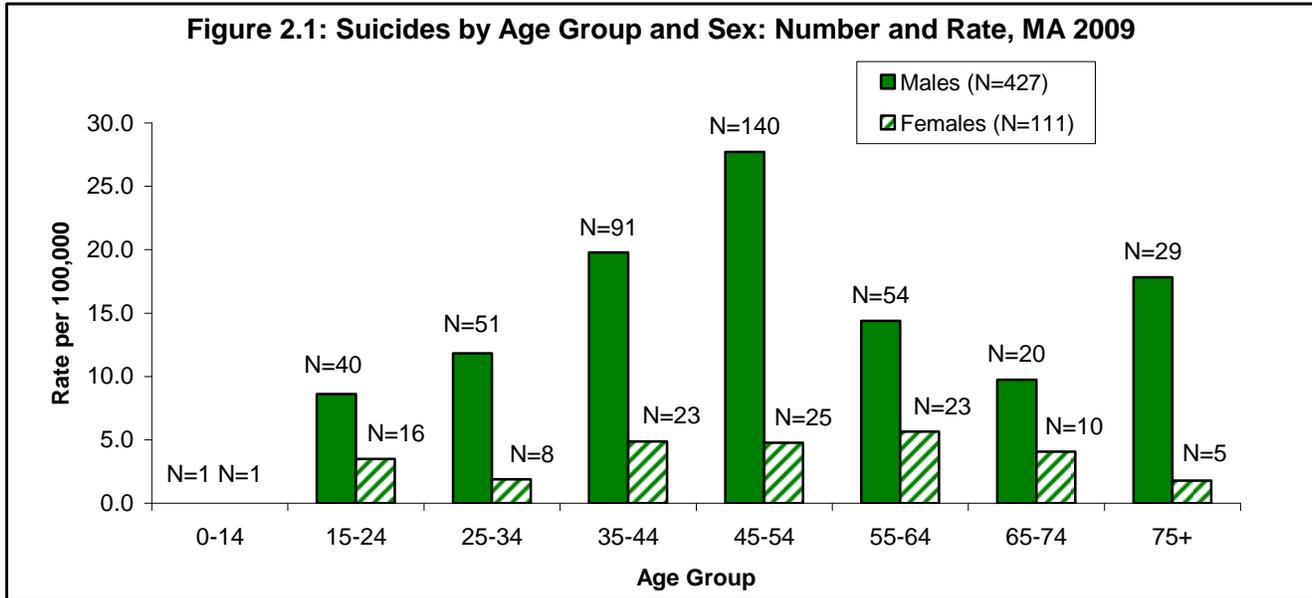
¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

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.

SUICIDE DEMOGRAPHICS



- Among persons age 15-24, the suicide rate was 6.1/100,000 (N=56), which was lower than the statewide rate of 8.2/100,000.
- Among males, the age group 45-54 had the highest suicide rate (27.7/100,000).
- Among females, ages 55-64 had the highest suicide rate (5.6/100,000).
- Overall, male rates of suicide were four times higher than female rates.

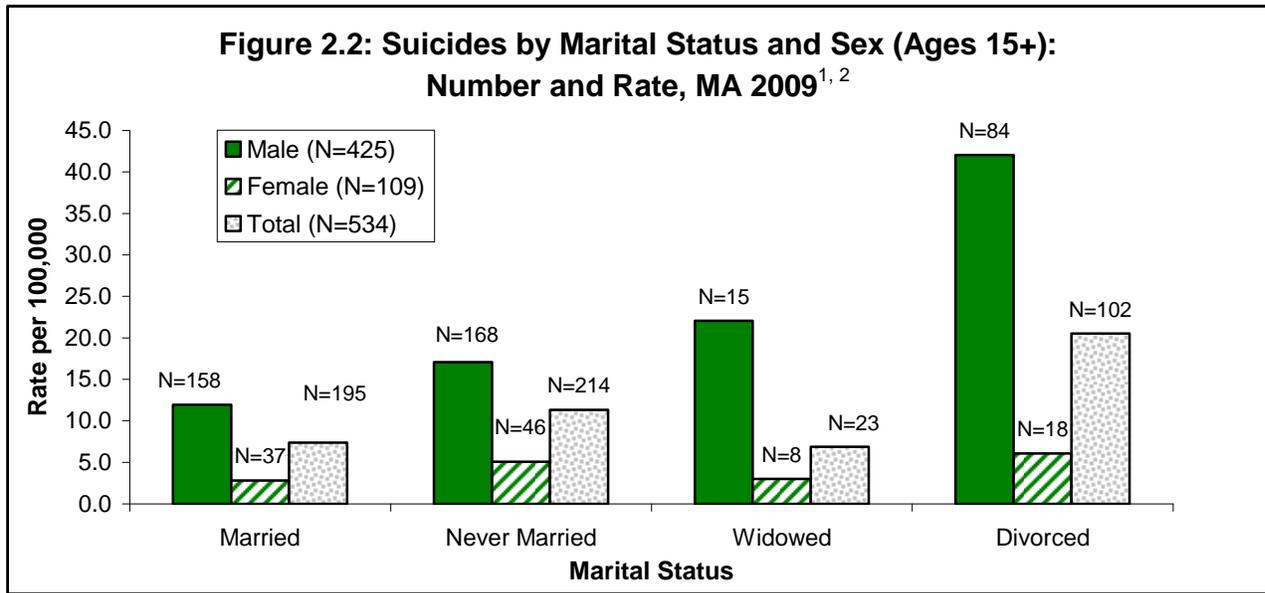
	Female			Male		
	N	Percent	Rate per 100,000	N	Percent	Rate per 100,000
White, non-Hispanic	101	91.0	3.7	378	88.5	14.9
Black, non-Hispanic	2	1.8	--	16	3.7	7.8
Asian, non-Hispanic	5	4.5	2.8	12	2.8	7.2
Hispanic	3	2.7	--	18	4.2	6.1
Other/mixed ²	0	0.0	--	3	0.7	--
Total	111	100.0	3.3	427	100.0	13.3

- White, non-Hispanics had the highest rates for males (14.9/100,000).
- There were 538 suicides in 2009; approximately 70% were White, non-Hispanic males and 19% were White, non-Hispanic females. The Massachusetts population was comprised of 38% White, non-Hispanic males and 41% White, non-Hispanic females in 2009.

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.

SUICIDE DEMOGRAPHICS



- In 2009, male suicide rates were always higher than female suicide rates, regardless of marital status.
- For males, suicide rates were highest among divorced males (42.0/100,000).
- Among females, suicide rates were highest among divorced females (6.1/100,000).

**Table 2.3: Suicides (Ages 25+) by Level of Education and Sex:
Number, Percent, and Total Rate, MA 2009**

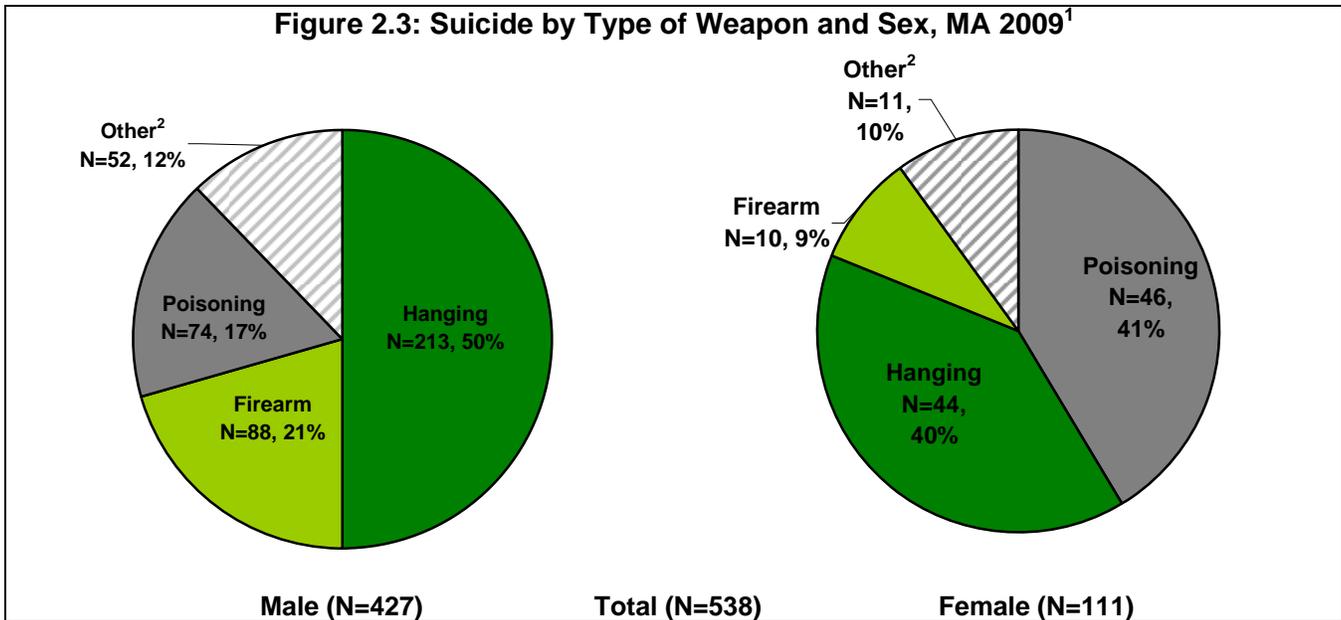
Years of Education	Female		Male		Total		
	N	%	N	%	N	%	Rate per 100,000 ¹
0-8	1	1.1	8	2.1	9	1.9	4.1
9-11	5	5.3	35	9.1	40	8.4	18.6
12	40	42.6	183	47.5	223	46.6	17.7
13-16	33	35.1	112	29.1	145	30.3	7.2
17+	15	16.0	46	11.9	61	12.7	8.4
Unknown	0	0.0	1	0.3	1	0.2	--
Total²	94	100.0	385	100.0	479	100.0	10.8

- The highest suicide rate was among victims with 9 to 11 years and 12 years of education.
- Approximately 57% of suicide victims age 25 and older had 12 or less years of education, while approximately 38% 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 SUICIDES¹



- In this report, “hanging/strangulation/suffocation” is simply referred to as “hanging.” This was the most common suicide method, accounting for 48% of suicides.
- Among females, poisoning/drug overdose and hanging were the most common methods (41% and 40%, respectively).
- For males, hanging was the most common method (50%). The second most common method was the use of a firearm (21%), followed by poisoning/drug overdose (17%).
- Of suicide poisoning deaths, 43% were due to the ingestion of more than one poison/drug (N=52). Of the total suicide deaths by poisoning/drug overdose (N=120) and based on the first poison listed:
 - 65% (N=78) were due to the ingestion of one or more substances including street/recreation drugs, alcohol, pharmaceutical prescriptions, and over-the counter medications.
 - 26% (N=31) were due to carbon monoxide poisoning or other gas, or vapor.
 - 8% (N=10) 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 2009

	Age Group										Total	
	0-14		15-24		25-44		45-64		65+			
Weapon	N	%	N	%	N	%	N	%	N	%	N	%
Firearm	0	0	7	12.5	25	14.5	42	17.4	24	37.5	98	18.2
Poisoning	0	0	7	12.5	39	22.5	58	24.0	16	25.0	120	22.3
Hanging	2	100.0	33	58.9	93	53.8	109	45.0	20	31.3	257	47.9
Other ²	0	0	9	16.1	16	9.2	33	13.6	4	6.3	62	11.5
Total	2	100.0	56	100.0	173	100.0	242	100.0	64	100.0	537³	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 Weapons that were less than 10% of the male or female total were included in “Other.” Other weapon for males includes: Drowning, explosive, fall, explosive, fire/burn, motor vehicle, non-powder gun, other transport, sharp instrument and unspecified weapon. Other weapon for females includes: Drowning, fall, fire/burn, firearm, motor vehicle, other transport, and sharp. See Appendix A for a complete list of weapons.

³ There was one victim whose age was unknown and is not included in the total.

