Violent Deaths in Massachusetts: Surveillance Update 2008

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 2008

Deval L. Patrick, Governor
Timothy P. Murray, Lieutenant Governor

JudyAnn Bigby, Secretary, Executive Office of Health and Human Services
John Auerbach, Commissioner, Massachusetts Department of Public Health
Jerry O'Keefe, Bureau Director, Bureau of Health Information, Statistics, Research, and Evaluation
Victoria Ozonoff, Director, Injury Surveillance Program, Massachusetts Department of Public Health

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Injury Surveillance Program Staff:

Victoria Ozonoff, Principal Investigator
Kate Chamberlin, Research Analyst
Sheila Harris, Research Assistant
Beth Hume, Project Director
Loreta McKeown, Epidemiologist
Lauren Larochelle, Program Planner
Rebecca Cudmore, Research Assistant
Jeanne Hathaway, Epidemiologist
Laurie Jannelli, Project Coordinator
Bridget Nestor, Administrative Assistant

Data Providers:

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Boston Police Department: Robert Merner, Kevin Buckley, Gregory Long, Eileen Griffin, and Michael McDougall
MDPH, MassCHIP and technical consultant: Stephen Pankowicz

District Attorneys' Offices:

Berkshire County District Attorney David Capeless
Bristol County District Attorney Sam Sutter
Cape and Islands County District Attorney Michael O'Keefe
Essex County District Attorney Jonathan Blodgett
Hampden County District Attorney William Bennett
Middlesex County District Attorney Gerard Leone
Norfolk County District Attorney William Keating
Northwestern District County District Attorney Elizabeth Scheibel
Plymouth County District Attorney Timothy Cruz
Suffolk County District Attorney Dan Conley
Worcester County District Attorney Joe Early

To obtain additional copies of this report or previous years' reports, contact:

Massachusetts Department of Public Health
Injury Surveillance Program
250 Washington Street, 6th Floor
Boston, MA 02108
(617) 624-5664

To obtain more data on injuries to Massachusetts residents, contact Beth Hume at the Injury Surveillance Program at (617) 624-5648 or online at: http://www.mass.gov/dph/bhsre/isp.htm

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

MAVDRS Advisory Group Members

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

Cathy Barber	Harvard Injury Control Research Center
Daniel Bibel	Massachusetts State Police – Commonwealth Fusion Center
Jeb Booth	Salem State College Department of Criminal Justice
Kevin Buckley	Boston Police Department
Michael Coleman	Massachusetts State Police Crime Lab, Ballistics Section
Tish Davis	MDPH- Occupational Health Surveillance Program
Dan Dooley	Boston Public Health Commission
Barry Feldman	Massachusetts Coalition for Suicide Prevention
Sue Gallagher	Tufts University
Eileen Griffin	Boston Police Department
Holly Hackman	MDPH- Injury Prevention and Control Program
Brian Heaton	Massachusetts State Police Crime Lab
Alan Holmlund	MDPH- Suicide Prevention Program
Amanda Jenkins	UMASS Memorial Forensic Toxicology Laboratory
Lewis Howe	MDPH- Injury Prevention and Control Program
Roberta Hurtig	The Samaritans of Boston
Deb Kamen	Statewide Head Injury Program
Dave Kosegarten	Massachusetts College of Pharmacy and Health Sciences
Patrice Melvin	Institute for Community Health, Cambridge Health Alliance
Robert Merner	Boston Police Department
Angela Nannini	MDPH- Pregnancy and Mortality
Henry Nields	Office of the Chief Medical Examiner
Stan Nyberg	MDPH- Registry of Vital Records and Statistics
Jerry O'Keefe	MDPH- Bureau of Health Information, Statistics, Research, and Evaluation
Gary Pastva	Massachusetts Department of Mental Health
Carlene Pavlos	MDPH- Division of Violence Prevention
Jane Purtill	MDPH- Registry of Vital Records and Statistics
Diane Rosenbeck	Mass Rehab Commission/Statewide Head Injury Program
Becky Sarah	MDPH- Injury Prevention and Control Program
Bob Sege	Boston Medical Center
Kimberley Springer	Office of the Chief Medical Examiner
Karen Wells	Executive Office of Public Safety and Security
Jamie Wines	McLean Hospital/Harvard Medical School

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Executive Summary

Violent Deaths in Massachusetts, 2008
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 2008, there were 39 victims who died in Massachusetts that were residents of other states or countries. There were 14 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 33 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 2008, 767 violent deaths occurred in Massachusetts as a result of 757 separate incidents. Ninety-nine percent of incidents consisted of only one death (N=747). The remaining 10 incidents involved more than one violent death in multiple victim incidents (multiple homicides or suicides) or combined homicide/suicide incidents.

On average, 15 violent deaths a week occurred in the Commonwealth. The rate of violent death for all intents (suicide, homicide, undetermined, accidental firearm, and legal intervention) was 11.8/100,000. Suicides (N=503, 7.7/100,000) were almost three times more frequent than homicides (N=170, 2.6/100,000). The age groups with the highest violent death rate were ages 35-44 and 45-54 (18.1/100,000 and 18.7/100,000 respectively). Among race/ethnicity groups, Black, non-Hispanics had the highest rate overall (23.5/100,000) compared to the range of 5.4/100,000 to 11.3/100,000 for all other groups. Of the 767 violent deaths in 2008, 66% (N=503) were suicides, 22% (N=170) were homicides, and 11% (N=87) were deaths of undetermined intent.

Suicides
In 2008, there were 503 suicides or approximately ten suicides per week. The suicide rate for males (12.5/100,000) was almost 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 (13.9/100,000).

The most common suicide method was hanging/strangulation/suffocation which accounted for 44% (N=223) 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

Homicides

In 2008, there were 170 homicides or approximately 3.3 homicides per week. Youth, ages 15-24, had the highest homicide number (N=66) and rate (7.1/100,000), which was 2.7 times higher than the statewide rate of 2.6/100,000. The weapon used in approximately 58% (N=99) of homicides was firearms. There were 45 homicides that were precipitated by an argument, abuse, or conflict and 29 homicides where gang activity was suspected in precipitating the homicide.

Deaths of Undetermined Intent

In 2008, there were a total of 767 violent deaths, including 11% (N=87) that were deaths of undetermined intent. Of these 87 deaths, 47% (N=41) 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. This change caused the number of undetermined deaths in 2005 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 2008 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 2008, of the 767 violent deaths, 11% (N=87) were deaths of undetermined intent.

Legal Intervention Deaths

In 2008, there were six legal intervention deaths included in the Massachusetts Violent Death Reporting System.

Unintentional Firearm Deaths

Massachusetts had one unintentional firearm death in 2008 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, 2007* 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_07.pdf

Introduction

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

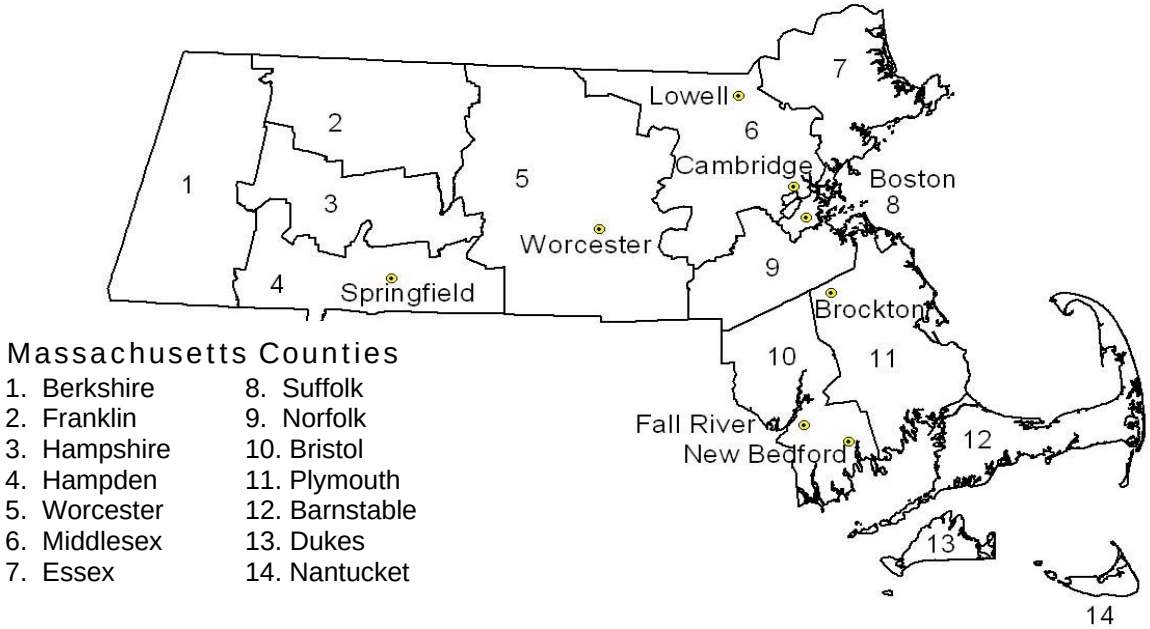
For each record, additional information is subsequently added from law enforcement and medical examiner sources. Law enforcement documents include police reports and ballistic reports from the Boston Police Department and the MA State Police Department. In addition, information from Supplemental Homicide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

Data Highlights for 2008:[1]

- Violent deaths claimed the lives of 15 victims a week on average, in Massachusetts in 2008 (N=767).
- Of the 767 violent deaths, 66% were suicides (N=503), 22% were homicides (N=170), and 11% (N=87) were deaths of undetermined intent.

Compared to 2007:

- The total number of violent deaths decreased by 4% from 2007 (N=802) to 2008 (N=767).
- The number of suicides remained relatively similar from 2007 to 2008 (N=513 in 2007 and N=503 in 2008).
- The number of homicides decreased by 7% from 2007 to 2008 (from N=182 in 2007 to N=170 in 2008).
- The number of undetermined deaths decreased 15% from 2007 (N=102) to 2008 (N=87).

Compared to the U.S.:[2]

- The Massachusetts age-adjusted rate for all violent deaths in 2008 (11.4/100,000) was lower than the U.S. age-adjusted rate for 2007 (19.5/100,000).
- The Massachusetts age-adjusted suicide rate in 2008 was 7.4/100,000 compared to 11.3/100,000 for the U.S. in 2007.
- The Massachusetts age-adjusted rate for homicide in 2008 was 2.6/100,000, half that of the U.S. age-adjusted rate of 6.1/100,000 for homicides in 2007.
- The Massachusetts age-adjusted rate for deaths of undetermined intent in 2008 was 1.3/100,000 and the U.S. age-adjusted rate was 1.8/100,000 in 2007.

[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 2008, the number of deaths of undetermined intent was 87, only 11% of the total. Comparatively, in 2004, the number of deaths of undetemined intent was 625, which was 50% of the total number of violent deaths.
[2] U.S. age-adjusted data for 2008 was not available when queried on 2/9/2011 for publication and use in this report, therefore 2007 U.S. numbers were used.

Table 1.1: Type of Incidents and Victims: Number and Percent, MA 2008				
	Incidents		Victims	
Intent	**N**	**%**	**N**	**%**
Suicides				
Single victim suicide	496	65.5	496	64.7
Homicides				
Single victim homicide	157	20.7	157	20.5
Multiple victim homicide	3	0.4	6	0.8
Undetermined intent deaths				
Single victim undetermined intent death	87	11.5	87	11.3
Unintentional firearm death				
Single victim unintentional firearm death	1	0.1	1	0.1
Legal intervention				
Single victim legal intervention death	6	0.8	6	0.8
Combined intent				
Homicide/suicide	7	0.9	14	1.8
Total	**757**	**100.0**	**767**	**100.0**

In 2008, a total of 757 incidents in the MAVDRS database accounted for 767 violent deaths.

- 99% of incidents consisted of only one death (N=747).
- Ten incidents resulted in the death of more than one person (e.g. homicide/suicide, multiple victim homicide, etc.) for a total of 20 victims.
- Multiple victim incidents included the following:
  - three multiple victim homicides (one or more persons kills two or more people in the same incident)
  - seven incidents where one person killed one or more persons, then killed him/herself in the same incident (homicide/suicide incident)
- There was one unintentional firearm death.
- There were six legal intervention deaths.

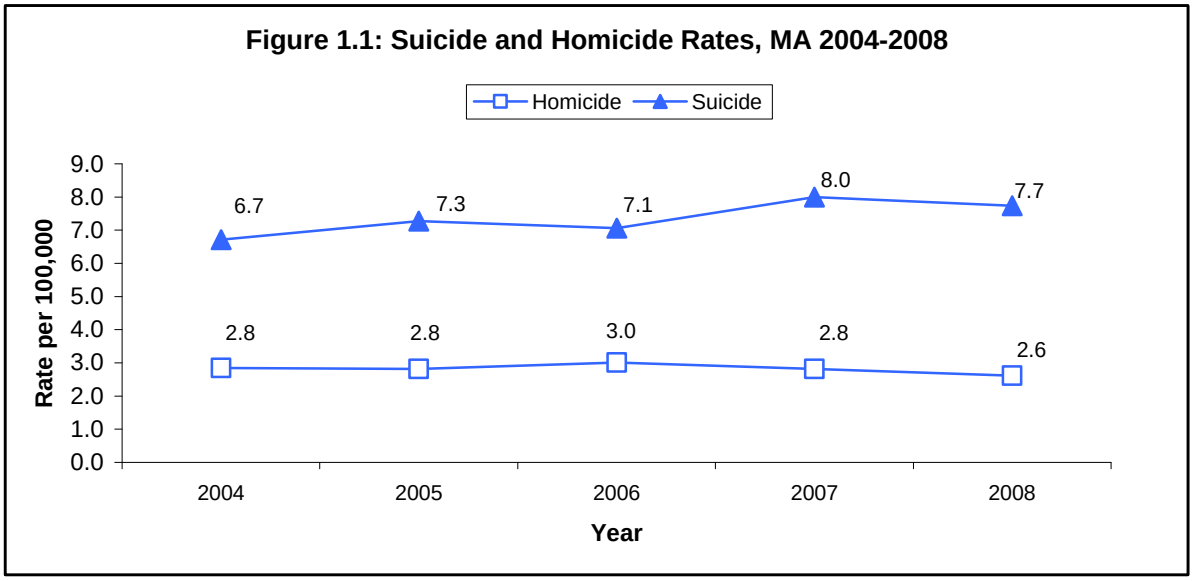
Table 1.2: Violent Deaths by Intent and Demographics: Number, Percent, and Rate, MA 2008			
	N	Percent	Rate per 100,000[1]
Intent			
Suicide	503	65.6	7.7
Homicide	170	22.2	2.6
Undetermined	87	11.3	1.3
Unintentional firearm	1	0.1	--
Legal intervention	6	0.8	0.1
Sex			
Male	600	78.2	19.0
Female	167	21.8	5.0
Race/Ethnicity			
White, non-Hispanic	583	76.0	11.2
Black, non-Hispanic	95	12.4	23.5
Asian, non-Hispanic	18	2.3	5.4
Hispanic	63	8.2	11.3
Other/mixed[2]	8	1.0	--
Age Group			
0-14	9	1.2	0.8
15-24	122	15.9	13.2
25-34	111	14.5	13.3
35-44	172	22.4	18.1
45-54	188	24.5	18.7
55-64	91	11.9	12.2
65-74	37	4.8	8.6
75-84	24	3.1	8.0
85+	13	1.7	9.1
Total	**767**	**100.0**	**11.8**

ADDITIONAL FINDINGS FOR 2008:

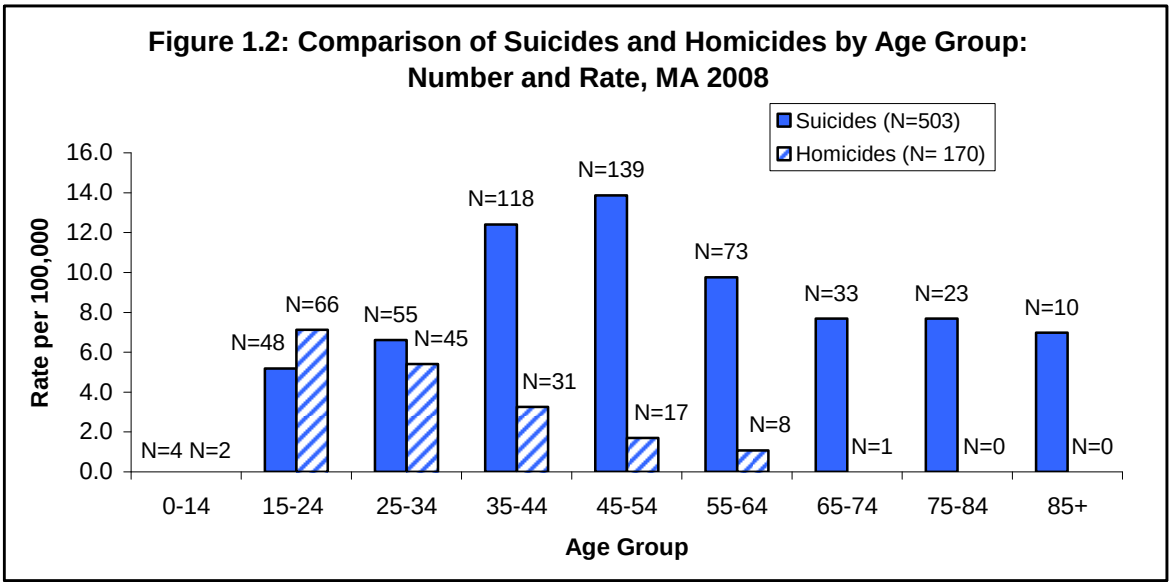
- The youngest victim was three years old and the oldest was 96 years old. The mean age of all victims was 42.7 and the median age was 43.0.
- Twenty victims of a violent death were homeless.
- Twenty victims were fatally injured while in custody, such as jail, state institution, foster care or injured prior to arrest.[3]
- There were 63 war veterans[4] 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 facilty." (Place of suicides can be found on page 19 (Table 2.7) and place of homicides are on page 32 (Table 3.8).
[4] This report only includes information where the deceased was a U.S. veteran ***and*** the war in which they served was specified on the death certificate.

COMPARISON BETWEEN SUICIDES AND HOMICIDES[1]



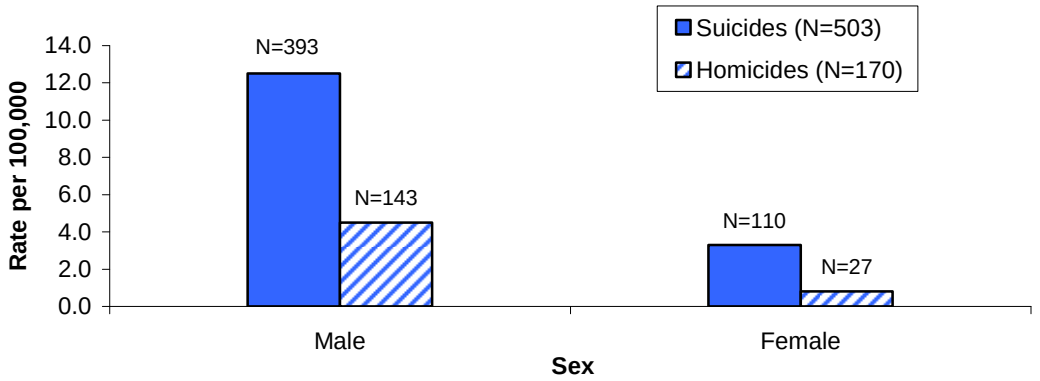
- Over the past five years, rates of suicide have been, on average, 2.6 times higher than rates of homicide.



- Fifteen to twenty-four year olds had the highest rate of homicide (7.1/100,000) of any age group and one of the lowest rates of suicide (5.2/100,000).
- The largest number of homicides occurred among youth and adults ages 15-34; 65% (N=111) of the total number of homicides were in this age group.
- For all age groups age 25 and over, the rate of suicides was greater than the rate of homicides.
- The largest difference in rates of homicides and suicides was among the 55-64 year olds. The rate of suicides (9.8/100,000) was nine times higher than the rate of homicides (1.1/100,000).

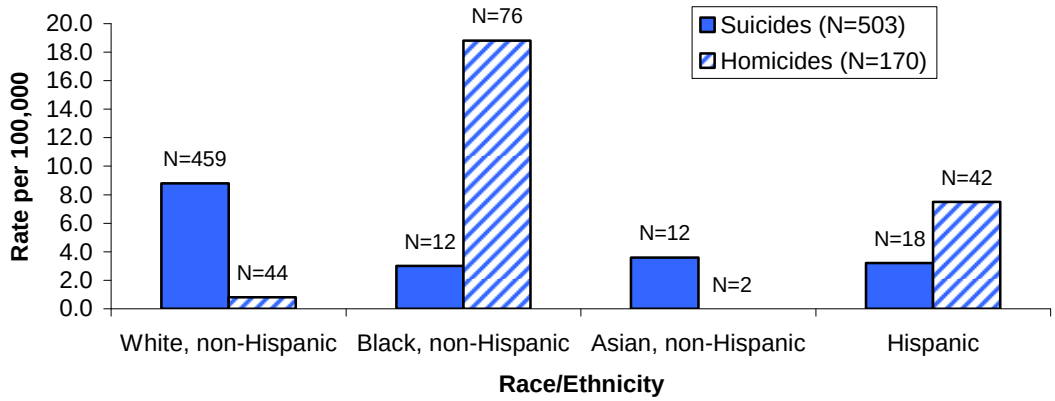
[1] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

Figure 1.3: Comparison of Suicides and Homicides by Sex: Number and Rate, MA 2008



- For males, suicide rates (12.5/100,000) were 2.8 times higher than homicide rates (4.5/100,000).
- For females, suicide rates (3.3/100,000) were 4.1 times higher than homicide rates (0.8/100,000).

Figure 1.4: Comparison of Suicides and Homicides by Race/Ethnicity: Number and Rate, MA 2008[2]



- Black, non-Hispanics and Hispanics had higher rates of homicide than suicide; whereas, White, non-Hispanics had higher rates of suicide than homicide.
- Among White, non-Hispanics, the suicide rate (8.8/100,000) was 11 times higher than the homicide rate (0.8/100,000).
- Among Black, non-Hispanics, the homicide rate (18.8/100,000) was 6.3 times higher than the suicide rate (3.0/100,000).
- Among Hispanics, the homicide rate (7.5/100,000) was 2.3 times higher than the suicide rate (3.2/100,000).

[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 age-adjusted rates.
[2] There were eight victims whose race was "other" or "mixed." Rates for other/mixed race were not calculated due to lack of denominator information.

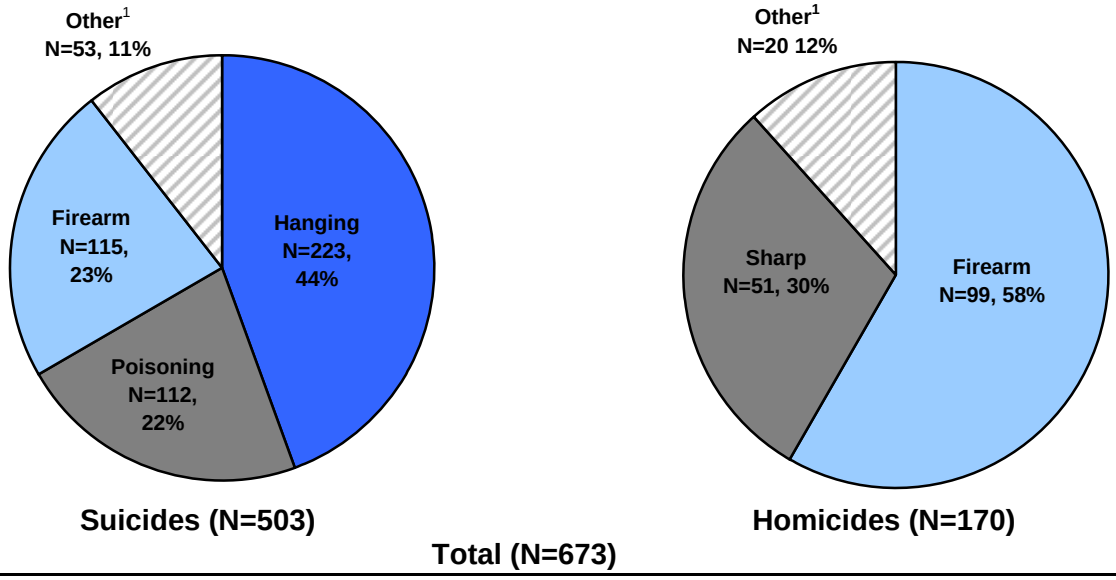
METHODS OF SUICIDES AND HOMICIDES

MAVDRS collects information on the cause or weapon used to inflict the fatal injury. A weapon can be a firearm (e.g. handgun, shotgun), a sharp instrument (e.g. knife), a blunt instrument (e.g. baseball bat), fire/burns, transport vehicles (e.g. train), falls, etc. It may also refer to the method of death, for example, "hanging/ strangulation/suffocation" is defined as a weapon by NVDRS. This includes when someone hangs himself/herself, or when a person is manually strangled. NVDRS combines these asphyxiation-type deaths under one weapon called "hanging/strangulation/suffocation." In this report, this weapon is referred to as "hanging."

Another method/weapon is called "poisoning" and it typically refers to drug overdoses, including alcohol, street drugs, prescription drugs, or a combination of these. A poisoning can also be a gas, such as carbon monoxide or other toxic substances, such as ethylene glycol (anti-freeze).

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.

Figure 1.5: Comparison of Suicides and Homicides by Weapon, MA 2008



Total (N=673)

- Firearms were used in 58% of homicides and in 23% of suicides.
- "Other" weapon in *suicides* include: drowning, explosive, fall/jump, motor vehicle, non-powder gun, other transport vehicle (e.g. train), fire/burns, sharp, and other specified weapons.
- "Other" weapon in *homicides* include: blunt, fire/burn, hanging/strangulation/suffocation, motor vehicle, personal weapons (hands, feet), and unknown.