LOCALITY OF SUICIDES

Table 2.5: Suicides by County of Injury: Number, Percent, and Rate, MA 2009			
County	N	Percent¹	Rate per 100,000²
Population: 1,000,000+			
Middlesex	98	18.7	6.5
Population: 500,000 – 1,000,000			
Bristol	62	11.8	11.3
Worcester	58	11.0	7.2
Essex	53	10.1	7.1
Suffolk	50	9.5	6.6
Norfolk	41	7.8	6.2
Population: 100,000 – 500,000			
Barnstable	30	5.7	13.6
Hampshire	18	3.4	11.5
Hampden	48	9.1	10.2
Berkshire	12	2.3	9.3
Plymouth	46	8.8	9.2
Population: <100,000			
Franklin	5	1.0	7.0
Nantucket	3	0.6	--
Dukes	1	0.2	--
Other			
Outside MA ²	6	--	--
Unknown ²	7	--	--
Total known MA county	525	100.0	--
Total	538	--	8.2

- Middlesex, Bristol, and Worcester Counties had the highest number of suicides (N=98, 62, and 58 respectively). These three counties accounted for 42% of total suicides in a known Massachusetts county and 43% of the Massachusetts population.
- Among counties with a population of 500,000-1,000,000, Bristol had the highest number (N=62) and rate (11.3/100,000).
- Among counties with a population of 100,000-500,000, Hampden had the highest number (N=48) and Barnstable had the highest rate (13.6/100,000, N=30). 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=525). 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.

LOCALITY OF SUICIDES

Figure 2.4: Suicides by County: Number, MA 2009

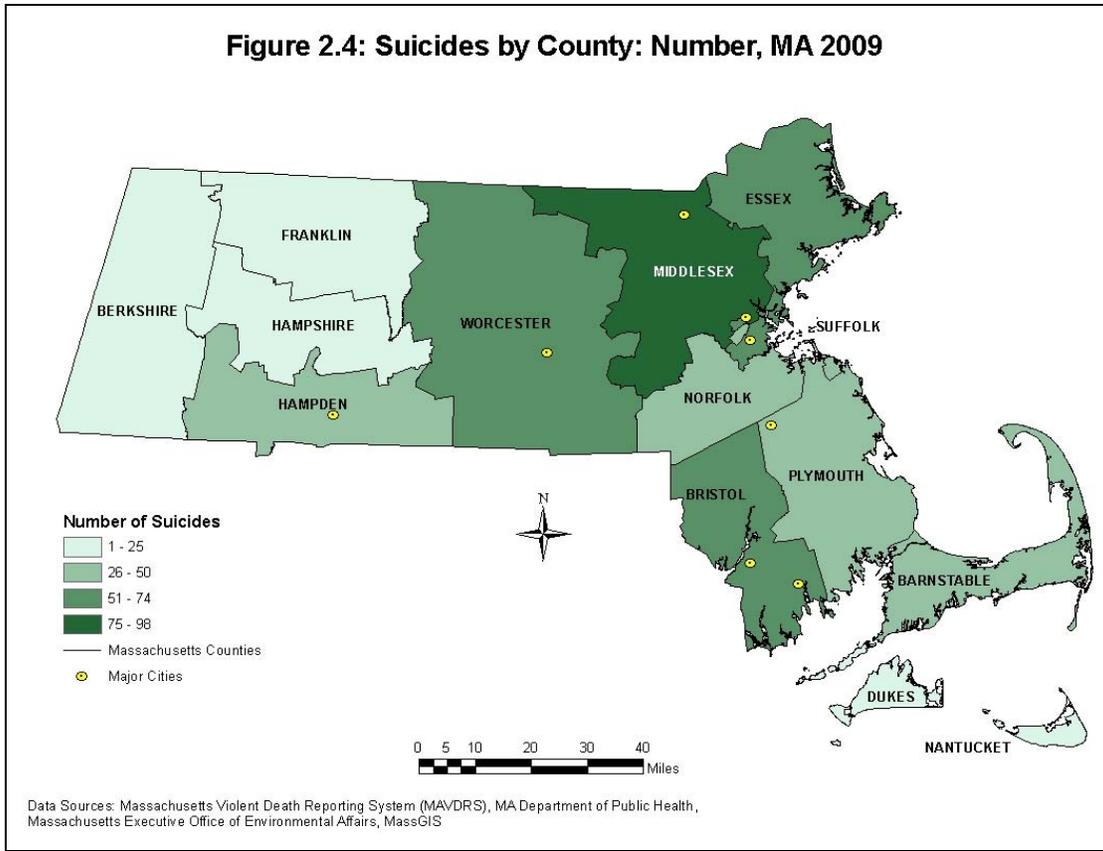
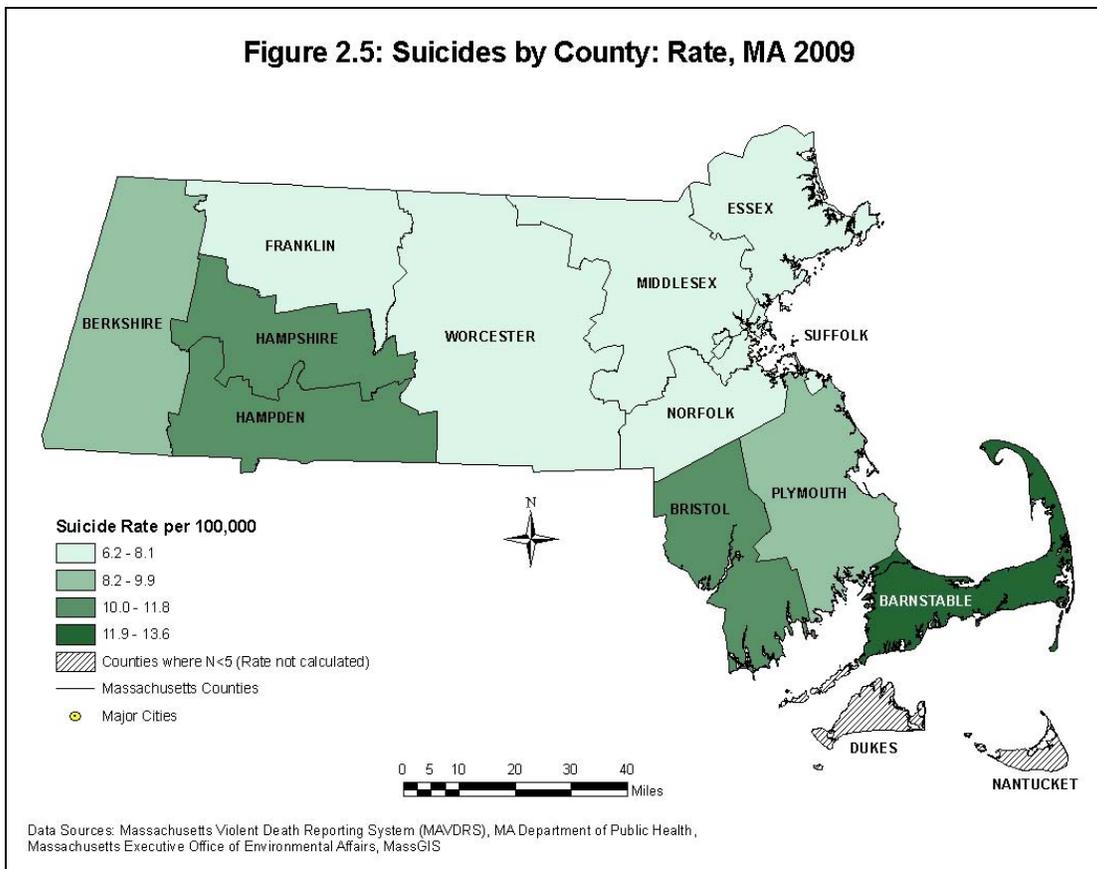


Figure 2.5: Suicides by County: Rate, MA 2009



LOCALITY OF SUICIDES

Table 2.6: Suicides by City/Town of Injury: Number, Percent, and Rate, MA 2009			
	N	Percent¹	Rate per 100,000²
Group 1: Cities/Towns over 175,000 population:			
Boston	42	8.0	6.5
Worcester	9	1.7	4.9
Total Group 1	51	9.7	6.2
Group 2: Cities/Towns 75,000-175,000 population:			
New Bedford	13	2.5	14.3
Cambridge	12	2.3	11.0
Springfield	16	3.0	10.3
Fall River	9	1.7	9.9
Lynn	7	1.3	8.0
Brockton	7	1.3	7.5
Newton	6	1.1	7.1
Somerville	5	1.0	6.5
Lowell	4	0.8	--
Quincy	4	0.8	--
Total Group 2	83	15.8	8.4
Group 3: Cities/Towns 50,000-75,000 population:			
Plymouth	11	2.1	19.4
Chicopee	9	1.7	16.1
Taunton	8	1.5	14.3
Waltham	6	1.1	9.9
Framingham	4	0.8	--
Lawrence	4	0.8	--
Peabody	3	0.6	--
Medford	2	0.4	--
Revere	2	0.4	--
Haverhill	2	0.4	--
Brookline	1	0.2	--
Malden	1	0.2	--
Weymouth	1	0.2	--
Total Group 3	54	10.3	7.2
Group 4: Cities/Towns with < 50,000 population			
Total Group 4	337	64.2	8.4
Other			
Outside MA	6	--	--
Unknown city/town	7	--	--
Total known MA city/town	525	100.0	--
Total	538	--	8.2

- Among cities with a population of 75,000-175,000, Springfield had the highest number of suicides (N=16) and New Bedford had the highest rate (14.3/100,000, N=13).
- Among cities with a population of 50,000-75,000, Plymouth had the highest number and rate of suicide (N=11, 19.4/100,000).

¹ Percent is based on known Massachusetts city of injury (N=525). 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 2009		
	N	Percent¹
Buildings and surroundings:		
House, apartment, including driveway, porch, yard	368	69.4
Hotel/motel	19	3.6
Jail, prison, detention facility ²	15	2.8
Hospital, medical facility or nursing home/supervised residential facility	6	1.1
Industrial or construction areas	5	0.9
Transportation utilities:		
Motor vehicle (excl. school and public transportation)	31	5.8
Railroad track/Public transportation or station	17	3.2
Street/road, sidewalk, alley, highway	12	2.3
Parking lot/public parking garage	5	0.9
Outdoor and recreational areas:		
Natural area/park, playground, public use area	40	7.5
Other:		
Other	12	2.3
Total Known Place of Suicide Occurrence	530	100.0
Unknown place of Suicide	8	--
Total Suicides	538	--

Of the 530 suicides where location of injury was reported:

- The majority (69%) of suicides occurred in a house, apartment, or its surroundings (yard, porch, driveway).
- Approximately 6% of suicides occurred in a motor vehicle; 39% (N=12) of which were due to carbon monoxide poisoning.
- Approximately 8% percent of suicides occurred in a natural area, such as such as woods, rivers, or a recreational 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=530).

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=538). See Appendix A for more information and definitions of circumstances.

Table 2.8: Circumstances of Suicides: Number and Percent, MA 2009		
	N	Percent
Total number of suicide victims	538	100
Total victims with reported circumstances	504	93.7
Health Characteristics		
Current mental health problem	289	53.7
Ever treated for mental health problem ¹	239	44.4
Current treatment for mental illness ¹	214	39.8
Alcohol problem/other substance problem	151	28.1
History of suicide attempts	120	22.3
Physical health problem ²	52	9.7
Relationship Characteristics		
Intimate partner problem	137	25.5
Other relationship problem	41	7.6
Other death of friend or family in past five years	27	5.0
Perpetrator of interpersonal violence past month	20	3.7
Life Stressors		
Job problem	81	15.1
Financial problem	58	10.8
Family stressors	48	8.9
Recent criminal legal problem	44	8.2
Eviction/Loss of home	20	3.7
Other legal problems	16	3.0
History of abuse as child	8	1.5
Anniversary of traumatic event	6	1.1
Event Characteristics		
Person left a suicide note	189	35.1
Current depressed mood	179	33.3
Disclosed intent to commit suicide	165	30.7
Crisis in past two weeks	88	16.4

Of the 538 suicides:

- Fifty-four 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.
- Thirty-three 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-eight percent were reported to have an alcohol or other substance problem.
- Twenty-six percent were reported to be having problems with a current or former intimate partner including divorce, jealousy, or argument.