[1]See Appendix A for a complete list of weapons.

Suicides in Massachusetts

Section Two:

Data Highlights for 2008:

- An average of ten suicides occurred per week in 2008; more than one each day (N=503).
- The highest suicide rate overall was among White, non-Hispanic males (N=360, 14.4/100,000).
- Of any race/ethnicity, white, non-Hispanics had the highest suicide rate (8.8/100,000)
- The suicide rate for males (12.5/100,000) was almost four times higher than the rate for females (3.3/100,000).
- Approximately 75% of suicides occurred in a home or its surrounding area (yard, driveway, and porch).

Compared to 2007:

- The overall number and rate of suicides in 2008 (7.7/100,000, N=503) was similar to that of 2007 (8.0/100,000, N=513).
- For males and females, suicide numbers and rates remained relatively similar in 2008 compared to 2007.

Compared to the U.S.:[1]

- The age-adjusted suicide rate for males was lower in Massachusetts in 2008 than the U.S. average in 2007. The U.S. age-adjusted rate for male suicides in 2007 was 18.5/100,000 and 12.1/100,000 in Massachusetts in 2008.
- The age-adjusted suicide rate for females was lower in Massachusetts in 2008 than the 2007 U.S. average. In 2007, the U.S. age-adjusted rate for female suicides was 4.7/100,000 and in 2008 in Massachusetts, it was 3.1/100,000.
- In 2008, Massachusetts had a lower age-adjusted rate of firearm suicides (1.7/100,000) compared to the U.S. age-adjusted rate (5.6/100,000) in 2007.
- In 2008, Massachusetts had a slightly higher age-adjusted rate of hanging suicides (3.3/100,000) than the age-adjusted rate for the U.S. in 2007 (2.7/100,000).

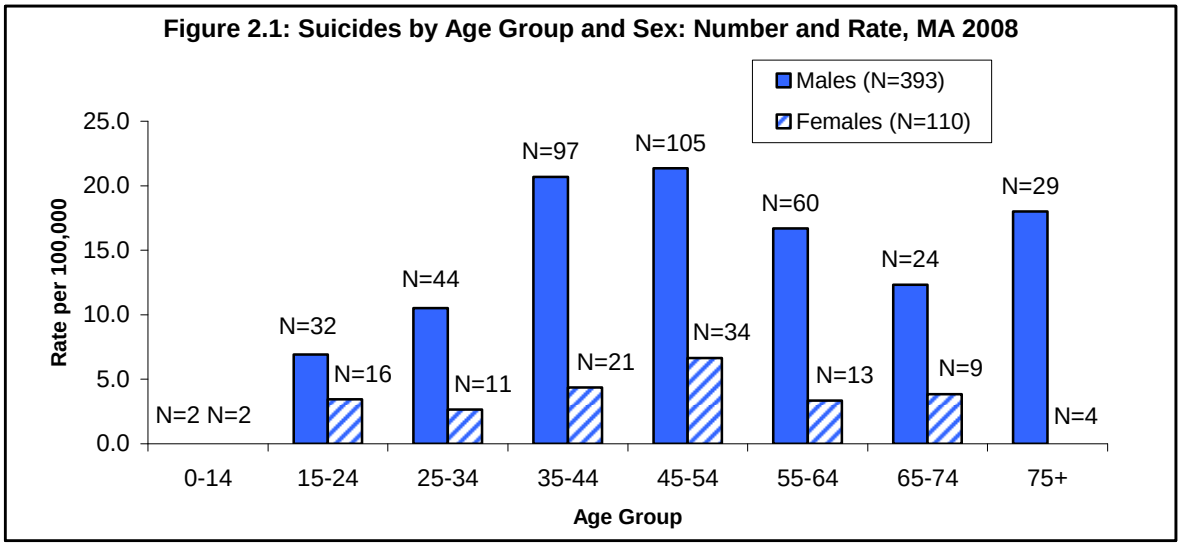
[1] U.S. age-adjusted data was not available when queried on 2/9/2011 for 2008 data for publication in this report, therefore 2007 U.S. numbers were used.

Table 2.1: Suicides by Demographics: Number, Percent, and Rate, MA 2008			
	N	Percent	Rate per 100,000[1]
Sex			
Male	393	78.1	12.5
Female	110	21.9	3.3
Race/Ethnicity			
White, non-Hispanic	459	91.3	8.8
Black, non-Hispanic	12	2.4	3.0
Asian, non-Hispanic	12	2.4	3.6
Hispanic	18	3.6	3.2
Other/mixed[2]	2	0.4	--
Age Group			
0-14	4	0.8	--
15-24	48	9.5	5.2
25-34	55	10.9	6.6
35-44	118	23.5	12.4
45-54	139	27.6	13.9
55-64	73	14.5	9.8
65-74	33	6.6	7.7
75-84	23	4.6	7.7
85+	10	2.0	7.0
Total	**503**	**100.0**	**7.7**

ADDITIONAL FINDINGS FOR 2008:

- The youngest suicide victim was 13 years old and the oldest was 94 years old.
- Fifty-one percent of suicides were among persons aged 35-54 (N=257). The mean age was 46.6 and the median age was 46.
- Fifty-seven war veterans[3] completed suicide, which accounted for 90% of the total violent deaths among war veterans (N=63).
- Suicides in 2008 also included:
  - seven victims that were homeless.
  - twelve victims that were in custody, such as jail, state institution, or foster care.[4]
  - nine 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.



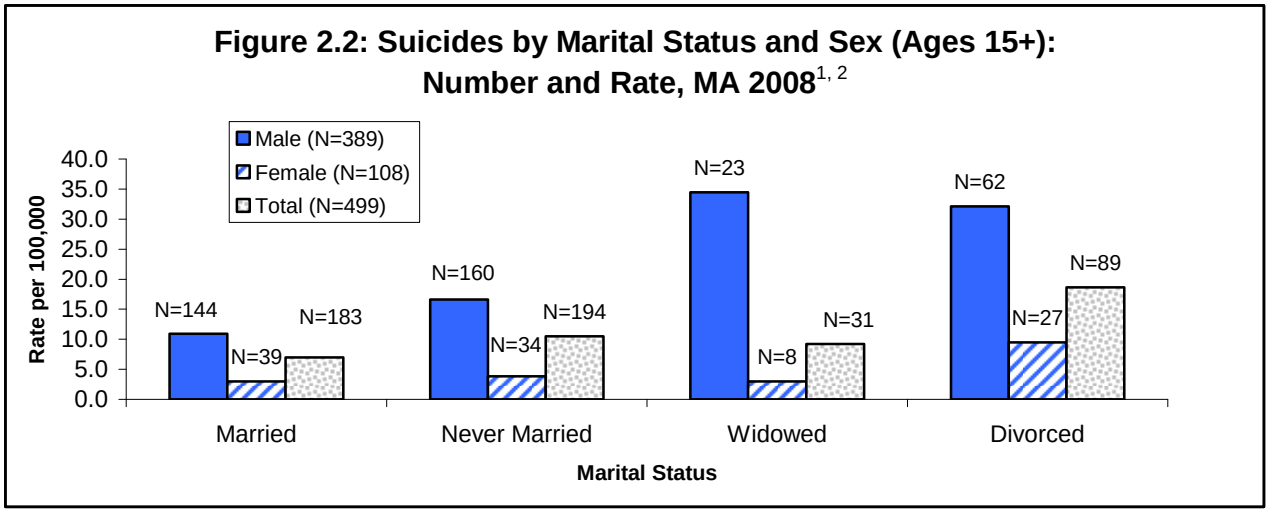
- Among persons age 15-24, the suicide rate was 5.2/100,000 (N=48), which was lower than the statewide rate of 7.7/100,000.
- Among males, the age groups of 35-44 and 45-54 had the highest suicide rates (20.7/100,000 and 21.4/100,000, respectively).
- Among females, ages 45-54 had the highest suicide rates (6.6/100,000).
- Overall, male rates of suicide were almost four times higher than female rates.

Table 2.2: Suicides by Race/Ethnicity and Sex: Number, Percent, and Rate, MA 2008[1]

	Female			Male		
	N	Percent	Rate per 100,000	N	Percent	Rate per 100,000
White, non-Hispanic	99	90.0	3.7	360	91.6	14.4
Black, non-Hispanic	4	3.6	--	8	2.0	4.1
Asian, non-Hispanic	4	3.6	--	8	2.0	4.9
Hispanic	3	2.7	--	15	3.8	5.4
Other/mixed[2]	0	0.0	0.0	2	0.5	--
Total	**110**	**100.0**	**3.3**	**393**	**100.0**	**12.5**

- White, non-Hispanics had the highest rates for males (14.4/100,000).
- There were 503 suicides; approximately 72% were White, non-Hispanic males and 20% were White, non-Hispanic females. The Massachusetts population was comprised of 39% White, non-Hispanic males and 41% White, non-Hispanic females in 2008.

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



- In 2008, male suicide rates were always higher than female suicide rates, regardless of marital status.
- For males, suicide rates were highest among widowed males (34.4.7/100,000) and divorced males (32.1/100,000).
- Among females, suicide rates were highest among divorced females (9.5/100,000).

Table 2.3: Suicides (Ages 25+) by Level of Education and Sex: Number, Percent, and Total Rate, MA 2008

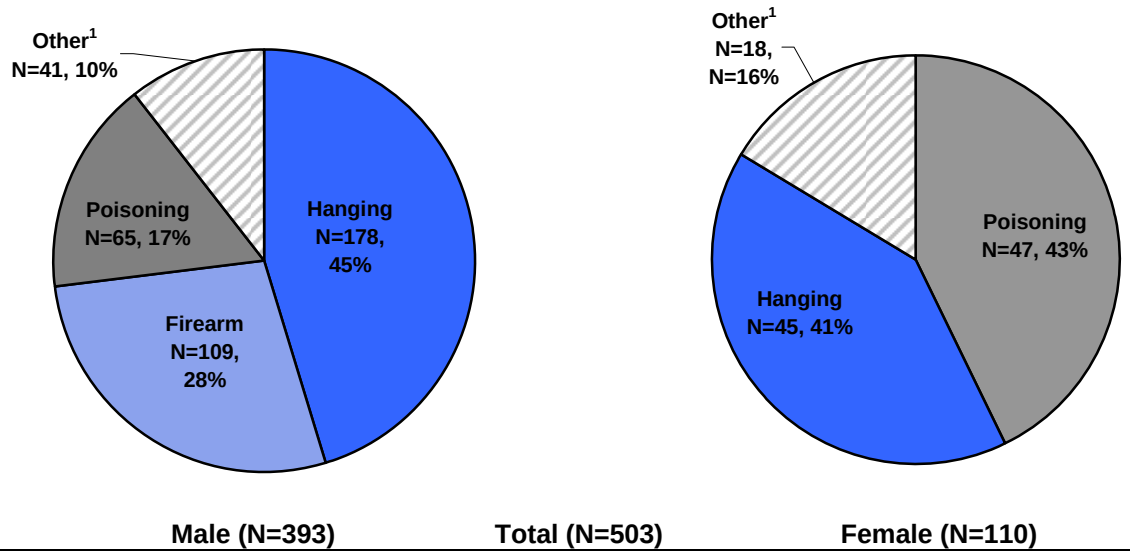
	Female		Male		Total		
Years of Education	**N**	**%**	**N**	**%**	**N**	**%**	**Rate per 100,000[1]**
0-8	1	1.1	9	2.5	10	2.2	4.6
9-11	3	3.3	18	5.0	21	4.7	9.6
12	40	43.5	184	51.3	224	49.7	17.5
13-16	38	41.3	101	28.1	139	30.8	7.1
17+	10	10.9	41	11.4	51	11.3	7.3
Unknown	0	0.0	6	1.7	6	1.3	--
Total[2]	**92**	**100.0**	**359**	**100.0**	**451**	**100.0**	**10.3**

- The highest suicide rate was among victims with 12 years of education.
- Approximately 57% of suicide victims age 25 and older had 12 or less years of education, while approximately 39% 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 were two victims whose data element for marital status was unknown.

METHODS OF SUICIDES[1]

Figure 2.3: Suicide by Type of Weapon and Sex, MA 2008



- In this report, "hanging/strangulation/suffocation" is simply referred to as "hanging." This was the most common suicide method, accounting for 44% of suicides.
- Among females, poisoning/drug overdose and hanging were the most common methods (43% and 41%, respectively).
- For males, hanging was the most common method (45%). The second most common method involved the use of a firearm (28%), followed by poisoning/drug overdose (17%).
- Of suicide poisoning deaths, 46% were due to the ingestion of more than one poison/drug (N=52). Of the total suicide deaths by poisoning/drug overdose (N=112) and based on the first poison listed:
  - 77% (N=86) were due to the ingestion of one or more substances including street/recreation drugs, alcohol, pharmaceutical prescriptions, and over-the counter medications.
  - 15% (N=17) were due to carbon monoxide poisoning or other gas, or vapor.
  - 8% (N=9) were due to another poison, which includes substances such as anti-freeze.