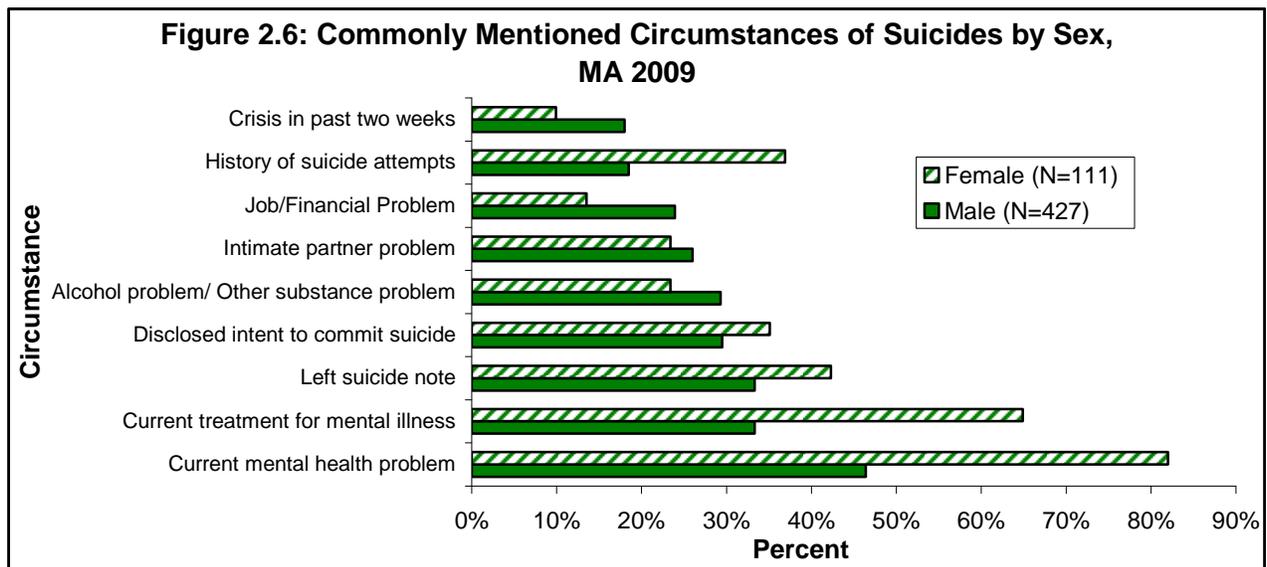
¹ "Ever treated for mental health problem" and "current treatment for mental illness" includes treatment for mental health problems as well as alcohol/substance abuse problems.

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 2009				
Circumstance	Age Group and Rank			
	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	2	2	2	2
Alcohol /Other substance problem	7	4	7	--
Current treatment for mental illness ¹	3	3	3	6
Person left a suicide note	6	5	5	2
Disclosed intent to commit suicide	5	7	6	7
Current depressed mood	9	8	4	4
History of suicide attempts	8	9	9	9
Intimate partner problem	3	6	10	9
Physical health problem ²	--	--	--	4
Crisis in past two weeks	9	--	--	8
Financial/job problem	--	10	8	--

- 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



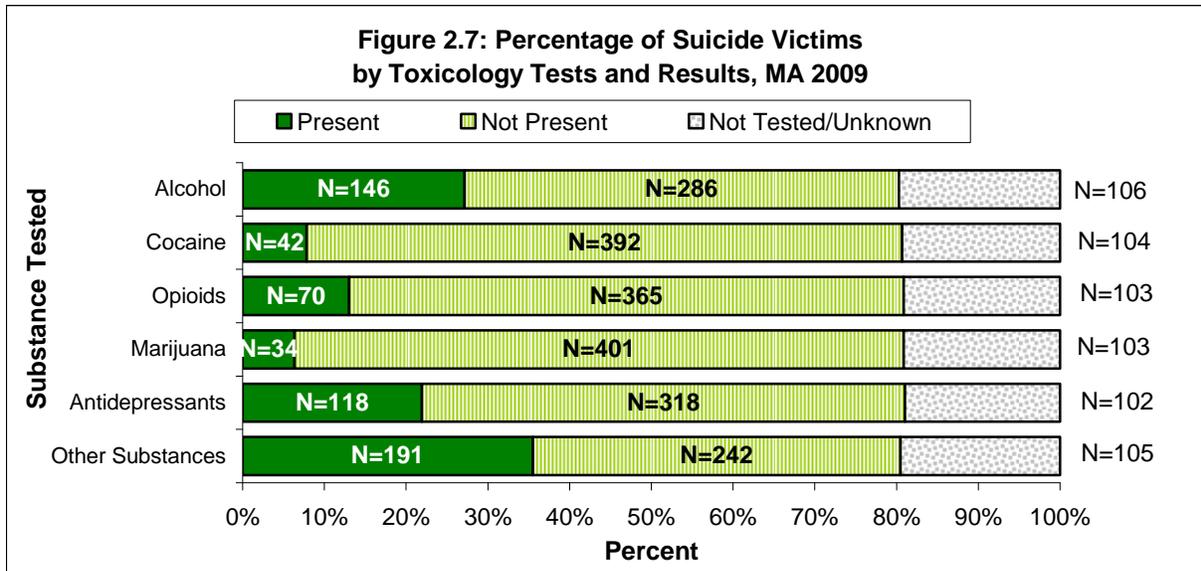
- Information about suicide circumstances was available for 94% (N=504) of all suicides; 92% of males (N=394) and 99% of females (N=110).
- Females were more likely than males to have a history of suicide attempts, a current mental health problem, to have disclosed their intent to commit suicide, and/or treatment for a mental health disorder noted.
- A larger percentage of males were reported to have an intimate partner problem, financial/job problems, a crisis in the past two weeks, and alcohol or substance problems 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.

TOXICOLOGY OF SUICIDE VICTIMS



- Of the 538 suicide victims in Massachusetts in 2009, 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, and carbon monoxide.

Table 2.10: Blood Alcohol Concentration of Suicide Victims that Tested Positive by Age Group: Number and Percent, MA 2009¹

	Age Group								Total	
	< 21		21-44		45-64		65+			
BAC % ¹	N	%	N	%	N	%	N	%	N	%
0.010 – 0.040 ²	<5	--	9	15.8	10	14.3	<5	--	25	17.1
0.041 - 0.079	<5	--	7	12.3	8	11.4	<5	--	17	11.6
0.08 and over	7	70.0	40	70.2	51	72.9	<5	--	102	69.9
Unknown ³	0	0.0	<5	--	<5	--	0	0.0	<5	--
Total	10	100.0	57	100.0	70	100.0	9	100.0	146	100.0

- The above table only refers to those victims who were tested for blood alcohol concentration and tested positive (N=146). Eighty percent (N=432) of suicide victims were tested for blood alcohol concentration (BAC) and 34% of those had a positive BAC.
- Victims with a BAC in the 0.010 - 0.040 range comprise 17% 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, seven victims age 21 or younger had a BAC of 0.08 or higher. Eighty-two percent (N=47) of victims ages 21-44 had a BAC 0.041 or above. Among victims ages 45-64, 84% (N=59) had a BAC 0.041 and above, and among victims aged 65 and over, 56% had a BAC 0.041 or above.
- Seventy percent (N=102) 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

Section Three: Homicides

Data Highlights for 2009:

- Homicides claimed an average of 3.5 lives per week (N=181) in 2009.
- Black, non-Hispanics had the highest homicide rate (13.9/100,000) compared to White, non-Hispanics (1.0/100,000) and Hispanics (9.3/100,000).
- Black, non-Hispanic males had a homicide rate of 24.9/100,000 and White, non-Hispanic males had a homicide rate of 0.9/100,000.
- The homicide rate of males (4.1/100,000) was 2.7 times higher than the rate of females (1.5/100,000).
- In 2009, over half of homicides (59%) in Massachusetts involved firearms. This is similar to 2008 (58%).

Compared to the U.S.:

- Massachusetts had a lower age-adjusted homicide rate in 2009 (2.8/100,000) than the U.S. age-adjusted rate for homicides (5.5/100,000).
- In 2009, Massachusetts had an age-adjusted homicide rate for males (4.0/100,000) that was more than two times lower than that of the U.S. age-adjusted rate (8.5/100,000).
- The Massachusetts age-adjusted rate for female homicides in 2009 (1.5/100,000) was lower than that of the U.S. age-adjusted rate for female homicides (2.4/100,000).
- Massachusetts had an age-adjusted rate for Black, non-Hispanic males in 2009 (21.9/100,000) that was lower than the U.S. age-adjusted rate (31.8/100,000).

DEMOGRAPHICS OF HOMICIDE VICTIMS

Table 3.1: Homicides by Demographics: Number, Percent, and Rate, MA 2009			
	N	Percent	Rate per 100,000¹
Sex			
Male	130	71.8	4.1
Female	51	28.2	1.5
Race/Ethnicity			
White, non-Hispanic	52	28.7	1.0
Black, non-Hispanic	58	32.0	13.9
Asian, non-Hispanic	4	2.2	--
Hispanic	54	29.8	9.3
Other/mixed ²	13	7.2	--
Age Group			
0-14	6	3.3	0.5
15-24	66	36.5	7.1
25-34	46	25.4	5.4
35-44	28	15.5	3.0
45-54	17	9.4	1.7
55-64	5	2.8	0.6
65-74	8	4.4	1.8
75-84	3	1.7	--
85+	2	1.1	--
Total	181	100.0	2.7

ADDITIONAL FINDINGS FOR 2009

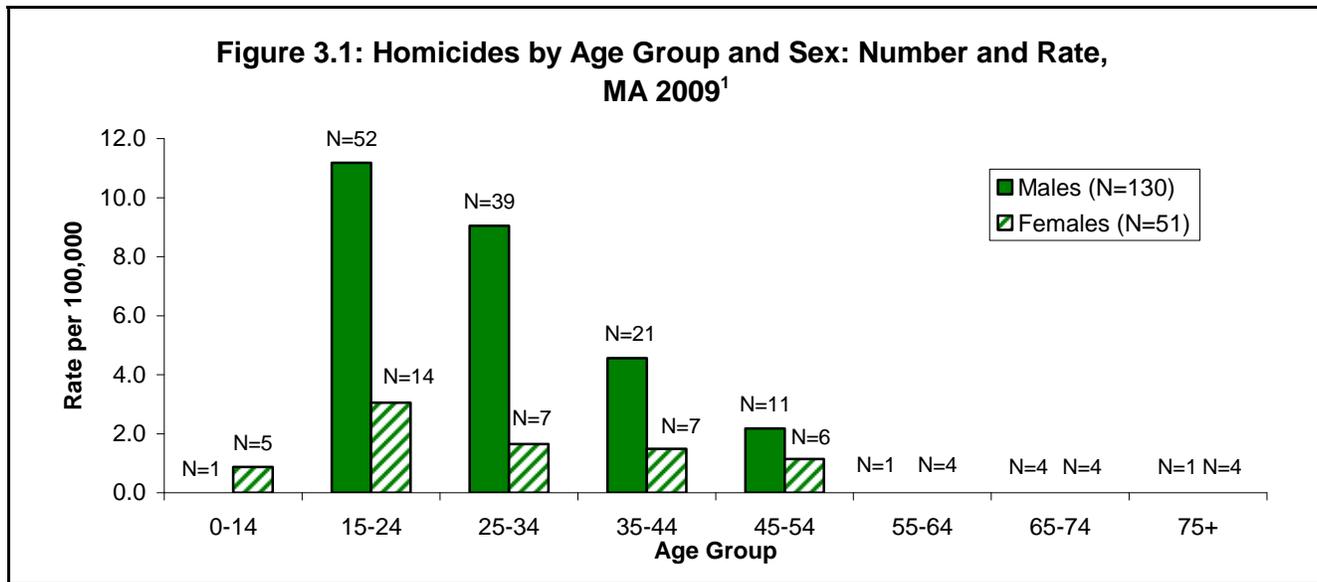
- The youngest homicide victim was 3 months old and the oldest was 100 years old. The mean age for homicide victims was 32.5 years and the median age was 27 years old.
- Forty percent of all homicide victims were age 24 or younger and 65% were age 34 or younger.
- There were two war veterans³ who were the victims of homicide.
- Homicides in 2009 included:
 - two victims that were homeless.
 - six victims that were injured at their workplace.
 - four victims that died in custody, such as jail, state institution, or foster care.
- Black, non-Hispanics accounted for approximately 32% of homicide victims, but make up only 6% of the Massachusetts population. Hispanics accounted for about 30% of homicide victims and make up only 9% 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.

DEMOGRAPHICS OF HOMICIDE VICTIMS



- The highest homicide rate by age group was among 15-24 year olds (7.1/100,000, N=66).
 - The homicide rate for ages 15-19 was 5.4/100,000 (N=25), which was two times higher than the statewide rate of 2.7/100,000.
 - The homicide rate for ages 20-24 was 8.9/100,000 (N=41), which was over three times higher than the statewide rate of 2.7/100,000.
 - Males ages 15-24 had the highest homicide rate (11.2/100,000, N=52), which was four times higher than the statewide rate of 2.7/100,000.
- Males age 25-34 years had the second highest homicide rate (9.1/100,000, N=39).
- For females, the highest rate was among females ages 15-24 (3.0/100,000). Other female age groups ranged from 0.9/100,000 to 1.6/100,000.

Table 3.2: Homicides by Race/Ethnicity and Sex: Number, Percent, and Rate, MA 2009

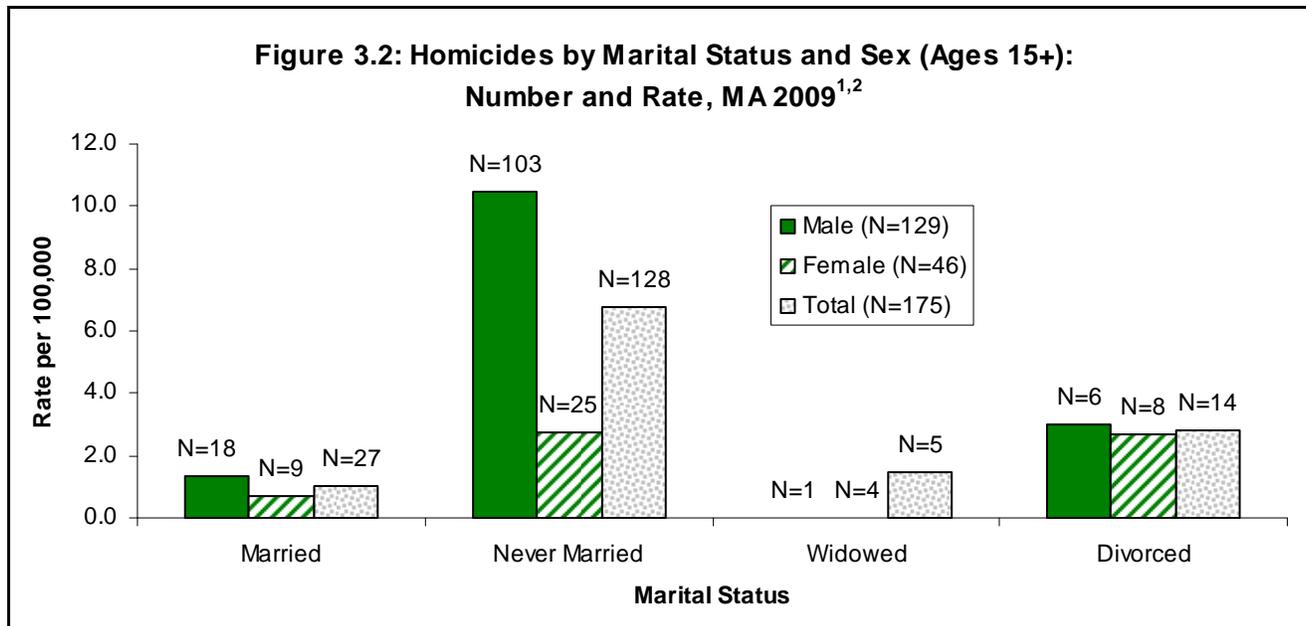
	Female			Male		
	N	%	Rate per 100,000 ¹	N	%	Rate per 100,000 ¹
White, non-Hispanic	28	54.9	1.0	24	18.5	0.9
Black, non-Hispanic	7	13.7	3.3	51	39.2	24.9
Asian, non-Hispanic	1	2.0	--	3	2.3	--
Hispanic	11	21.6	3.8	43	33.1	14.6
Other/mixed ²	4	7.8	--	9	6.9	--
Total	51	100.0	1.5	130	100.0	4.1

- Black, non-Hispanics had the highest homicide rate for males (24.9/100,000). Hispanic females (3.8/100,000) and Black, non-Hispanic females (3.3/100,000) had the highest rates for females.
- For males ages 15-24, Black, non-Hispanics had the highest rate (62.7/100,000) followed by Hispanics (30.7/100,000). White, non-Hispanic males ages 15-24 had a rate of 1.7/100,000.

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.

DEMOGRAPHICS OF HOMICIDE VICTIMS



- Homicide rates for males were higher than rates for females for married and never married status. Rates were similar between males and 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 (10.5/100,000, N=103).
- Among females, homicide rates were highest among those who were never married and divorced (2.7/100,000, N=25 and 2.7/100,000, N=8 respectively).

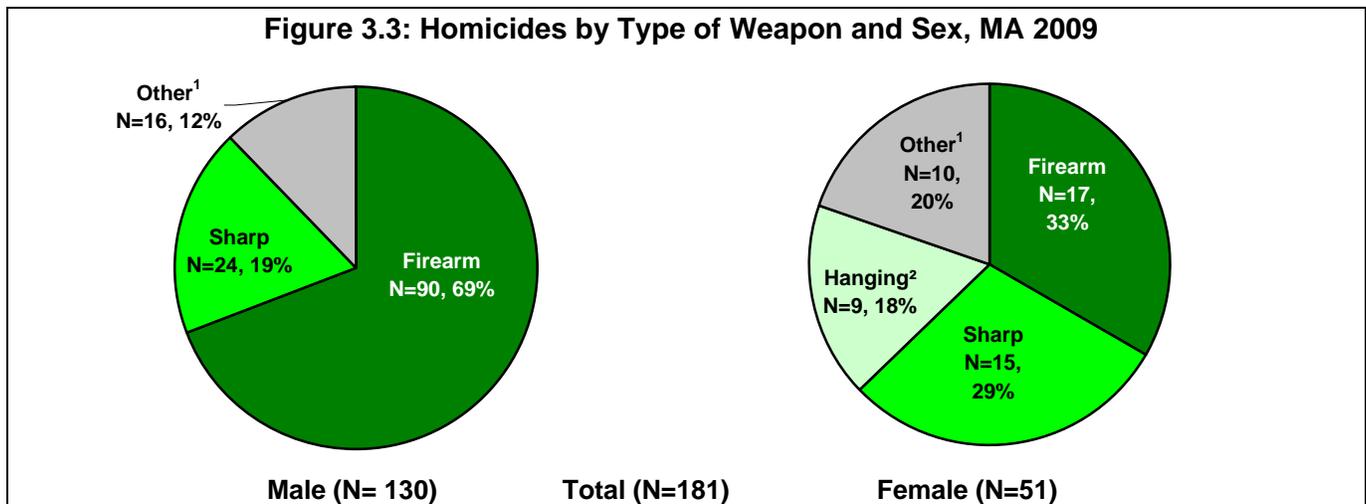
Table 3.3: Homicides (Ages 25+) by Level of Education and Sex: Number, Percent, and Total Rate, MA 2009							
Years of Education	Female		Male		Total		
	N	%	N	%	N	%	Rate per 100,000 ¹
0-8	3	9.4	5	6.5	8	7.3	3.6
9-11	5	15.6	10	13.0	15	13.8	7.0
12	14	43.8	49	63.6	63	57.8	5.0
13-16	8	25.0	11	14.3	19	17.4	0.9
17+	1	3.1	0	0.0	1	0.9	--
Unknown	1	3.1	2	2.6	3	2.8	--
Total	32	100.0	77	100.0	109	100.0	2.5

- Victims ages 25 and older with 9-11 years of education had the highest homicide rate (7.0 /100,000).
- The majority of homicide victims 25 years and older (79%) 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.

² There was one male victim whose marital status was single (not otherwise specified) and this case was not included in any of the marital status categories but is included in the total numbers.

METHODS OF HOMICIDES



- 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 59% of total homicides (N=107), followed by sharp instruments, such as knives (22%, N=39).
- Firearms were the most commonly used weapon for male homicide deaths, and accounted for 69% of male homicides (N=90), followed by sharp instruments (19%, N=24).
- Among females, firearms were the most commonly used weapons and accounted for 33% (N=17) of female homicides, followed by sharp instruments which accounted for 29% (N=15) of female homicides.
- 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 first weapon type was selected for the analysis in this report.
 - three victims died from a firearm combined with a sharp instrument.
 - two victims died from fire/burn combined with poisoning.
 - one victim died from a sharp instrument combined with a blunt instrument.
 - one victim died from a combination of a blunt instrument and personal weapons (hands, feet).
 - one victim died from drowning combined with firearm.
 - one victim died from poisoning combined with an unknown weapon type.
 - one victim died from a combination of a sharp instrument, fire/burn, and poisoning.
 - one victim died from a combination of a blunt instrument, hanging/suffocation/strangulation, and a sharp instrument.

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 instrument, fire/burn, hanging/strangulation/suffocation, drowning. Other weapons for females include: personal weapons which are from bodily assaults (such as hands and feet), blunt instrument, poisoning, motor vehicle, and shaking. 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 2009

Weapon	Age Group										Total	
	0-14		15-24		25-44		45-64		65+			
	N	%	N	%	N	%	N	%	N	%	N	%
Firearm	0	0.0	50	75.8	47	63.5	6	27.3	4	30.8	107	59.1
Sharp	2	33.3	11	16.7	16	21.6	6	27.3	4	30.8	39	21.5
Other ¹	4	66.7	5	7.6	11	14.9	10	45.5	5	38.5	35	19.3
Total	6	100.0	66	100.0	74	100.0	22	100.0	13	100.0	181	100.0

- Firearms were the most common weapon of homicides for the age groups of 15-24 years old (76%) and 25-44 year olds (64%). Firearms and sharps were the most common methods among 45-64 year olds (27%) and persons 65 and over (31%).
- Weapons in the “other” category include blunt instruments, drowning, fire/burns, hanging/suffocation/strangulation, motor vehicle, personal weapons (hands, feet), poisoning, and shaking.

Table 3.5: Type of Firearm Used in Homicides: Number and Percent, MA 2009

	N
Firearms Used In Homicides	113
Firearms with known firearm type	83
Firearms with unknown firearm type	30
Firearms with known firearm type	83
Handgun	73
<i>Semi-automatic pistol</i>	48
<i>Revolver</i>	10
<i>Other/Unknown handgun type</i>	15
Rifle/Shotgun	10

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 113 firearms associated with 110 firearm homicide incidents, 75 incidents (71%) had information about the type of firearm used.
- Handguns were the most common type of firearm used in homicides. Handguns made up 88% of the known firearm types used in firearm-related homicides. Sixty-six percent of these handguns were semi-automatic pistols, 14% were revolvers, and 21% were an other/unknown type of handgun.
- Rifles and shotguns made up 12% of firearms with known firearm type.

¹ “Other” weapon includes personal weapons (which are from bodily assaults, such as hands and feet), hanging (such as strangulation), fire/burns, falls, neglect, and other weapons. See Appendix A for a complete list of weapon variables.