Table 2.4: Suicide Method by Age Group: Number and Percent, MA 2008

	Age Group											
	0-14		15-24		25-44		45-64		65+		Total	
Weapon	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Firearm	0	0.0	12	25.0	33	19.1	40	18.9	30	45.5	115	22.9
Poisoning	0	0.0	7	14.6	28	16.2	67	31.6	10	15.2	112	22.3
Hanging	4	100.0	26	54.2	94	54.3	80	37.7	19	28.8	223	44.3
Other[2]	0	0.0	3	6.3	18	10.4	25	11.8	7	10.6	53	10.5
Total	**4**	**100.0**	**48**	**100.0**	**173**	**100.0**	**212**	**100.0**	**66**	**100.0**	**503**	**100.0**

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

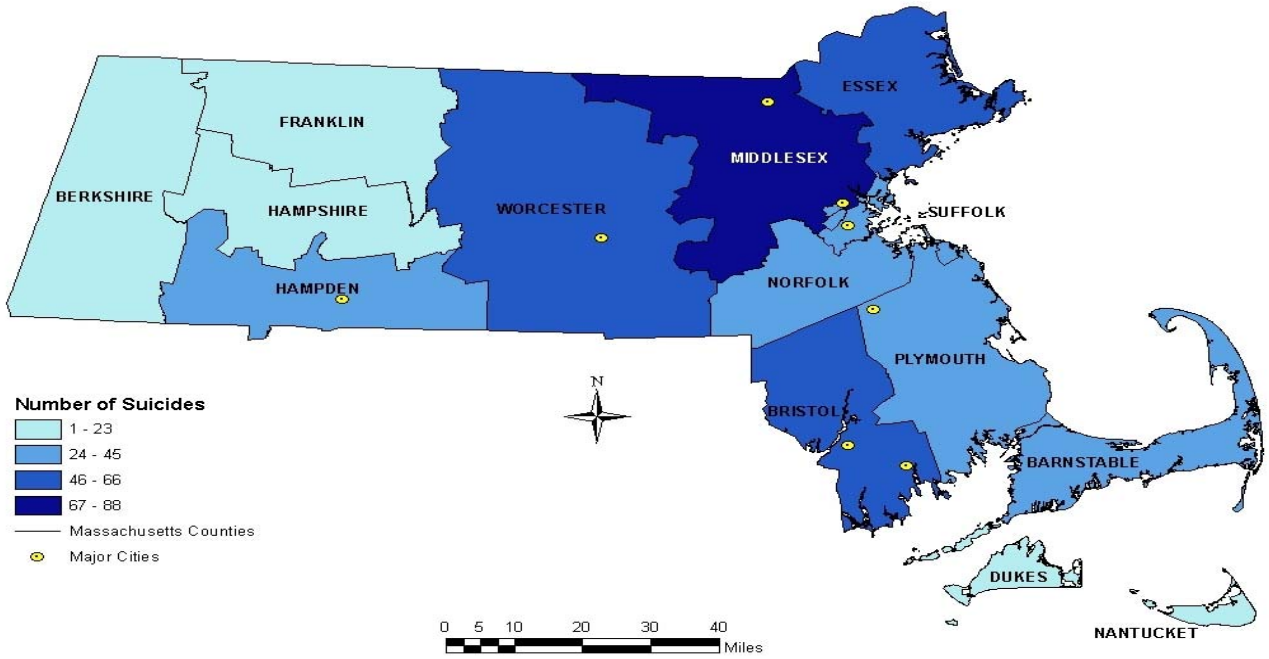
[1] In cases where more than one weapon type was used (including multiple poisons), only the first weapon type was selected for the analysis in this report.
[2] Weapons that were less than 10% of the male or female total were included in "0ther." Other weapon for males includes: Drowning, explosive, fall, explosive, fire/burn, motor vehicle, non-powder gun, other transport, sharp instrument and other specified 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.

Table 2.5: Suicides by County of Injury: Number, Percent, and Rate, MA 2008			
County	**N**	**Percent[1]**	**Rate per 100,000[2]**
Population: 1,000,000+			
Middlesex	88	18.6	5.9
Population: 500,000 – 1,000,000			
Bristol	46	9.7	8.4
Worcester	58	12.2	7.4
Essex	50	10.5	6.8
Norfolk	41	8.6	6.2
Suffolk	39	8.2	5.3
Population: 100,000 – 500,000			
Barnstable	32	6.8	14.5
Berkshire	14	3.0	10.8
Hampshire	16	3.4	10.3
Hampden	43	9.1	9.3
Plymouth	38	8.0	7.7
Population: <100,000			
Franklin	6	1.3	8.4
Dukes	2	0.4	--
Nantucket	1	0.2	--
Other			
Outside MA[2]	9	--	--
Unknown[2]	20	--	--
Total known MA county	**474**	**100.0**	**--**
Total	**503**	**--**	**7.7**

- Middlesex, Worcester, and Essex Counties had the highest number of suicides (N=88, 58, and 50 respectively). These three counties accounted for 41% of total suicides in a known MA county and 46% of the Massachusetts population.
- Among counties with a population of 500,000-1,000,000, Worcester had the highest number (N=58) and Bristol had the highest rate (N=46, 8.4/100,000).
- Among counties with a population of 100,000-500,000, Hampden had the highest number (N=43) and Barnstable had the highest rate (14.5/100,000, N=32).These counties (Berkshire, Barnstable, Plymouth, Hampshire, Hampden) accounted for 30% of suicide occurrences in a known MA 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.

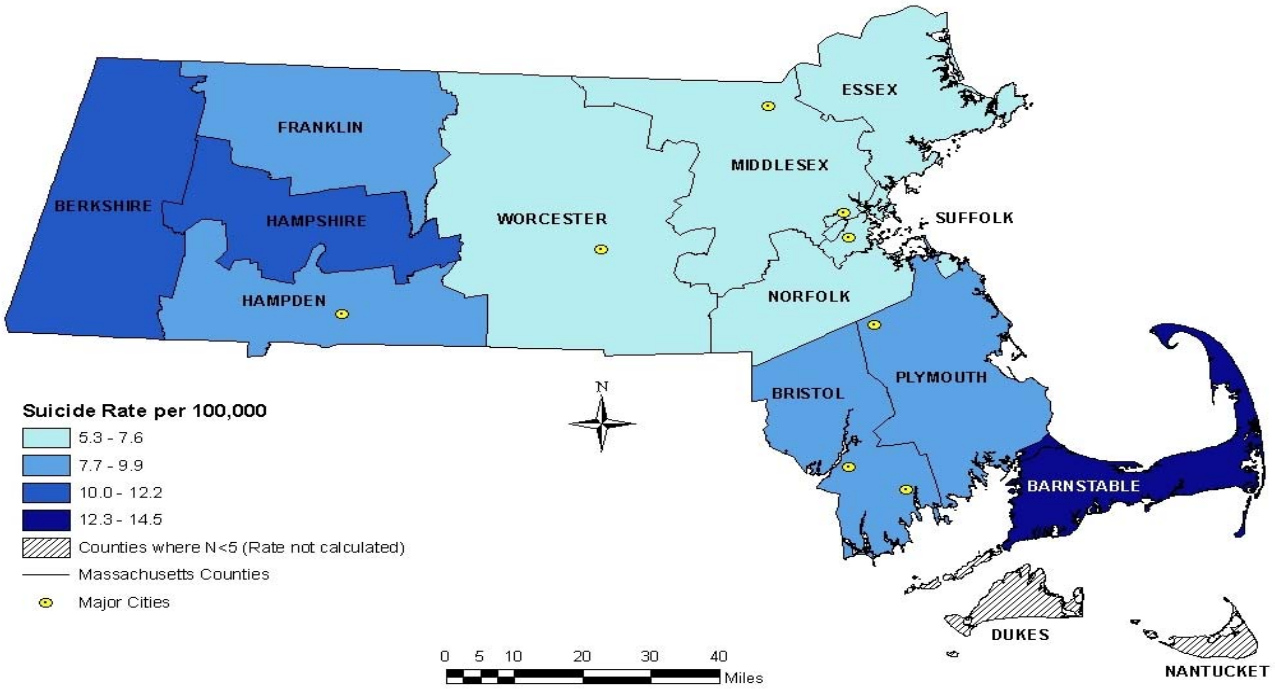
[1] Percent is based on known Massachusetts county of injury (N=474). Rate was not calculated on unknown county of injury nor out of state injuries.
[2] Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. Rates may be much higher among counties with a small population. See Appendix B for age-adjusted rates.

Figure 2.4: Suicides by County: Number, MA 2008



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

Figure 2.5: Suicides by County: Rate, MA 2008



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

LOCALITY OF SUICIDES

Table 2.6: Suicides by City/Town of Injury: Number, Percent, and Rate, MA 2008			
	N	Percent[1]	Rate per 100,000[2]
Group 1: Cities/Towns over 175,000 population:			
Boston	32	6.8	5.3
Worcester	11	2.3	6.3
Total Group 1	**43**	**9.1**	**5.5**
Group 2: Cities/Towns 75,000-175,000 population:			
Quincy	11	2.3	11.9
Newton	8	1.7	9.7
Lowell	9	1.9	8.7
Springfield	13	2.7	8.6
New Bedford	7	1.5	7.7
Fall River	6	1.3	6.6
Somerville	5	1.1	6.6
Brockton	6	1.3	6.5
Cambridge	6	1.3	5.7
Lynn	3	0.6	--
Total Group 2	**74**	**15.6**	**7.6**
Group 3: Cities/Towns 50,000-75,000 population:			
Taunton	7	1.5	12.6
Peabody	5	1.1	9.7
Plymouth	5	1.1	9.0
Framingham	4	0.8	--
Medford	4	0.8	--
Revere	4	0.8	--
Waltham	4	0.8	--
Brookline	3	0.6	--
Haverhill	3	0.6	--
Lawrence	3	0.6	--
Malden	3	0.6	--
Weymouth	3	0.6	--
Chicopee	2	0.4	--
Total Group 3	**50**	**10.5**	**6.6**
Group 4: Cities/Towns with < 50,000 population			
Total Group 4	**307**	**64.8**	**7.7**
Other			
Outside MA	9	--	--
Unknown city/town	20	--	--
Total known MA city/town	**474**	**100.0**	**--**
Total	**503**	**--**	**7.7**

- Among cities with a population of 75,000-175,000, Springfield had the highest number of suicides (N=13) and Quincy had the highest rate (11.9/100,000, N=11).
- Among cities with a population of 50,000-75,000, Taunton had the highest number and rate of suicide (N=7, 12.6/100,000).

[1] Percent is based on known Massachusetts city of injury (N=474). 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 2008		
	N	**Percent[1]**
Buildings and surroundings:		
House, apartment, including driveway, porch, yard	361	74.6
Hotel/motel	10	2.1
Hospital, medical facility or nursing home/Supervised residential facility /Jail, prison, detention facility[2]	10	2.1
Other commercial establishment/Office building	5	1.0
Transportation utilities:		
Motor vehicle (excl. school and public transportation)	27	5.6
Street/road, sidewalk, alley, highway	10	2.1
Railroad track/Public transportation or station	9	1.9
Parking lot/public parking garage	6	1.2
Outdoor and recreational areas:		
Natural area	26	5.4
Other:		
Other	20	4.1
Total Known Place of Suicide Occurrence	**484**	**100.0**
Unknown place of Suicide	19	--
Total Suicides	**503**	**--**

Of the 484 suicides where location of injury was reported:

- The majority (75%) of suicides occurred in a house, apartment, or its surroundings (yard, porch, driveway).
- Approximately 6% of suicides occurred in a motor vehicle; 26% of which were due to carbon monoxide poisoning.
- Five percent of suicides occurred in a natural area, such as such as woods or rivers.

[1] Percent is based on number of suicides with known place where suicide occurred (N=484).
[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 prioir 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=503). See Appendix A for more information on circumstances.

Table 2.8: Circumstances of Suicides: Number and Percent, MA 2008

	N	Percent
Total number of suicide victims	**503**	**100**
Total victims with reported circumstances	**474**	**94.2**
Health Characteristics		
Current mental health problem	247	49.1
Ever treated for mental health problem[1]	203	40.4
Current treatment for mental illness[1]	188	37.4
Alcohol problem/other substance problem	159	31.6
History of suicide attempts	91	18.1
Physical health problem[2]	50	9.9
Relationship Characteristics		
Intimate partner problem	132	26.2
Other relationship problem	44	8.7
Other death of friend or family in past five years	30	6.0
Perpetrator of interpersonal violence past month	23	4.6
Life Stressors		
Job problem	74	14.7
Financial problem	62	12.3
Recent criminal legal problem	22	4.4
Eviction/Loss of home	18	3.6
Other legal problems	14	2.8
Event Characteristics		
Person left a suicide note	185	36.8
Current depressed mood	159	31.6
Disclosed intent to commit suicide	124	24.7
Crisis in past two weeks	72	14.3

Of the 503 suicides:

- Almost 50% 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-two 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-six percent were reported to be having problems with a current or former intimate partner including divorce, jealousy, or argument.
- Almost 25% disclosed their intent to complete suicide to another person.
- Eviction/loss of home is a newer circumstance which was noted for 3.6 percent of suicides. It should be noted that this new variable was not officially being abstracted this year, therefore subsequent years may show higher numbers.

[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.

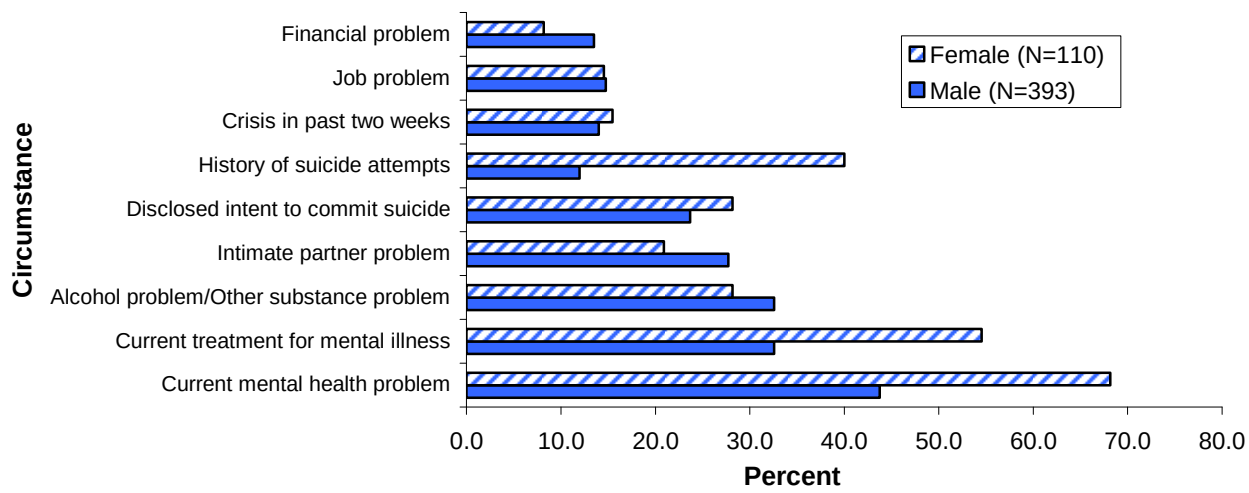
[2] From 2003 to 2005, MAVDRS coded "physical health problem" if there was a serious physical health problem present, regardless if it contributed directly to the suicide or not. In 2006, we began to code this variable only if there was evidence that the problem directly contributed to the suicide or 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: Top Eight Most Commonly Mentioned Suicide Circumstances by Age Group, MA 2008				
	Age Group and Rank			
Circumstance	**15 to 24**	**25 to 44**	**45 to 64**	**65 and over**
Current mental health problem	**1**	**1**	**1**	**1**
Ever treated for mental health problem[1]	2	2	2	5
Alcohol /Other substance problem	3	3	6	--
Current treatment for mental illness[1]	3	4	4	6
Person left a suicide note	6	7	3	2
Disclosed intent to commit suicide	8	8	8	6
Current depressed mood	--	6	5	4
History of suicide attempts	6	--	--	--
Intimate partner problem	5	5	7	--
Physical health problem[2]	--	--	--	3
Crisis in past two weeks	--	--	--	8

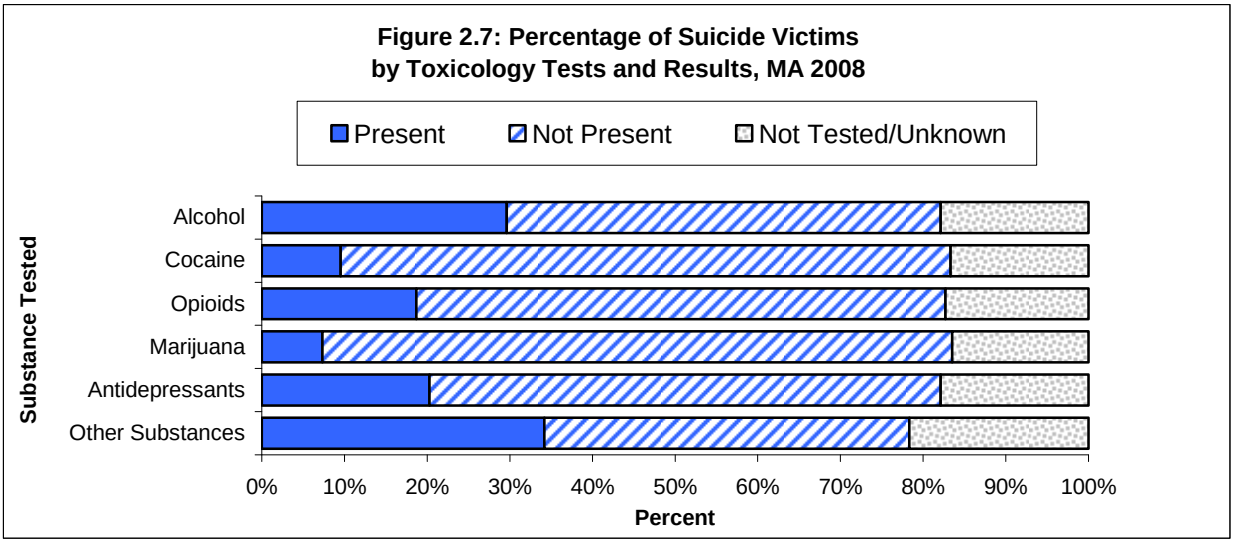
- Numerical rank (1-8) was determined by frequency of mention. Circumstances with the same frequencies were both given the higher rank number.
- For all ages, current mental health problem was the most frequently noted circumstance, which is a broad category and includes victims who have been diagnosed by a health professional as having a psychiatric condition and victims who were prescribed antidepressants or other psychiatric medication.

Figure 2.6: Commonly Mentioned Circumstances of Suicides by Sex, MA 2008



- Information about suicide circumstances was available for 94% (N=474) of all suicides; 93% of males (N=366) and 98% of females (N=108).
- Females were more likely than males to have a history of suicide attempts, a current mental health problem, disclosed 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 problems, 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.



- Of the 503 suicide victims in Massachusetts in 2008, 413 (82%) were tested for blood alcohol concentration, 419 (83%) were tested for cocaine, 416 (83%) were tested for opioids, 420 (83%) were tested for marijuana and 413 (82%) were tested for antidepressants. The above figure demonstrates the percentage of victims who tested positive and negative for those substances, as well as not tested for those substances or had an unknown result.

Table 2.10: Blood Alcohol Concentration of Suicide Victims that Tested Positive by Age Group: Number and Percent, MA 2008[1]

	Age Group									
	< 21		21-44		45-64		65+		Total	
BAC %[1]	N	%	N	%	N	%	N	%	N	%
0.010 – 0.040[2]	5	55.6	6	8.7	9	14.1	<5	--	21	14.1
0.041 - 0.079	0	0.0	11	15.9	8	12.5	<5	--	20	13.4
0.08 and over	<5	--	52	75.4	46	71.9	5	71.4	107	71.8
Unknown[3]	0	0.0	0	0.0	<5	--	0	0.0	<5	--
Total	**9**	**100.0**	**69**	**100.0**	**64**	**100.0**	**7**	**100.0**	**149**	**100.0**

- The above table only refers to those victims who were tested for Blood Alcohol Concentration and tested positive (N=149). Eighty-two percent (N=413) of suicide victims were tested for Blood Alcohol Concentration (BAC) and 36.1% of those had a positive BAC.
- Victims with a BAC in the 0.010 - 0.040 range comprise 14% of the total. These results must be interpreted with caution due to uncertainty of the cause of the result.[2]
- Among suicide victims where BAC was tested and results were positive, less than 5 victims age 21 or younger had a BAC of 0.08 or higher. Ninety-one percent of victims ages 21-44 had a BAC 0.041 or above. Among victims ages 45-64, 84% had a BAC 0.041 and above, and among victims aged 65 and over, 86% had a BAC 0.041 or above.
- Seventy-two percent (N=107) 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:

Data Highlights for 2008:

- Homicides claimed an average of 3.3 lives per week (N=170) in 2008.
- Black, non-Hispanics had the highest homicide rate (18.8/100,000) compared to White, non-Hispanics (0.8/100,000) and Hispanics (7.5/100,000).
- Black, non-Hispanic males had a homicide rate of 35.0/100,000.
- The homicide rate of males (4.5/100,000) was over 5.6 times higher than the rate of females (0.8/100,000).
- In 2008, over half of homicides (58%) in Massachusetts involved firearms. This is similar to 2007 (62%).

Compared to 2007:

- Homicides decreased overall by a count of 12 (7%) from 2007 to 2008 (N=182 in 2007 and N=170 in 2008).
- The homicide rate for males was similar in 2007 compared to 2008 but decreased for females from 1.5/100,000 to 0.8/100,000 from 2007 to 2008.

Compared to the U.S.:[1]

- Massachusetts had a lower age-adjusted homicide rate in 2008 (2.6/100,000) than the 2007 U.S. age-adjusted rate for homicides (6.1/100,000).
- In 2008, Massachusetts had an age-adjusted homicide rate for males (4.5/100,000) that was more than two times lower than that of the 2007 U.S. age-adjusted rate (9.5/100,000).
- The Massachusetts age-adjusted rate for female homicides in 2008 (0.8/100,000) was about three times lower than that of the 2007 U.S. age-adjusted rate for female homicides (2.5/100,000).
- Massachusetts had an age-adjusted rate for Black, non-Hispanic males in 2008 (29.4/100,000) that was lower than the 2007 U.S. age-adjusted rate (36.9/100,000).

[1] U.S. age-adjusted data for 2008 was not available when queried on 2/9/2011 for publication and use in this report, therefore 2007 U.S. numbers were used.

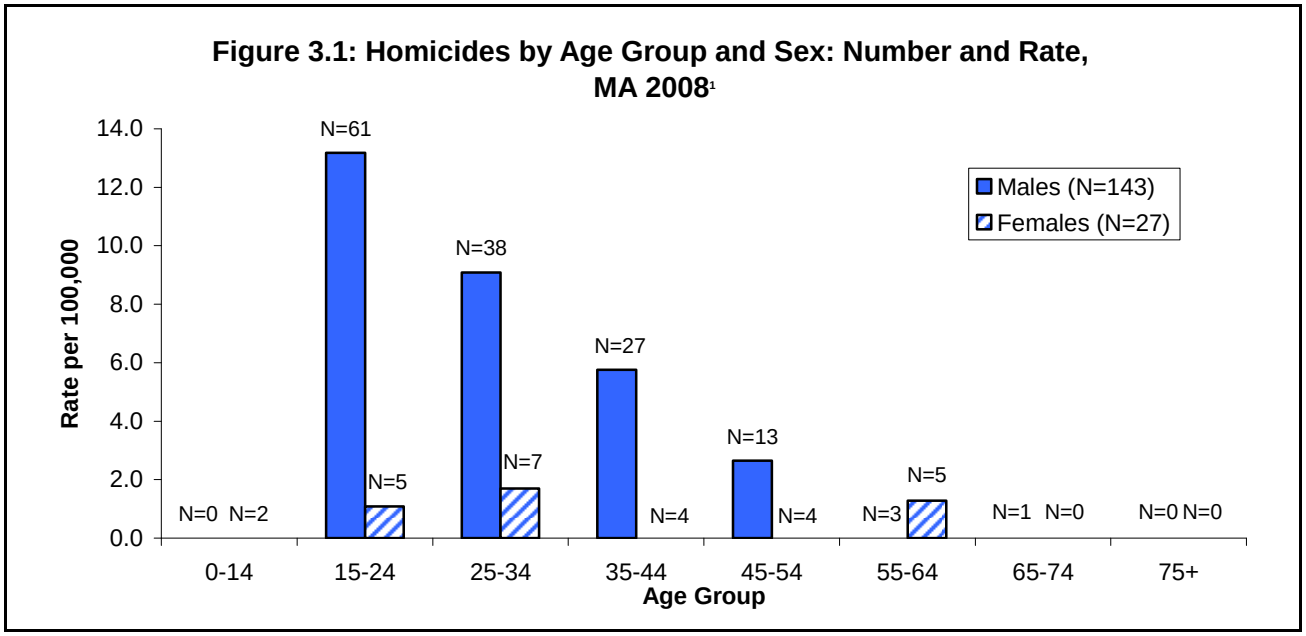
DEMOGRAPHICS OF HOMICIDE VICTIMS

Table 3.1: Homicides by Demographics: Number, Percent, and Rate, MA 2008			
	N	Percent	Rate per 100,000[1]
Sex			
Male	143	84.1	4.5
Female	27	15.9	0.8
Race/Ethnicity			
White, non-Hispanic	44	25.9	0.8
Black, non-Hispanic	76	44.7	18.8
Asian, non-Hispanic	2	1.2	--
Hispanic	42	24.7	7.5
Other/mixed[2]	6	3.5	--
Age Group			
0-14	2	1.2	--
15-24	66	38.8	7.1
25-34	45	26.5	5.4
35-44	31	18.2	3.3
45-54	17	10.0	1.7
55-64	8	4.7	1.1
65-74	1	0.6	--
75-84	0	0.0	0.0
85+	0	0.0	0.0
Total	**170**	**100**	**2.6**

ADDITIONAL FINDINGS FOR 2008

- The youngest homicide victim was 3 years old and the oldest was 68 years old. The mean age for homicide victims was 30.5 and the median age was 28 years old.
- Forty percent of all homicide victims were age 24 or younger and two-thirds were age 34 or younger.
- There was one war veteran[3] who was the victim of a homicide.
- Homicides in 2008 included:
  - four victims that were homeless.
  - five victims that were injured at their workplace.
  - two victims that died in custody, such as jail, state institution, or foster care.
- Black, non-Hispanics accounted for approximately 45% of homicide victims, but make up only 6% of the Massachusetts population. Hispanics accounted for about 25% 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.