LOCALITY OF HOMICIDES

Table 3.6: Homicides by County of Injury: Number, Percent, and Rate, MA 2009			
County	N	Percent¹	Rate per 100,000²
Population: 1,000,000+			
Middlesex	21	12.4	1.4
Population: 500,000 – 1,000,000			
Suffolk	46	27.1	6.1
Bristol	17	10.0	3.1
Essex	19	11.2	2.6
Worcester	16	9.4	2.0
Norfolk	7	4.1	1.1
Population: 100,000 – 500,000			
Hampden	22	12.9	4.7
Plymouth	14	8.2	2.8
Barnstable	3	1.8	--
Berkshire	2	1.2	--
Hampshire	2	1.2	--
Population: <100,000			
Nantucket	1	0.6	--
Dukes	0	0.0	0.0
Franklin	0	0.0	0.0
Other			
Outside MA ¹	4	--	--
Unknown ¹	7	--	--
Total known MA county	170	100.0	--
Total	181	--	2.7

- Among all counties, Suffolk County had the highest homicide number and rate (N=46, 6.1/100,000) and accounted for 27% of deaths, followed by Hampden County (N=22, 4.7/100,000) 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=46, 6.1/100,000). While 53% of the Massachusetts population lives in these 5 counties (Suffolk, Essex, Bristol, Worcester, and Norfolk), 62% 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 (N=22, 4.7/100,000).

¹ Percent is based on known Massachusetts county of injury (N=170). 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 2009

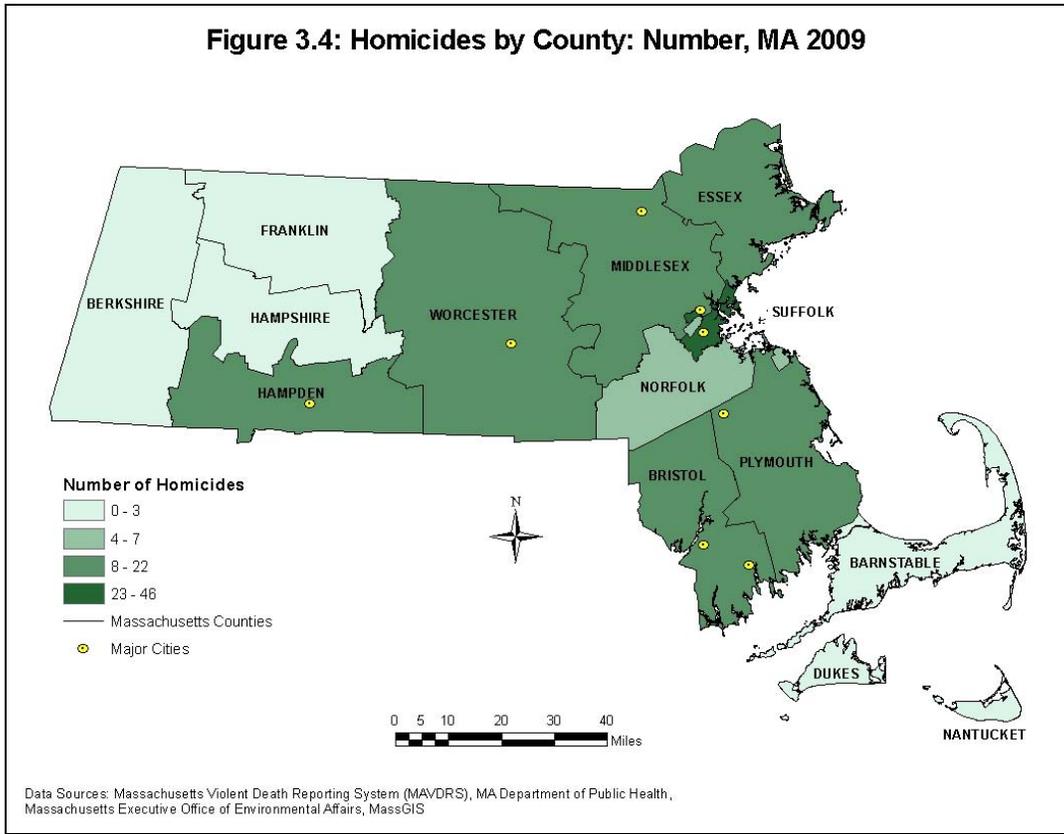
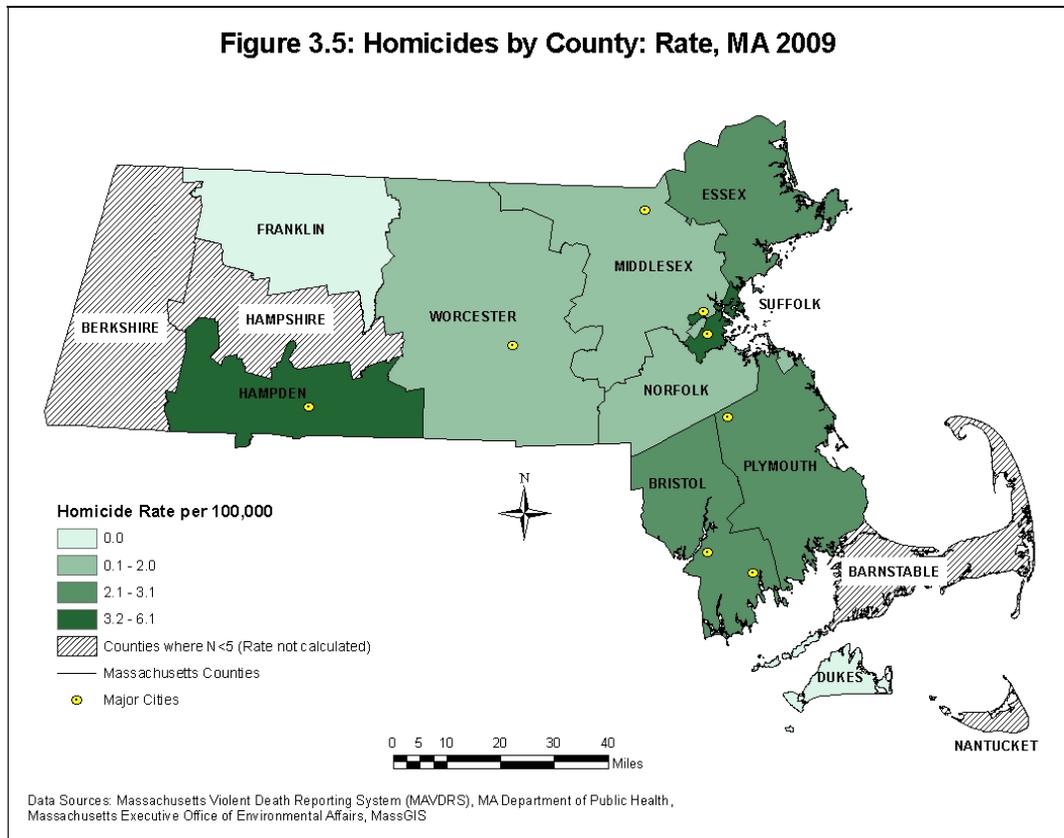


Figure 3.5: Homicides by County: Rate, MA 2009



LOCALITY OF HOMICIDES

Table 3.7: Homicides by City/Town: Number, Percent, and Rate, MA 2009			
	N	Percent¹	Rate per 100,000²
Group 1: Cities/Towns over 175,000 population:			
Boston	46	27.2	7.1
Worcester	6	3.6	3.3
Total Group 1	52	30.8	6.3
Group 2: Cities/Towns 75,000-175,000 population:			
Brockton	11	6.5	11.8
Springfield	17	10.1	10.9
New Bedford	7	4.1	7.7
Lynn	5	3.0	5.7
Lowell	5	3.0	4.8
Cambridge	3	1.8	--
Somerville	3	1.8	--
Quincy	2	1.2	--
Fall River	1	0.6	--
Newton	1	0.6	--
Total Group 2	55	32.5	5.6
Group 3: Cities/Towns 50,000-75,000 population:			
Lawrence	9	5.3	12.8
Framingham	2	1.2	--
Taunton	2	1.2	--
Waltham	2	1.2	--
Haverhill	1	0.6	--
Malden	1	0.6	--
Peabody	1	0.6	--
Weymouth	1	0.6	--
Brookline	0	0.0	0.0
Chicopee	0	0.0	0.0
Medford	0	0.0	0.0
Plymouth	0	0.0	0.0
Revere	0	0.0	0.0
Total Group 3	19	11.2	2.5
Group 4: Cities/Towns with < 50,000 population			
Fitchburg	5	3.0	11.9
Total Group 4	43	25.4	1.1
Other			
Outside MA	4	--	--
Unknown State/City	8	--	--
Total known MA city	169	100.0	--
Total Homicides	181	--	2.7

- Boston had the highest number of homicides (N=46) and Lawrence had highest rate (12.8/100,000, N=9). Brockton (11.8/100,000, N=11) and Fitchburg (11.9/100,000, N=5) had second highest rate of homicide. These four cities (N=71) account for 42% 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=169). 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 2009		
Location of injury	N	Percent¹
Buildings and surroundings:		
House, apartment, including driveway, porch, yard	84	48.0
Transportation utilities:		
Street/road, sidewalk, alley	41	23.4
Motor vehicle (excluding school bus and public transportation)	15	8.6
Parking lot/public parking garage	7	4.0
Retail and entertainment:		
Bar, nightclub, liquor store, and other commercial establishment	9	5.1
Other:		
Sports/athletic area, park/public use area, and natural area	6	3.4
Other	13	7.4
Total Known Place of Homicide	175	100.0
Unknown	6	--
Total Homicides	181	--

Of the 175 homicides where location of injury information was reported:

- Forty-eight percent of homicides occurred in a residence (N=84).
- Twenty-three percent of homicides occurred on a street, sidewalk, or alley (N=41).
- Approximately 9% of homicides occurred in a motor vehicle (N=15).
- Five percent of homicides occurred in a bar, nightclub or other commercial establishment (N=9).

¹ Percentages are based on the total number of cases for which location was known (N=175).

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=181). See Appendix A for more information on circumstances.

Table 3.9 : Circumstances of Homicide: Number and Percent, MA 2009¹		
	N	%
Total number of homicides	181	100.0
Total number of victims with reported circumstances	157	86.7
Argument/abuse/conflict ²	52	28.7
Precipitated by another crime	43	23.8
<i>Precipitating crime was in progress at time of homicide</i>	34	18.8
Intimate partner violence related	26	14.4
Drug involvement	26	14.4
Gang rivalry or gang activities suspected to have played role in precipitating the homicide	23	12.7
Jealousy	11	6.1
Victim was a bystander	7	3.9
The victim used a weapon during the course of the incident	6	3.3

Of the 181 homicides:

- Twenty-nine percent 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 drug trade (N=12), assault (N=10), robbery (N=7) and burglary (N=6).
- 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).
- Thirteen percent were noted to be related to gang activity.

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, drug-related, or argument over money/property/drugs.