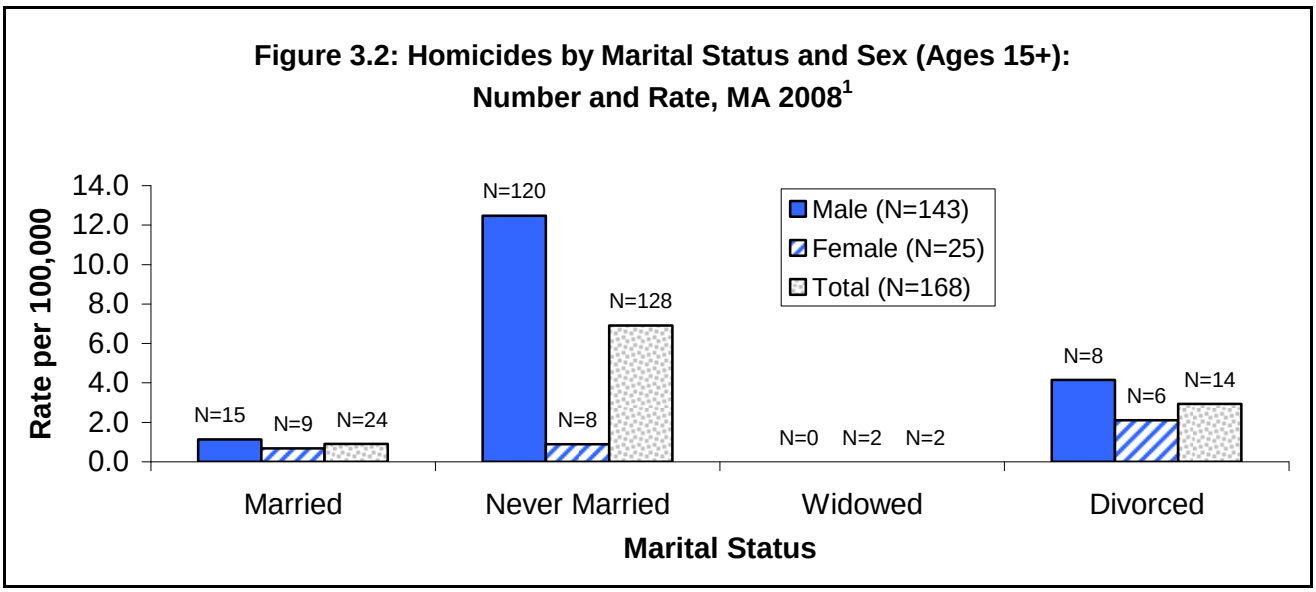
- The highest homicide rate by age group was among 15-24 year olds (7.1/100,000, N=66).
- The homicide rate for ages 15-19 was 5.4/100,000 (N=25), which was two times higher than the statewide rate of 2.6/100,000.
- The homicide rate for ages 20-24 was 8.8/100,000 (N=41), which was over three times higher than the statewide rate of 2.6/100,000.
- Males ages 15-24 had the highest homicide rate (13.2/100,000, N=61), which was five times higher than the statewide rate of 2.6/100,000.
- Males age 25-34 years had the second highest homicide rate (9.1/100,000, N=38).
- For females, there was less variability in rates across age groups, with rates ranging from 0.0 to 1.7/100,000 across all age groups.

Table 3.2: Homicides by Race/Ethnicity and Sex: Number, Percent, and Rate, MA 2008

	Female			Male		
	N	%	Rate per 100,000[1]	N	%	Rate per 100,000[1]
White, non-Hispanic	15	55.6	0.6	29	20.3	1.2
Black, non-Hispanic	7	25.9	3.4	69	48.3	35.0
Asian, non-Hispanic	0	0.0	0.0	2	1.4	--
Hispanic	3	11.1	--	39	27.3	14.0
Other/mixed[2]	2	7.4	--	4	2.8	--
Total	**27**	**100.0**	**0.8**	**143**	**100.0**	**4.5**

- Black, non-Hispanics had the highest homicide rate for males (35.0/100,000) and females (3.4/100,000).

[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.



- Homicide rates for males were higher than rates for females for married, never married, and 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 (12.5/100,000, N=120).
- Among females, homicide rates were highest among those who were divorced (2.1/100,000, N=6).

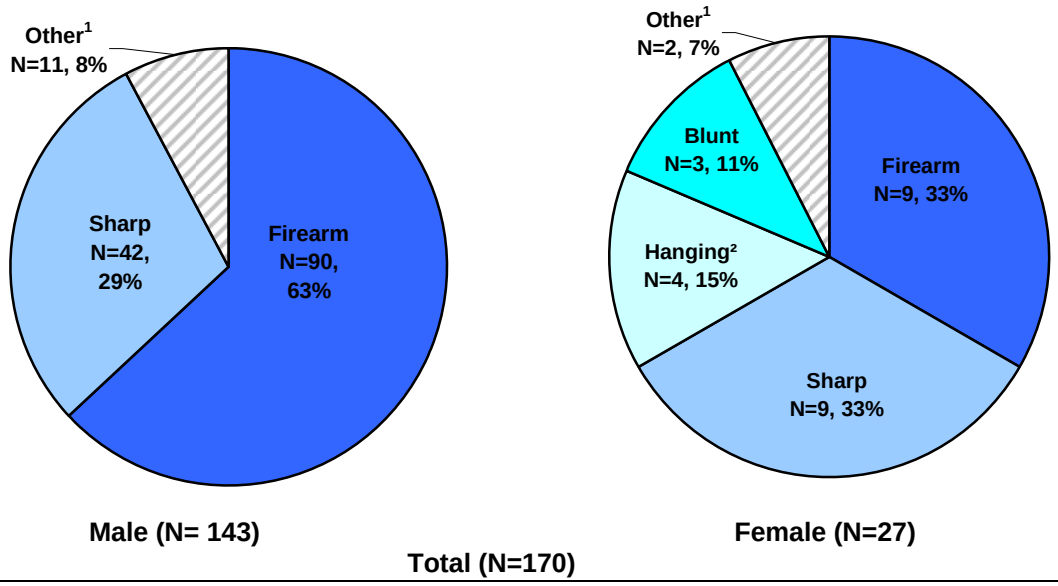
Table 3.3: Homicides (Ages 25+) by Level of Education and Sex: Number, Percent, and Total Rate, MA 2008

	Female		Male		Total		
Years of Education	N	%	N	%	N	%	Rate per 100,000[1]
0-8	1	5.0	6	7.3	7	6.9	3.2
9-11	3	15.0	14	17.1	17	16.7	7.8
12	9	45.0	53	64.6	62	60.8	4.8
13-16	4	20.0	7	8.5	11	10.8	0.6
17+	3	15.0	1	1.2	4	3.9	--
Unknown	0	0.0	1	1.2	1	1.0	--
Total[2]	**20**	**100.0**	**82**	**100.0**	**102**	**100.0**	**2.3**

- Among homicide victims ages 25 and older, the highest homicide rate was among victims with 9-11 years of education (7.8 /100,000).
- The majority of homicide victims 25 years and older (84%) 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 victim whose level of education was unknown.

Figure 3.3: Homicides by Type of Weapon and Sex, MA 2008



- 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]
- Firearms were the leading method of homicide and accounted for 58% of total homicides (N=99), followed by sharp instruments, such as knives (30%, N=51).[1]
- Firearms were the most commonly used weapon for male homicide deaths, and accounted for 63% of male homicides (N=90), followed by sharp instruments (29%, N=42).
- Among females, firearms and sharp instruments were the most commonly used weapons and each accounted for 33% of female homicides (N=9).
- There were three homicide victims that had more than one weapon contribute to their death (these three are included in the analysis above). In cases where more than one *weapon type w*as used, only the first weapon type was selected for the analysis in this report.
    - one victim died from a firearm combined with a sharp instrument.
    - one victim died from hanging[2] combined with a sharp instrument.
    - one victim died from a combination of a blunt instrument and personal weapons (hands, feet).[1]

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

Table 3.4: Homicide Weapons by Age Group: Number and Percent, MA 2008												
	Age Group											
	0-14		15-24		25-44		45-64		65+		Total	
Weapon	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Firearm	0	0.0	49	74.2	41	53.9	9	36.0	0	0.0	99	58.2
Sharp	0	0.0	15	22.7	25	32.9	11	44.0	0	0.0	51	30.0
Other[1]	2	100.0	2	3.0	10	13.2	5	20.0	1	100.0	20	11.8
Total	**2**	**100.0**	**66**	**100.0**	**76**	**100.0**	**25**	**100.0**	**1**	**100.0**	**170**	**100.0**

- Firearms were the most common weapon of homicide for the age groups of 15-24 years old (74%) and 25-44 year olds (54%). Sharps were the most common method among 45-64 year olds (44%) and the second most common method overall (30%).
- Weapons in the "other" category include blunt instruments, fire/burns, motor vehicle, personal weapons (hands, feet), and unknown weapons.

Table 3.5: Type of Firearm Used in Homicides: Number and Percent, MA 2008		
		N
Firearms Used In Homicides		**110**
Firearms with unknown firearm type		50
Firearms with known firearm type		60
Firearms with known firearm type		**60**
Handgun		54
	Semi-automatic pistol	*22*
	Revolver	*11*
	Other/Unknown handgun type	*21*
Rifle/Shotgun		6

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 a total of 110 firearms associated with homicide incidents, 60 incidents (55%) had information about the type of firearm used.
- Handguns were the most common type of firearm used in homicides. Handguns were used in 90% of homicides where firearm type was known. Forty-one percent of these handguns were semi-automatic pistols, 20% were revolvers, and 37% were an other/unknown type of handgun.

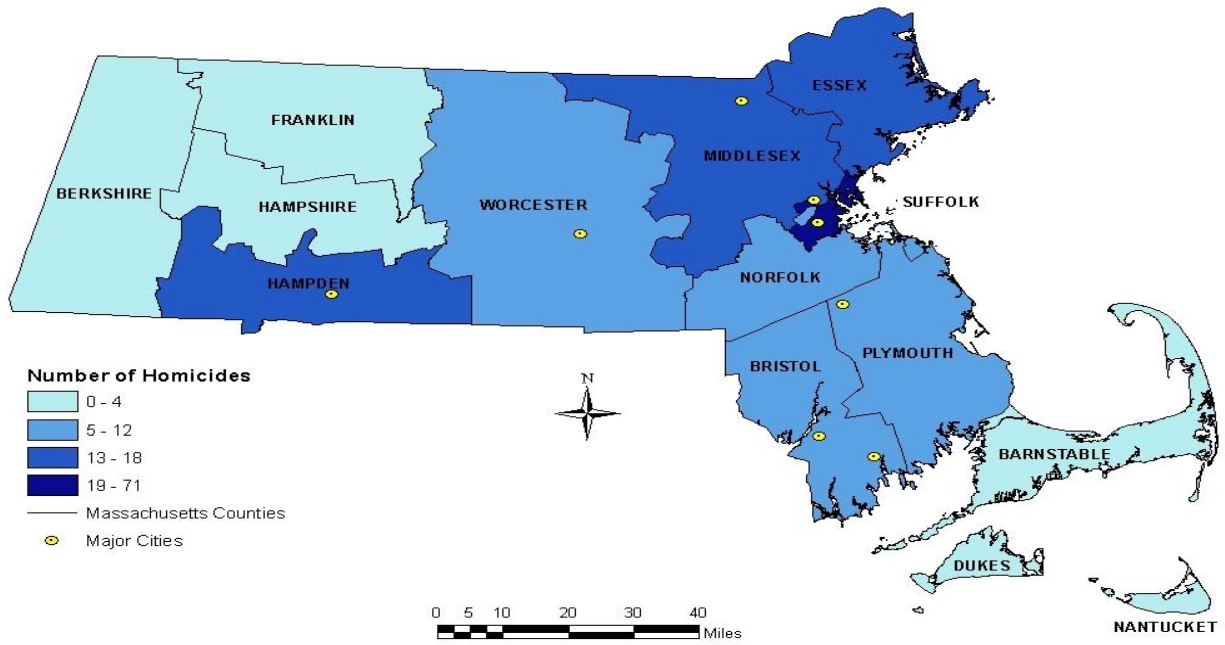
[1] "Other" weapon includes personal weapons (which are from bodily assaults, such as hands and feet), hanging (such as strangulation), fire/burns, falls, neglect, and other weapons. See Appendix A for a complete list of weapon variables.