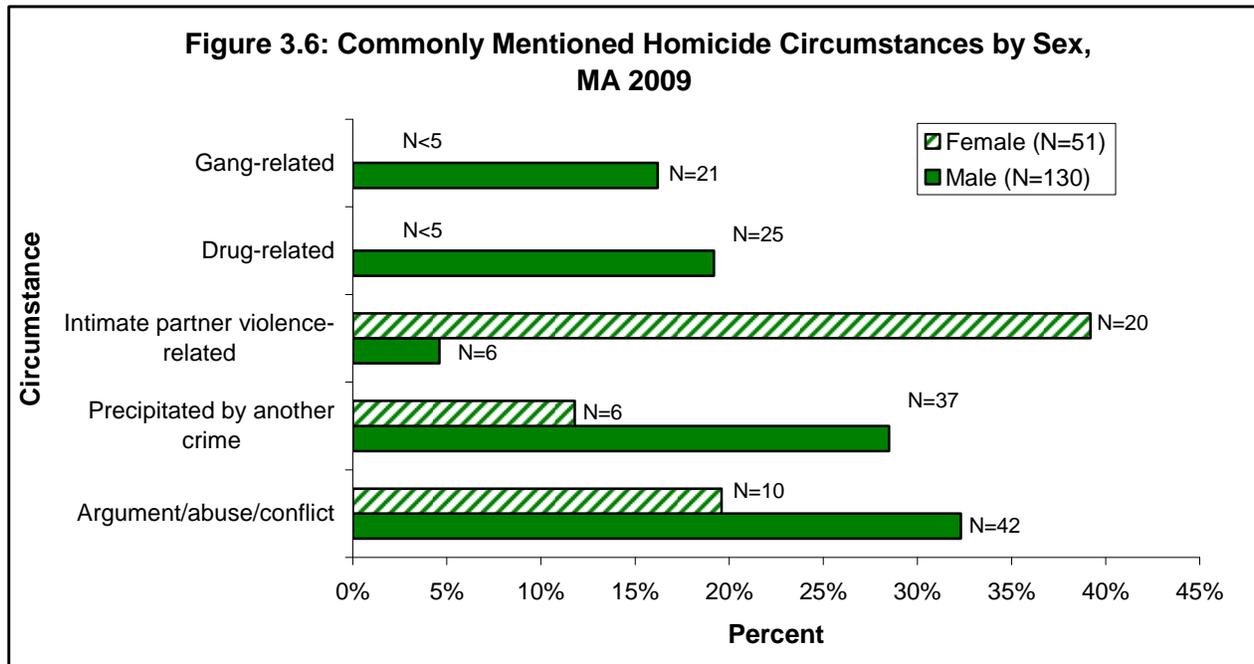
HOMICIDE CIRCUMSTANCES

Table 3.10: Homicide Circumstances by Age Group: Number and Percent, MA 2009		
	N	%
Age 15 to 24		
Total number of victims	66	--
Argument/abuse/conflict ¹	19	28.8
Gang-related	16	24.2
Precipitated by another crime	14	21.2
<i>Precipitating crime was in progress at time of homicide</i>	10	15.2
Drug-related	10	15.2
Age 25 to 44		
Total number of victims	74	--
Argument/abuse/conflict ¹	22	29.7
Precipitated by another crime	18	24.3
<i>Precipitating crime was in progress at time of homicide</i>	16	21.6
Intimate partner violence-related	13	17.6
Drug-related	15	20.3
Gang-related	6	8.1
Age 45 to 64		
Total number of victims	22	--
Precipitated by another crime	8	36.4
<i>Precipitating crime was in progress at time of homicide</i>	7	31.8
Intimate partner violence-related	5	22.7

- Of the 181 homicide victims, circumstance information was known for 157 victims of homicide (87%). There were six victims in the 0-14 age group and 13 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 argument/abuse/conflict (N= 19, 29%), followed by gang-related (N=16, 24%).
- Among victims ages 25-44 argument/abuse/conflict (N=22, 30%) was the most often noted circumstance, followed by precipitated by another crime (N= 18, 24%).
- Among victims ages 45-64 precipitated by another crime (N= 8, 36%) was the most often noted circumstance.

¹ "Argument/abuse/conflict" excludes those circumstances that can be counted in intimate partner-related, gang-related, drug-related, or argument over money/property/drugs.

HOMICIDE CIRCUMSTANCES



- There were 130 male (72%) and 51 female homicide victims (28%) for a total of 181 homicides.
- Of the total number of homicides (N=181), at least one circumstance was known for 87% of males (N=113) and 86% of females (N=44).
- The most frequently noted circumstance for males was argument/abuse/conflict (N=42, 32%).
- For females, the most frequently noted circumstance was intimate partner violence-related (N=20, 39%).

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.

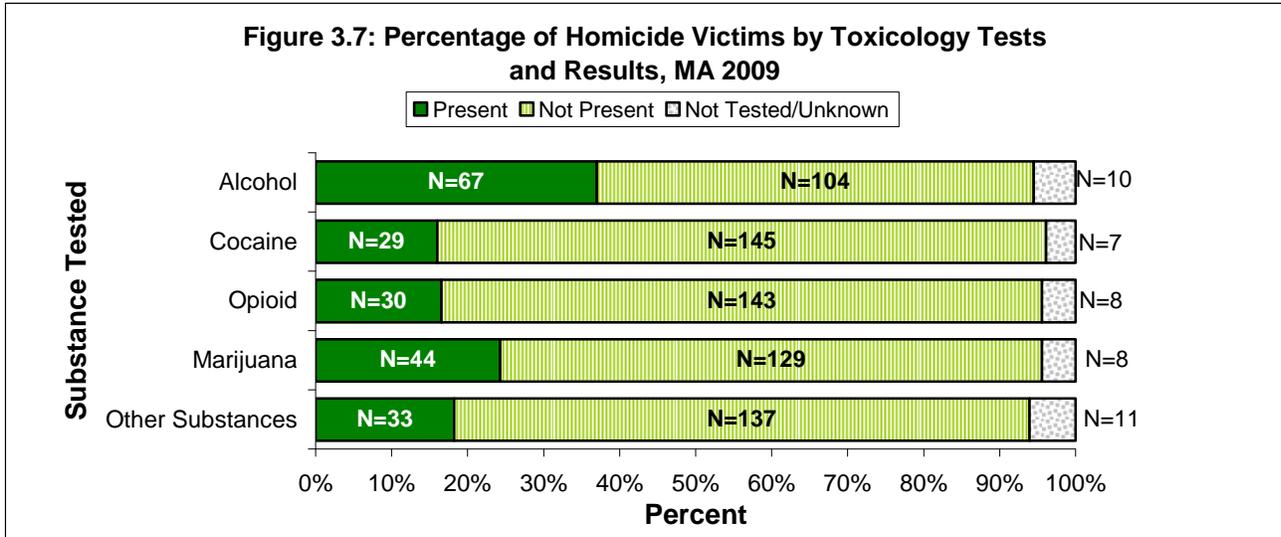
**Table 3.11: Suspects of Homicides:
Number and Percent, MA 2009**

	N	Percent
Total Homicide Victims	181	100.0
With suspect information	140	77.3
With no suspect information	41	22.7
Suspect Demographics		
Sex	N	Percent
Total suspects	170	100.0
Male	157	92.4
Female	7	4.1
Unknown Sex	6	3.5
Age Group		
Total suspects	170	100.0
Known Age	116	68.2
Unknown Age	54	31.8
Suspects with Known Age		
0-14	0	0.0
15-24	53	45.7
25-34	29	25.0
35-44	10	8.6
45-54	13	11.2
55 and over	11	9.5

- **Homicide victims:** Information on suspect(s) was known for 77% of homicide victims (N=140).
- **Homicide incidents:** Of the 130 incidents with suspect information, 83% had *only one* suspect associated with it (N=108). Twenty-two incidents had *more than one* suspect (17%).
- Among the 116 identified suspects with known age, most (46%) were between the ages of 15-24 years, followed by age group 25-34 (25%). These two age groups account for 71% of suspects with information on age.
- Most suspects were male (92%, N=157) and 4% were female (N=7). There were also six suspects whose gender was not known.

- There were 97 victims of homicides where the relationship between the victim to the primary suspect was known. In the majority of these cases (74%, N=72), 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:
 - 25% (N= 18) of suspects were a current or former intimate partner of the victim.
 - 19% (N=14) of suspects were a family member or caregiver of the victim.
 - 56% (N=40) of suspects were someone else known to the victim.

TOXICOLOGY OF HOMICIDE VICTIMS



- Among the 181 homicide victims, approximately .95% 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 90% of homicide victims were tested for alcohol, cocaine, marijuana, and/or opioids. 61% of homicide victims (N=104) 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-nine percent of victims tested for alcohol were positive for alcohol (N=67); 34% (N=23) of these had results of .04 or less, which may be due to decomposition rather than ingestion of alcohol. Approximately 25% (N=44) of victims who were tested for marijuana had positive results.¹ Seventeen percent of victims tested were positive for opioids (N=30) and 17% were positive for cocaine (N=29).
- Other substances include benzodiazepines, anti-psychotics, over-the-counter drugs, and carbon monoxide.

Table 3.12: Blood Alcohol Concentration of Homicide Victims that Tested Positive by Age Group: Number and Percent, MA 2009¹										
	Age Group								Total	
	< 21		21-44		45-64		65+			
BAC % ²	N	%	N	%	N	%	N	%	N	%
0.010 - 0.040 ³	<5	--	14	29.8	<5	--	<5	--	23	34.3
0.041 - 0.079	0	0.0	6	12.8	0	0.0	0	0.0	6	9.0
0.08 and over	5	62.5	26	55.3	5	62.5	<5	--	37	55.2
Unknown ⁴	0	0.0	<5	--	0	0.0	0	0.0	<5	--
Total	8	100.0	47	100.0	8	100.0	<5	--	67	100.0

- Approximately 94% of homicide victims (N=171) were tested for blood alcohol concentration (BAC) and 39% tested positive (N=67).
- Among all homicide victims where BAC tested positive, approximately 64% of victims had a BAC of 0.041 and over (N=43). 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 2009:¹

- Deaths of undetermined intent claimed an average of about two lives per week in 2009 (N=104).
- The rate of undetermined intent deaths for males (2.1/100,000) was approximately two times higher than the rate for females (1.1/100,000).
- Forty-nine percent of deaths of undetermined intent (N=51) were the result of poisonings/drug overdoses.

Compared to the U.S.:

- In 2009, Massachusetts had a slightly lower age-adjusted rate (1.5/100,000) 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 2009 were the same in the U.S. and in Massachusetts (2.0/100,000).
- The age-adjusted rate for deaths of undetermined intent for females in 2009 was 1.2/100,000 in the U.S. and 1.0/100,000 in Massachusetts.

DEMOGRAPHICS OF DEATHS OF UNDETERMINED INTENT VICTIMS

Table 4.1: Deaths of Undetermined Intent by Demographics: Number, Percent, and Rate, MA 2009			
	N	Percent	Rate per 100,000¹
Sex			
Male	67	64.4	2.1
Female	37	35.6	1.1
Race/Ethnicity			
White, non-Hispanic	80	76.9	1.5
Black, non-Hispanic	7	6.7	1.7
Asian, non-Hispanic	2	1.9	--
Hispanic	15	14.4	2.6
Other/mixed ²	0	0.0	--
Age Group			
0-14	7	6.7	0.6
15-24	8	7.7	0.9
25-34	11	10.6	1.3
35-44	21	20.2	2.3
45-54	25	24.0	2.4
55-64	15	14.4	1.9
65-74	10	9.6	2.2
75-84	3	2.9	--
85+	4	3.8	--
Total	104	100.0	1.6

ADDITIONAL FINDINGS FOR 2009:

- The youngest undetermined intent victim was less than a day old and the oldest was 93 years old.
- The mean age for undetermined intent victims was 45.9 years and the median age was 47.0 years old.
- There were six homeless persons whose death was of undetermined intent.
- Three victims of undetermined intent died in custody, such as jail, state institution, or foster care.³
- There were two deaths of undetermined intent that occurred at work.
- Five war veterans⁴ deaths were of undetermined intent.

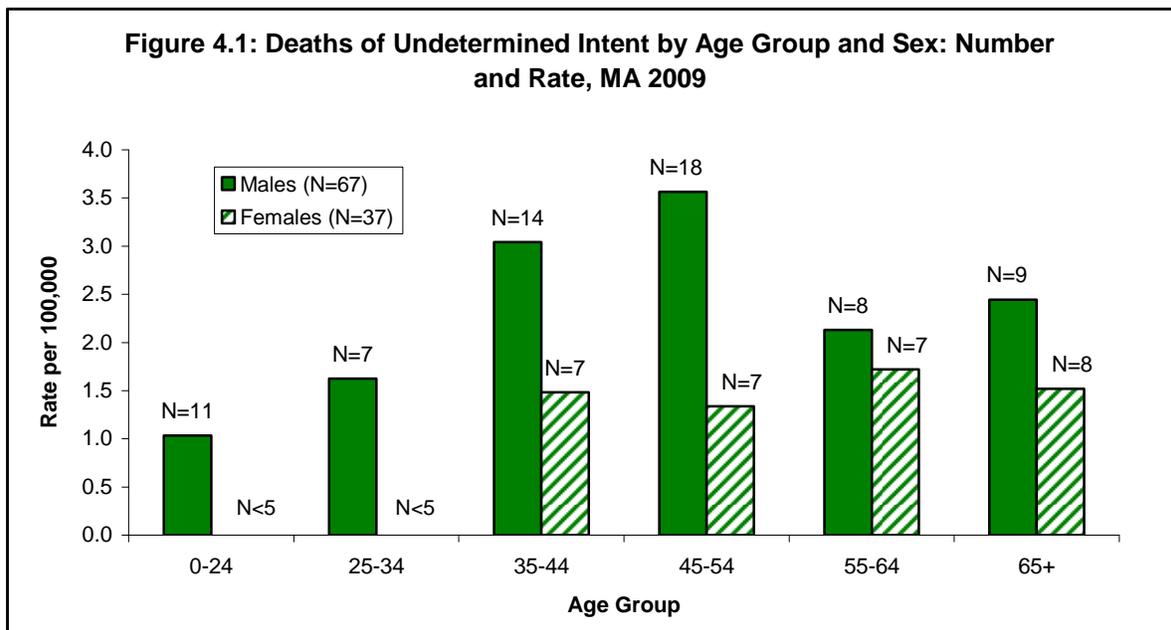
¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

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 VICTIMS¹

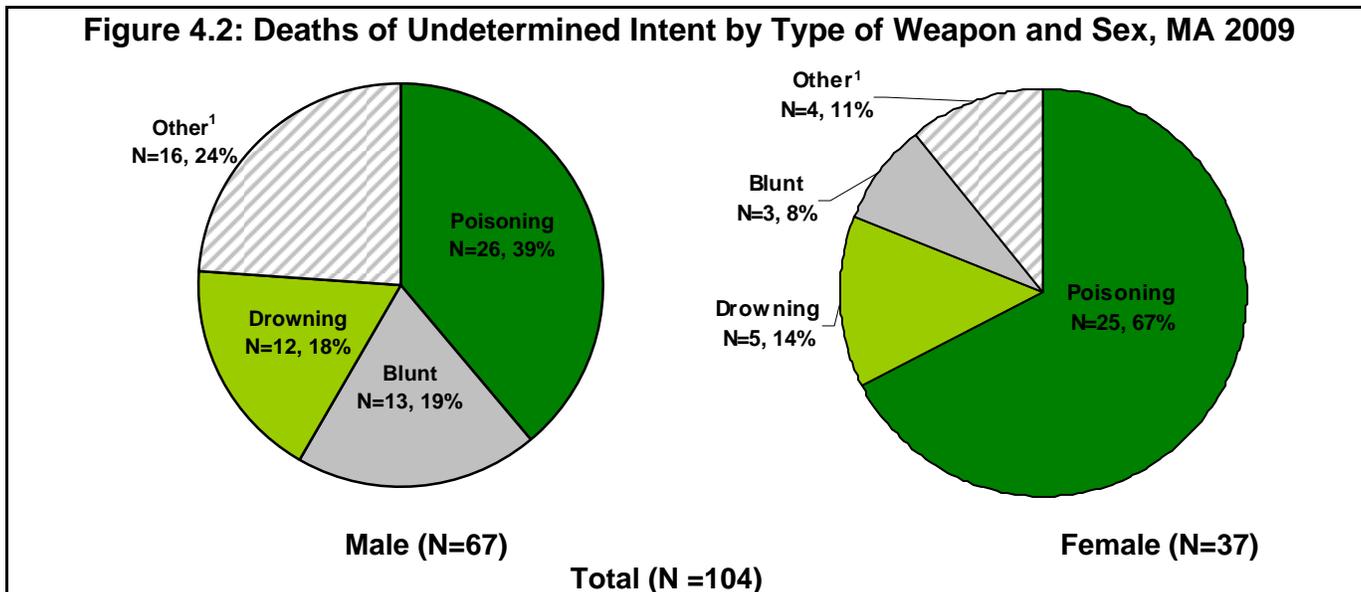


- For deaths of undetermined intent, approximately 60% of males were between the ages of 35 to 64. The male Massachusetts population is comprised of 42% males ages 35 to 64.
- For deaths of undetermined intent, approximately 57% of females were between the ages of 35 to 64. The female Massachusetts population is comprised of 41% females ages 35 to 64.
- Males ages 45-54 had the highest rate among males (3.6/100,000). Females ages 55-64, 35-44, and 65 and over had the highest rates among females (1.7/100,000, 1.5/100,000, 1.5/100,000 respectively).
- 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 two 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.

METHOD OF DEATHS OF UNDETERMINED INTENT

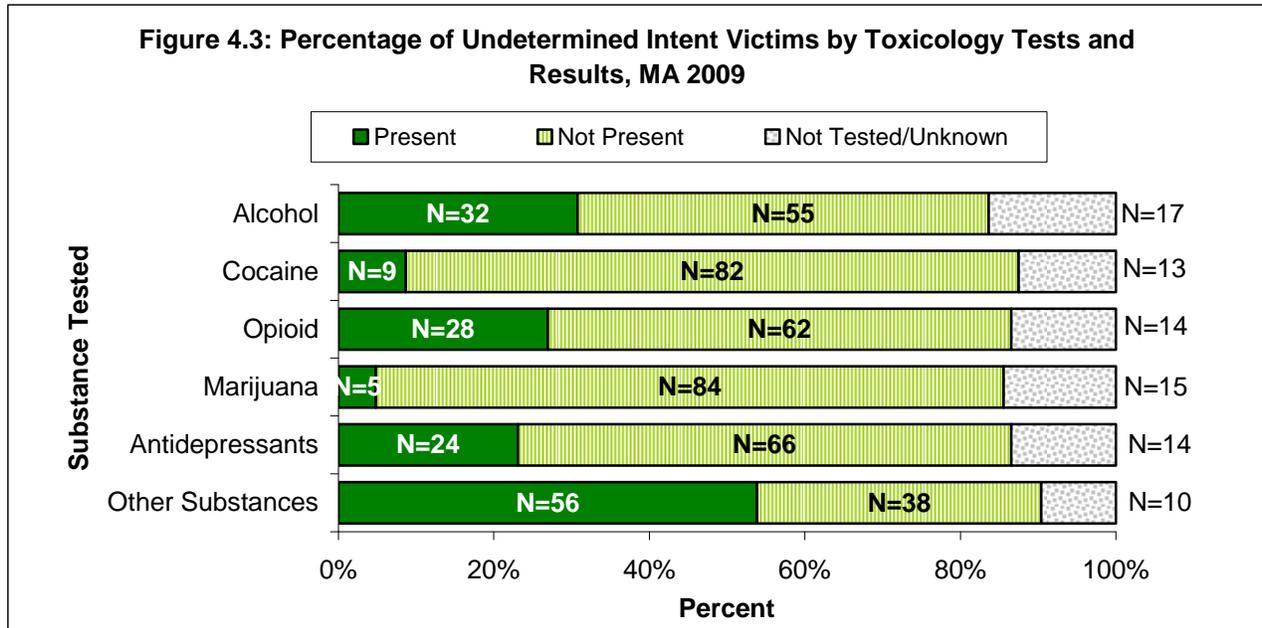
Figure 4.2: Deaths of Undetermined Intent by Type of Weapon and Sex, MA 2009



- 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 (49%) deaths of undetermined intent in Massachusetts in 2009 (N=51).
- The leading weapon type was poisoning/drug overdoses for both males (39%, N=26) and females (67%, N=25).
- Other leading weapon types for males and females included drowning and blunt instrument.
- Of the poisoning deaths, 43% of victims (N=22) ingested more than one poison/drug.
- Of the poisoning/drug overdose deaths (N=51):
 - 88% (N=45) were due to the ingestion of a street/recreation drug, alcohol, pharmaceutical prescription, or over-the-counter medication.
 - 8% (N=4) was due to carbon monoxide poisoning or other gas/vapor.
 - 4% (N=2) were due to the ingestion of another poison (such as antifreeze).

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 weapons

TOXICOLOGY OF DEATHS OF UNDETERMINED INTENT VICTIMS



- Of the 104 victims of undetermined intent deaths, 84% to 88% were tested for blood alcohol concentration, cocaine, opioids, marijuana, and/or antidepressants.
- Ninety percent (N=94) of victims were tested for other substances, such as benzodiazepines, anti-psychotics, over-the-counter drugs, and carbon monoxide. Of those, 60% (N= 56) tested positive for an additional substance.¹
- Almost twenty-seven percent (N=24) of victims tested were positive for antidepressants.
- Approximately 31% (N=28) 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
- Eighty-four percent (N=87) of undetermined intent victims were tested for blood alcohol concentration (BAC) and 37% (N=32) of those tested had a positive BAC.
- Seventy-eight percent (N=25) 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.

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. population

Annual Estimates of the Population for Counties of Massachusetts, 2009

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:

<u>Manner of Death</u>	<u>ICD-10 Code</u>	
	<u>Death < 1 Year after the injury</u>	<u>Death >1 year after the injury</u>
■ 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.

Technical Notes continued

Calculating Rates

In calculating rates for **race, Hispanic origin, sex, age group, and county**, 2009 population estimates were based on National Center for Health Statistics Postcensal estimates of the resident population of the United

States for July 1, 2000-July 1, 2009, by year, county, age, bridged race, Hispanic origin, and sex (Vintage 2009). Prepared under a collaborative arrangement with the U.S. Census Bureau; released November 3, 2011. Available from: http://www.cdc.gov/nchs/nvss/bridged_race/data_documentation.htm#vintage2009

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 2007-2009 3-Year Estimates found on the internet at:

http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_09_3YR_C15002&prodType=table And

http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_09_3YR_B12001&prodType=table

City/town rates are calculated using 2009 population estimates from the U.S. Census Bureau's Annual Estimates of the Resident Population for Minor Civil Divisions in Massachusetts, Listed Alphabetically Within County: April 1, 2000 to July 1, 2009 (SUB-EST2009-05-25) Source: Population Division, U.S. Census Bureau, Release Date: September 2010.

U.S. injury rates and U.S. population 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, 2009

Annual Estimates of the Population for Counties of Massachusetts, 2009 ¹		
County	2009 Population Estimate	Percent of population
Barnstable	221,151	3.4
Berkshire	129,288	2.0
Bristol	547,433	8.3
Dukes	15,974	0.2
Essex	742,582	11.3
Franklin	71,778	1.1
Hampden	471,081	7.1
Hampshire	156,044	2.4
Middlesex	1,505,006	22.8
Nantucket	11,322	0.2
Norfolk	666,303	10.1
Plymouth	498,344	7.6
Suffolk	753,580	11.4

¹ Annual Estimates of the Resident Population for Counties of Massachusetts: April 1, 2000 to July 1, 2009 (CO-EST2009-05-25) Population Division, U.S. Census Bureau, Release Date: September 2010

Worcester	803,701	12.2
Total	6,593,587	100.0

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

Suicide/Undetermined Circumstances include the following:

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

Unintentional Firearm Circumstances include the following:

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

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

Appendix B: Age-adjusted Rates

Violent Deaths

- Table 1: Violent Deaths by Intent and Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009
- Table 2: Violent Deaths by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009
- Table 3: Violent Deaths by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009

Suicides

- Table 4: Suicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009
- Table 5: Suicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009
- Table 6: Suicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009

Homicides

- Table 7: Homicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009
- Table 8: Homicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009
- Table 9: Homicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009

Deaths of Undetermined Intent

- Table 10: Deaths of Undetermined Intent by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009
- Table 11: Deaths of Undetermined Intent by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009
- Table 12: Deaths of Undetermined Intent by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009

VIOLENT DEATH AGE-ADJUSTED RATES

Table 1. Violent Deaths by Intent and Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009¹				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
Intent				
Suicide	538	65.1	8.2	7.8 (7.1, 8.4)
Homicide	181	21.9	2.7	2.8 (2.4, 3.2)
Undetermined	104	12.6	1.6	1.5 (1.2, 1.8)
Unintentional firearm	0	0.0	0.0	0.0
Legal Intervention	4	0.5	--	--
Sex				
Male	628	75.9	19.6	19.0 (17.5, 20.5)
Female	199	24.1	5.9	5.6 (4.8, 6.4)
Race/Ethnicity				
White, non-Hispanic	614	74.21	11.7	11.0 (10.1, 11.8)
Black, non-Hispanic	84	10.2	20.1	19.1 (14.9, 23.3)
Asian, non-Hispanic	23	2.8	6.7	7.3 (4.2, 10.5)
Hispanic	90	10.9	15.4	15.2 (11.6, 18.8)
Other/mixed ²	16	1.9	--	--
Age Group				
0-14	15	1.8	1.3	NA
15-24	132	16.0	14.3	NA
25-34	117	14.1	13.7	NA
35-44	164	19.8	17.6	NA
45-54	207	25.0	20.1	NA
55-64	97	11.7	12.4	NA
65-74	48	5.8	10.7	NA
75-84	33	4.0	10.9	NA
85+	13	1.6	9.2	NA
Unknown	1	0.1	--	NA
Total	827	100.0	12.5	12.1 (11.3, 12.9)

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.