Table 3.6: Homicides by County of Injury: Number, Percent, and Rate, MA 2008			
County	**N**	**Percent[1]**	**Rate per 100,000[2]**
Population: 1,000,000+			
Middlesex	17	10.4	1.1
Population: 500,000 – 1,000,000			
Suffolk	71	43.3	9.7
Essex	15	9.1	2.0
Bristol	9	5.5	1.6
Worcester	12	7.3	1.5
Norfolk	6	3.7	0.9
Population: 100,000 – 500,000			
Hampden	18	11.0	3.9
Plymouth	10	6.1	2.0
Berkshire	4	2.4	--
Barnstable	2	1.2	--
Hampshire	0	0.0	0.0
Population: <100,000			
Dukes	0	0.0	0.0
Franklin	0	0.0	0.0
Nantucket	0	0.0	0.0
Other			
Outside MA [1]	5	--	--
Unknown[1]	1	--	--
Total known MA county	**164**	**100.0**	**--**
Total	**170**	**--**	**2.6**

- Among all counties, Suffolk County had the highest homicide number and rate (N=71, 9.7/100,000) and accounted for 43% of deaths, followed by Hampden County (N=18, 3.9/100,000) accounting for 11% of deaths.
- Among counties with a population of 500,000-1,000,000, Suffolk County, which includes Boston, had the highest number and rate. While 53% of the Massachusetts population lives in these counties (Worcester, Essex, Suffolk, Norfolk, and Bristol), 69% 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=18, 3.9/100,000).

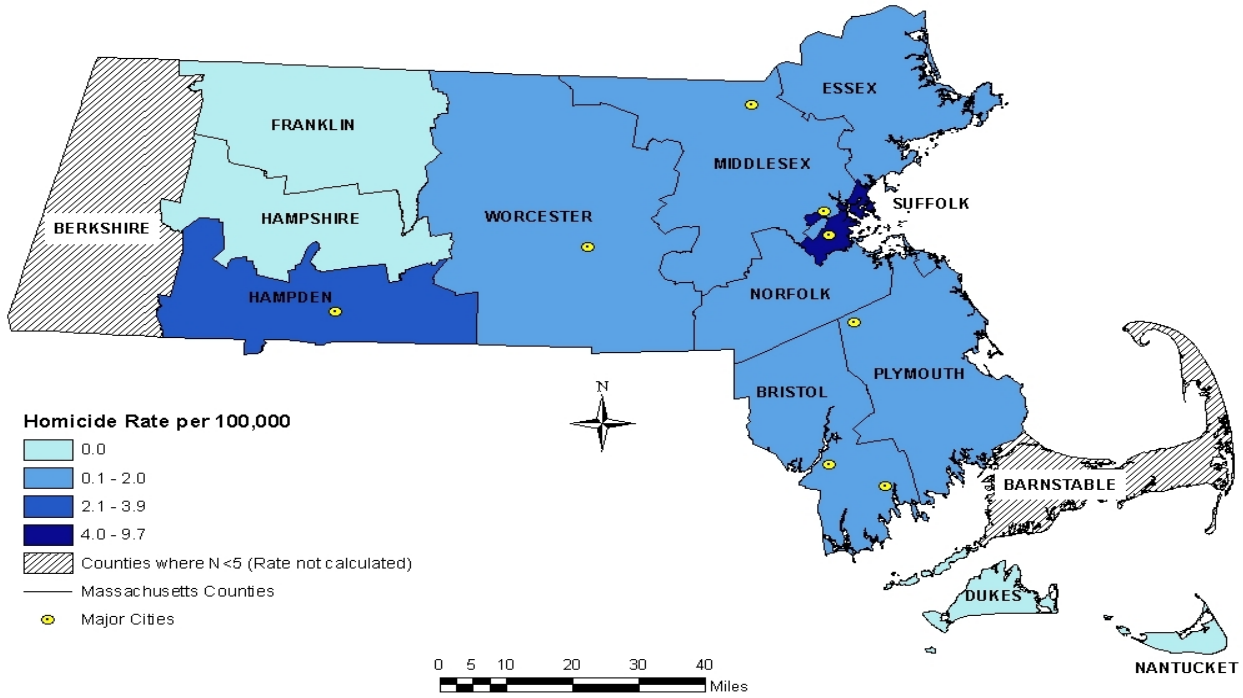
[1] Percent is based on known Massachusetts county of injury (N=164). Rate was not calculated on unknown county of injury nor out of state injuries. Out of state homicides are those homicide incidents that occurred in another state, but the victim was transported to Massachusetts where they died.
[2] 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.

Figure 3.4: Homicides by County: Number, MA 2008



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

Figure 3.5: Homicides by County: Rate, MA 2008



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

LOCALITY OF HOMICIDES

Table 3.7: Homicides by City/Town: Number, Percent, and Rate, MA 2008			
	N	**Percent[1]**	**Rate per 100,000[2]**
Group 1: Cities/Towns over 175,000 population:			
Boston	66	40.2	10.8
Worcester	6	3.7	3.4
Total Group 1	**72**	**43.9**	**9.2**
Group 2: Cities/Towns 75,000-175,000 population:			
Springfield	15	9.1	10.0
Brockton	9	5.5	9.7
Lowell	7	4.3	6.8
Lynn	5	3.0	5.7
New Bedford	3	1.8	--
Cambridge	2	1.2	--
Fall River	2	1.2	--
Somerville	2	1.2	--
Newton	0	0.0	0.0
Quincy	0	0.0	0.0
Total Group 2	**45**	**27.4**	**4.6**
Group 3: Cities/Towns 50,000-75,000 population:			
Lawrence	5	3.0	7.1
Taunton	3	1.8	--
Peabody	2	1.2	--
Revere	2	1.2	--
Chicopee	1	0.6	--
Framingham	1	0.6	--
Haverhill	1	0.6	--
Malden	1	0.6	--
Brookline	0	0.0	0.0
Medford	0	0.0	0.0
Plymouth	0	0.0	0.0
Waltham	0	0.0	0.0
Weymouth	0	0.0	0.0
Total Group 3	**16**	**9.8**	2.1
Group 4: Cities/Towns with < 50,000 population			
Total Group 4	**31**	**18.9**	0.8
Other			
Outside MA	5	--	--
Unknown State	1	--	--
Total known MA city	**164**	**100.0**	**--**
Total Homicides	**170**	**--**	**2.6**

- Boston had the highest number of homicides (N=66) and and the highest rate (10.8/100,000). Springfield had the second highest number and rate (10.0/100,000, N=15). Brockton had the third highest rate of homicide (9.7/100,000, N=9). These three cities account for 55% of all homicide victims occurring in a known city/town, in Massachusetts, but account for 13% of the total population of Massachusetts.

[1] Percent is based on known Massachusetts city of injury (N=164). 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 2008		
Location of injury	**N**	**Percent[1]**
Buildings and surroundings:		
House, apartment, including driveway, porch, yard	71	42.8
Transportation utilities:		
Street/road, sidewalk, alley	50	30.1
Motor vehicle (excluding school bus and public transportation)	13	7.8
Parking lot/public parking garage	10	6.0
Retail and entertainment:		
Bar, nightclub/ Liquor Store/ Other commercial establishment	9	2.4
Other:		
Other	13	7.8
Total Known Place of Homicide	**166**	100.0
Unknown	4	--
Total Homicides	**170**	**--**

Of the 166 homicides where location of injury information was reported:

- Forty-three percent of homicides occurred in a residence (N=71).
- Thirty percent of homicides occurred on a street, sidewalk, or alley (N=50).
- Approximately 8% of homicides occurred in a motor vehicle (N=13).
- Six percent of homicides occurred in a parking lot/public parking garage (N=10).

[1] Percentages are based on the total number of cases for which location was known (N=166).

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=170). See Appendix A for more information on circumstances.

Table 3.9 : Circumstances of Homicide: Number and Percent, MA 2008[1]		
	N	**%**
Total number of homicides	**170**	**--**
Total number of victims with reported circumstances	**135**	**--**
Argument/abuse/conflict[2]	45	26.5
Gang rivalry or gang activities suspected to have played role in precipitating the homicide	29	17.1
Precipitated by another crime	26	15.3
▪ Precipitating crime was in progress at time of homicide	*22*	*12.9*
Intimate partner violence related	25	14.7
Drug involvement (drug dealing or illegal drug use)	14	8.2
Drive-by shooting	8	4.7
The victim used a weapon during the course of the incident	8	4.7
Jealousy	8	4.7
Argument over money/property/drugs	7	4.1

Of the 170 homicides:

- Almost 27% were precipitated by an argument, abuse, or conflict. This excludes those circumstances that can be counted in intimate partner-related, gang-related, drug-related, or argument over money/property/drugs.
- Seventeen percent were noted to be gang rivalry or gang activity-related.
- Fifteen percent were noted to be precipitated by another crime, i.e. the homicide occurred as a result of another felony. Those crimes include robbery (N=9), drug trade (N=5), and assault (N=8).
- Fifteen percent were noted to have involved intimate partner violence.
- There were no deaths of police officers on duty in 2008.

[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.

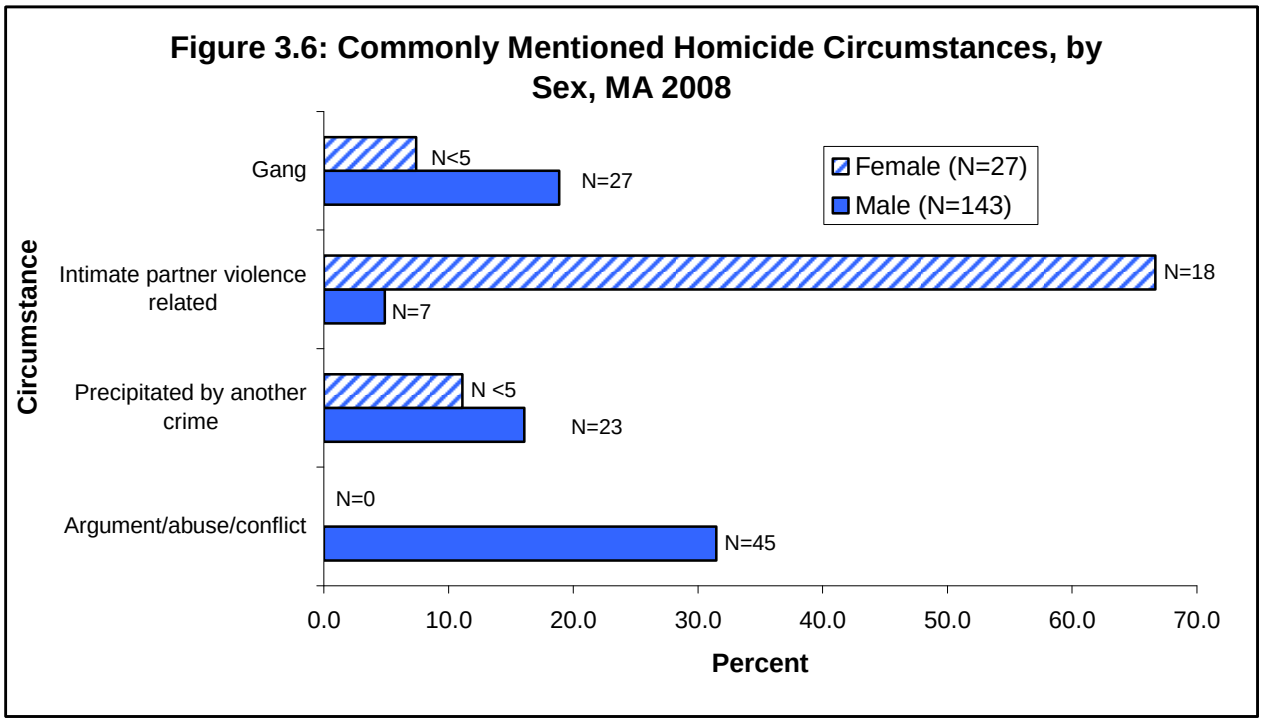
Table 3.10: Homicide Circumstances by Age Group: Number and Percent, MA 2008		
	N	**%**
Age 15 to 24		
Total number of victims	**66**	--
Gang-related	21	31.8
Argument/abuse/conflict[1]	14	21.2
Precipitated by another crime	6	9.1
Intimate partner violence related	6	9.1
Drug-related	6	9.1
Age 25 to 44		
Total number of victims	**76**	**--**
Argument/abuse/conflict[1]	27	35.5
Precipitated by another crime	14	18.4
▪ Precipitating crime was in progress at time of homicide	*12*	*15.8*
Intimate partner violence-related	13	17.1
Gang-related	7	9.2
Drug-related	6	7.9

- Of the 170 homicide victims, circumstance information was known for 135 victims of homicide (79%). There were 2 victims in the 0-14 age group and one in the 65+ age group, which is not shown on the above table due to small numbers. The 45-64 age group had 25 victims but circumstances were less than five and therefore, not presented.