VIOLENT DEATH AGE-ADJUSTED RATES

Table 2. Violent Deaths by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009¹

Female	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	159	79.9	5.9	5.4 (4.5, 6.3)
Black, non-Hispanic	12	6.0	5.6	5.4 (2.3, 8.6)
Asian, non-Hispanic	6	3.0	3.4	3.3 (0.6, 5.9)
Hispanic	18	9.0	6.2	5.6 (3.0, 8.3)
Other/mixed ²	4	2.0	--	--
Total	199	100.0	5.9	5.6 (4.8, 6.4)
Male	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
White, non-Hispanic	455	72.5	17.9	16.9 (15.3, 18.4)
Black, non-Hispanic	72	11.5	35.2	33.4 (25.4, 41.5)
Asian, non-Hispanic	17	2.7	10.1	11.8 (5.7, 17.8)
Hispanic	72	11.5	24.4	25.4 (18.0, 32.8)
Other/mixed ²	12	1.9	--	--
Total	628	100.0	19.6	19.0 (17.5, 20.5)

Table 3. Violent Deaths by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009

County	N	Percent ³	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
Barnstable	35	4.5	15.8	16.0 (10.3, 21.6)
Berkshire	15	1.9	11.6	10.6 (5.0, 16.2)
Bristol	87	11.2	15.9	15.7 (12.4, 19.1)
Dukes	2	0.3	--	--
Essex	77	9.9	10.4	10.0 (7.7, 12.3)
Franklin	6	0.8	8.4	7.9 (1.3, 14.5)
Hampden	78	10.1	16.6	17.0 (13.2, 20.9)
Hampshire	24	3.1	15.4	16.7 (9.7, 23.7)
Middlesex	137	17.7	9.0	8.5 (7.1, 10.0)
Nantucket	4	0.5	--	--
Norfolk	53	6.8	8.0	7.9 (5.8, 10.1)
Plymouth	65	8.4	13.0	13.0 (9.8, 16.2)
Suffolk	106	13.7	14.1	13.7 (11.0, 16.3)
Worcester	85	11.0	10.6	10.0 (7.8, 12.2)
Unknown/Outside MA ⁴	53	--	--	--
Total known MA county	774	100.0	--	--
Total	827	--	12.5	12.1 (11.3, 12.9)

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=774); total rate is based on total violent deaths (N=827).

⁴ Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

SUICIDE AGE-ADJUSTED RATES

Table 4. Suicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009¹				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	427	79.4	13.3	12.8 (11.6, 14.0)
Female	111	20.6	3.3	3.1 (2.5, 3.7)
Race/Ethnicity				
White, non-Hispanic	479	89.0	9.2	8.5 (7.7, 9.3)
Black, non-Hispanic	18	3.3	4.3	4.5 (2.4, 6.7)
Asian, non-Hispanic	17	3.2	4.9	5.4 (2.7, 8.2)
Hispanic	21	3.9	3.6	4.3 (2.1, 6.5)
Other/mixed ²	3	0.6	--	--
Age Group				
0-14	2	0.4	--	NA
15-24	56	10.4	6.1	NA
25-34	59	11.0	6.9	NA
35-44	114	21.2	12.2	NA
45-54	165	30.7	16.1	NA
55-64	77	14.3	9.8	NA
65-74	30	5.6	6.7	NA
75-84	27	5.0	8.9	NA
85+	7	1.3	4.9	NA
Unknown	1	0.2	--	NA
Total	538	100.0	8.2	7.8 (7.1, 8.4)

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.

SUICIDE AGE-ADJUSTED RATES

Table 5. Suicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009¹				
Female	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	101	91.0	3.7	3.5 (2.8, 4.1)
Black, non-Hispanic	2	1.8	--	--
Asian, non-Hispanic	5	4.5	2.8	2.7 (0.3, 5.0)
Hispanic	3	2.7	--	--
Other/mixed ²	0	0.0	0.0	0.0
Total	111	100.0	3.3	3.1 (2.5, 3.7)
Male	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	378	88.5	14.9	13.9 (12.5, 15.3)
Black, non-Hispanic	16	3.7	7.8	8.5 (4.1, 13.0)
Asian, non-Hispanic	12	2.8	7.2	6.0 (1.5, 10.5)
Hispanic	18	4.2	6.1	6.7 (2.8, 10.6)
Other/mixed ²	3	0.7	--	--
Total	427	100.0	13.3	12.8 (11.6, 14.0)

Table 6. Suicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009				
County	N	Percent³	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
Barnstable	30	5.7	13.6	13.3 (8.4, 18.3)
Berkshire	12	2.3	9.3	8.2 (3.4, 12.9)
Bristol	62	11.8	11.3	10.9 (8.2, 13.7)
Dukes	1	0.2	--	--
Essex	53	10.1	7.1	6.7 (4.8, 8.5)
Franklin	5	1.0	7.0	6.1 (0.6, 11.7)
Hampden	48	9.1	10.2	10.1 (7.2, 13.0)
Hampshire	18	3.4	11.5	12.6 (6.5, 18.7)
Middlesex	98	18.7	6.5	6.1 (4.9, 7.3)
Nantucket	3	0.6	--	--
Norfolk	41	7.8	6.2	6.0 (4.2, 7.9)
Plymouth	46	8.8	9.2	9.0 (6.3, 11.7)
Suffolk	50	9.5	6.6	6.8 (4.9, 8.7)
Worcester	58	11.0	7.2	6.6 (4.9, 8.3)
Unknown/Outside MA ⁴	13	--	--	--
Total known MA county	525	100.0	--	--
Total	538	--	8.2	7.8 (7.1, 8.4)

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 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.

HOMICIDE AGE-ADJUSTED RATES

Table 7. Homicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009¹				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	130	71.8	4.1	4.0 (3.3, 4.7)
Female	51	28.2	1.5	1.5 (1.1, 1.9)
Race/Ethnicity				
White, non-Hispanic	52	28.7	1.0	1.0 (0.7, 1.2)
Black, non-Hispanic	58	32.0	13.9	12.4 (9.1, 15.6)
Asian, non-Hispanic	4	2.2	--	--
Hispanic	54	29.8	9.3	7.9 (5.7, 10.1)
Other/mixed ²	13	7.2	--	--
Age Group				
0-14	6	3.3	0.5	NA
15-24	66	36.5	7.1	NA
25-34	46	25.4	5.4	NA
35-44	28	15.5	3.0	NA
45-54	17	9.4	1.7	NA
55-64	5	2.8	0.6	NA
65-74	8	4.4	1.8	NA
75-84	3	1.7	--	NA
85+	2	1.1	--	NA
Total	181	100.0	2.7	2.8 (2.4, 3.2)

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.

HOMICIDE AGE-ADJUSTED RATES

Table 8. Homicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009¹				
Female	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	28	54.9	1.0	1.0 (0.6, 1.3)
Black, non-Hispanic	7	13.7	3.3	2.9 (0.7, 5.1)
Asian, non-Hispanic	1	2.0	--	--
Hispanic	11	21.6	3.8	3.3 (1.3, 5.2)
Other/mixed ²	4	7.8	--	--
Total	51	100.0	1.5	1.5(1.1, 1.9)
Male	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	24	18.5	0.9	0.9 (0.6, 1.3)
Black, non-Hispanic	51	39.2	24.9	21.9 (15.8, 28.0)
Asian, non-Hispanic	3	2.3	--	--
Hispanic	43	33.1	14.6	12.2 (8.3,16.2)
Other/mixed ²	9	6.9	--	--
Total	130	100.0	4.1	4.0 (3.3, 4.7)

Table 9. Homicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009¹				
County	N	Percent³	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
Barnstable	3	1.8	--	--
Berkshire	2	1.2	--	--
Bristol	17	10.0	3.1	3.1 (1.6, 4.7)
Dukes	0	0.0	0.0	0.0
Essex	19	11.2	2.6	2.8 (1.5, 4.0)
Franklin	0	0.0	0.0	0.0
Hampden	22	12.9	4.7	5.0 (2.9, 7.1)
Hampshire	2	1.2	--	--
Middlesex	21	12.4	1.4	1.3 (0.8, 1.9)
Nantucket	1	0.6	--	--
Norfolk	7	4.1	1.1	1.1 (0.3, 1.9)
Plymouth	14	8.2	2.8	3.0 (1.4, 4.6)
Suffolk	46	27.1	6.1	5.6 (3.9, 7.3)
Worcester	16	9.4	2.0	2.2 (1.1, 3.3)
Unknown/Outside MA ⁴	11	--	--	--
Total known MA county	170	100.0	--	--
Total	181	--	2.7	2.8 (2.4, 3.2)

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=170), total rate is based on total number of homicides (N=181).

⁴ Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

DEATHS OF UNDETERMINED INTENT AGE-ADJUSTED RATES

Table 10. Deaths of Undetermined Intent by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009¹				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	67	64.4	2.1	2.0 (1.5, 2.5)
Female	37	35.6	1.1	1.0 (0.7, 1.3)
Race/Ethnicity				
White, non-Hispanic	80	76.9	1.5	1.4 (1.1, 1.8)
Black, non-Hispanic	7	6.7	1.7	2.0 (0.5, 3.6)
Asian, non-Hispanic	2	1.9	--	--
Hispanic	15	14.4	2.6	3.1 (1.2, 4.9)
Other/mixed ²	0	0.0	--	--
Age Group				
0-14	7	6.7	0.6	NA
15-24	8	7.7	0.9	NA
25-34	11	10.6	1.3	NA
35-44	21	20.2	2.3	NA
45-54	25	24.0	2.4	NA
55-64	15	14.4	1.9	NA
65-74	10	9.6	2.2	NA
75-84	3	2.9	--	NA
85+	4	3.8	--	NA
Total	104	100.0	1.6	1.5 (1.2, 1.8)

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.

DEATHS OF UNDETERMINED INTENT AGE-ADJUSTED RATES

Table 11. Deaths of Undetermined Intent by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009¹				
Female	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	30	81.0	1.1	1.0 (0.6, 1.4)
Black, non-Hispanic	3	8.1	--	--
Asian, non-Hispanic	0	0.0	0.0	0.0
Hispanic	4	10.8	--	--
Other/mixed ²	0	0.0	--	--
Total	37	100.0	1.1	1.0 (0.7, 1.3)
Male	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	50	74.6	2.0	1.9 (1.4, 2.4)
Black, non-Hispanic	4	6.0	--	--
Asian, non-Hispanic	2	3.0	--	--
Hispanic	11	16.4	3.7	4.9 (1.1, 8.6)
Other/mixed ²	0	0.0	--	--
Total	67	100.0	2.1	2.0 (1.5, 2.5)

Table 12. Deaths of Undetermined Intent by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2009¹				
County	N	Percent³	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
Barnstable	2	2.7	--	--
Berkshire	1	1.3	--	--
Bristol	7	9.3	1.3	1.4 (0.4, 2.5)
Dukes	1	1.3	--	--
Essex	5	6.7	0.7	0.6 (0.1, 1.1)
Franklin	0	0.0	0.0	0.0
Hampden	8	10.7	1.7	1.9 (0.6, 3.3)
Hampshire	4	5.3	--	--
Middlesex	18	24.0	1.2	1.1 (0.6, 1.6)
Nantucket	0	0.0	0.0	0.0
Norfolk	4	5.3	--	--
Plymouth	4	5.3	--	--
Suffolk	10	13.3	1.3	1.3 (0.5, 2.1)
Worcester	11	14.7	1.4	1.2 (0.5, 2.0)
Unknown/Outside MA ⁴	29	--	--	--
Total known MA county	75	100.0	--	--
Total	104	--	1.6	1.5 (1.2, 1.8)

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.



Violent Deaths in Massachusetts: Surveillance Update, 2009
Massachusetts Department of Public Health