- The most frequently noted circumstance among homicides of victims ages 15-24 was gang-related (32%) followed by homicides involving an argument/abuse/conflict (21%).

- Among victims ages 25-44 argument/abuse/conflict (36%) was the most often noted circumstance, followed by precipitated by another crime (18%).

[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.



- There were 143 male (84%) and 27 female homicide victims (16%) for a total of 170 homicides.
- Of the 170 homicides, 79% of males (N=113) and 81% of females (N=22) had at least one circumstance known or noted.
- The most frequently noted circumstance for males was argument/abuse/conflict (N=45, 32%).
- For females, the most frequently noted circumstance was intimate partner violence-related (N=18, 67%).

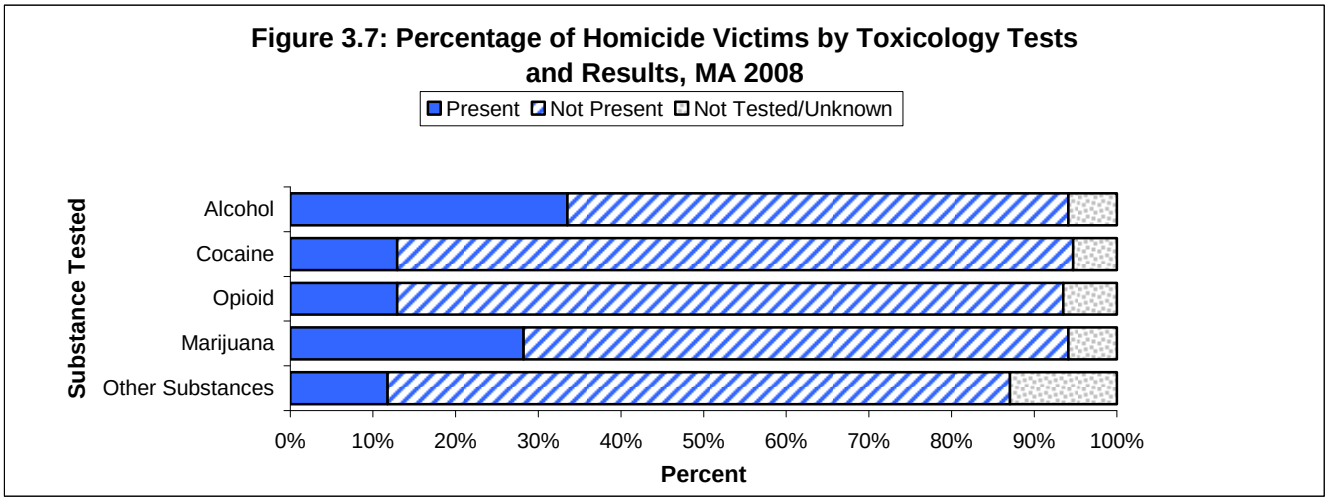
SUSPECT INFORMATION

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 2008		
	N	**Percent**
Total Homicide Victims	**170**	**100.0**
With suspect information	110	64.7
With **no** suspect information	60	35.3
Suspect Demographics		
Sex		
Total suspects	**136**	**100.0**
Male	123	90.4
Female	7	5.1
Unknown Sex	6	4.4
Age Group		
Total suspects	**136**	**100.0**
Known Age	109	80.1
Unknown Age	27	19.9
Suspects with Known Age	**109**	**100.0**
0-14	3	2.8
15-24	48	44.0
25-34	30	27.5
35-44	14	12.8
45-54	7	6.4
55 and over	7	6.4

- **Homicide victims**: Information on suspect(s) was known for 65% of homicide victims (N=110).
- **Homicide incidents**: Of the 109 incidents with suspect information, 83% had *only one* suspect associated with it (N=91). Eighteen incidents had *more* than one suspect (17%).
- Among the 109 identified suspects with known age, most (44%) were between the ages of 15-24 years, followed by age group 25-34 (28%). These two age groups account for 72% of suspects with information on age.

- There were 76 victims of homicides where the relationship between the victim to the primary suspect was known. In the majority of these cases (80%), the victim and suspect were known to each other (e.g. family member, intimate partner, friend, acquaintance, etc.). Of these identified suspects:
  - 24% (N= 18) of suspects were a current or former intimate partner of the victim.
  - 11% (N=8) of suspects were a family member or caregiver of the victim.
  - 46% (N=35) of suspects were someone else known to the victim.



- Among the 170 homicide victims, approximately 94% of victims were tested for alcohol, opioids, and marijuana. Approximately 95% were tested for cocaine (N=161) and 87% were tested for other substances (N=148). 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. The majority of victims were not positive for any of these substances. Thirty-six percent of victims tested for alcohol were positive for alcohol; 17.5% of these had results of .04 or less, which may be due to decomposition rather than ingestion of alcohol. Approximately 30% of victims who were tested for marijuana had positive results.[1] Fourteen percent of victims tested were positive for opioids and 14% were positive for cocaine.

Table 3.12: Blood Alcohol Concentration of Homicide Victims that Tested Positive by Age Group: Number and Percent, MA 2008[1]

	Age Group									
	< 21		21-44		45-64		65+		Total	
BAC %[2]	N	%	N	%	N	%	N	%	N	%
0.010 - 0.040[3]	<5	--	7	15.9	0	0.0	0	0.0	10	17.5
0.041 - 0.079	<5	--	11	25.0	<5	--	0	0.0	14	24.6
0.08 and over	6	60.0	23	52.3	<5	--	0	0.0	30	52.6
Unknown[4]	0	0.0	<5	--	0	0.0	0	0.0	<5	--
Total	**10**	**100.0**	**44**	**100.0**	**<5**	**--**	**0**	**0.0**	**57**	**100.0**

- Approximately 94% of homicide victims (N=160) were tested for Blood Alcohol Concentration (BAC) and 36% tested positive (N=57).
- Among all homicide victims where BAC tested positive, approximately 77% of victims had a BAC of 0.041 and over (N=44). 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

Section Four:

Data Highlights for 2008:[1]

- Deaths of undetermined intent claimed an average of about two lives per week in 2008 (N=87).
- The rate of undetermined intent deaths for males (1.8/100,000) was approximately two times higher than the rate for females (0.9/100,000).
- Forty-seven percent of deaths of undetermined intent (N=41) were the result of poisonings/drug overdoses.

Compared to 2007:

- The number of undetermined deaths decreased by 17% from N=102 in 2007 to N=87 in 2008.

Compared to the U.S.:[2]

- In 2008, Massachusetts had a slightly lower age-adjusted rate (1.3/100,000) of undetermined intent deaths compared to the 2007 national age-adjusted rate (1.8/100,000).
- The age-adjusted rate for deaths of undetermined intent for males in 2007 was 2.2/100,000 in the U.S. and 1.7/100,000 in Massachusetts in 2008.
- The age-adjusted rate for deaths of undetermined intent for females was 1.3/100,000 in the U.S. in 2007 and 0.8/100,000 in Massachusetts in 2008.

[1] Please note that an important change occurred in 2005 affecting the number of undetermined deaths in Massachusetts. Most injury deaths are referred to the MA 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 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 undetermined. With the new policy, these deaths are assigned a manner of accident/unintentional, like most other states.

[2] U.S. age-adjusted data for 2008 was not available when queried on 2/9/2011 for publication and use in this report, therefore 2007 U.S. numbers were used.

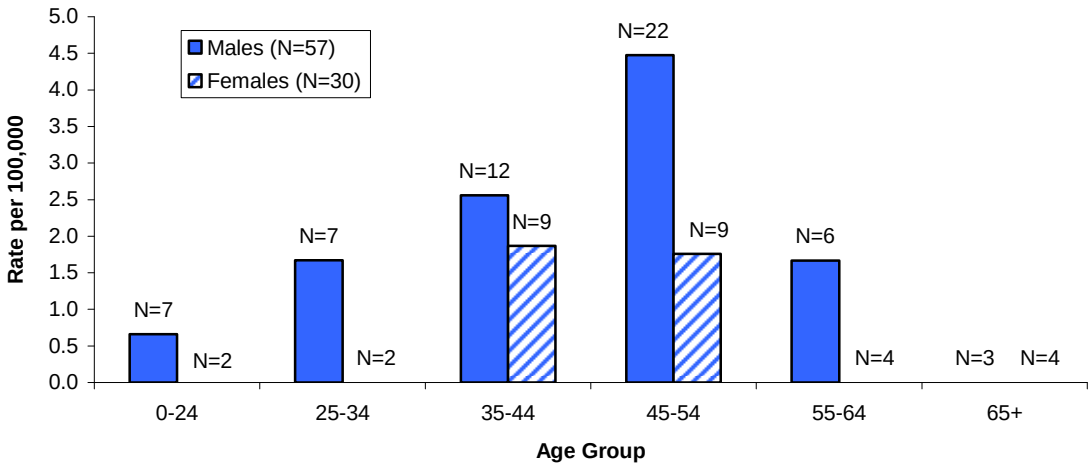
Table 4.1: Deaths of Undetermined Intent by Demographics: Number, Percent, and Rate, MA 2008			
	N	Percent	Rate per 100,000[1]
Sex			
Male	57	65.5	1.8
Female	30	34.5	0.9
Race/Ethnicity			
White, non-Hispanic	74	85.1	1.4
Black, non-Hispanic	6	6.9	1.5
Asian, non-Hispanic	4	4.6	--
Hispanic	3	3.4	--
Other/mixed[2]	0	0.0	0.0
Age Group			
0-14	2	2.3	--
15-24	7	8.0	0.8
25-34	9	10.3	1.1
35-44	21	24.1	2.2
45-54	31	35.6	3.1
55-64	10	11.5	1.3
65-74	3	3.4	--
75-84	1	1.1	--
85+	3	3.4	--
Unknown	0	0.0	0.0
Total	**87**	**100.0**	**1.3**

ADDITIONAL FINDINGS FOR 2008:

- The youngest undetermined intent victim was 6 years old and the oldest was 96 years old.
- The mean age for undetermined intent victims was 45.4 and the median age was 46.0 years old.
- There were nine homeless persons whose death was of undetermined intent.
- No victims of undetermined intent died in custody, such as jail, state institution, or foster care.[3]
- There was one death of undetermined intent that occurred at work.
- Five war veterans'[4] deaths were of undetermined intent.

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

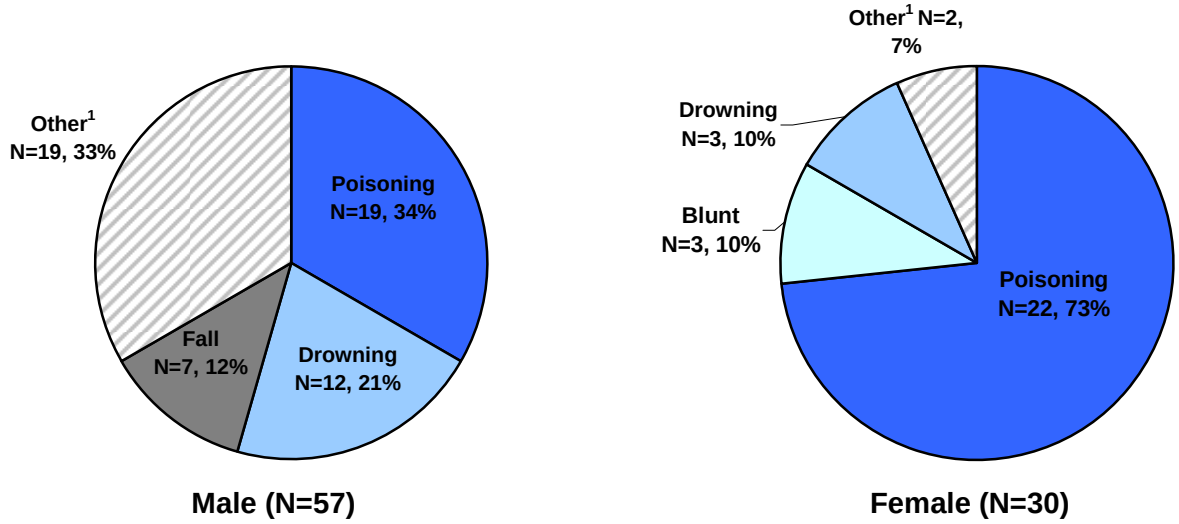
Figure 4.1: Deaths of Undetermined Intent by Age Group and Sex: Number and Rate, MA 2008



- For deaths of undetermined intent, approximately 70% of males were between the ages of 35 to 64. The Massachusetts population is comprised of 42% males ages 35 to 64.
- For deaths of undetermined intent, approximately 73% of females were between the ages of 35 to 64. The Massachusetts population is comprised of 41% females ages 35 to 64.
- Males ages 45-54 had the highest rate among males (4.5/100,000). Females ages 35-44 and 45-54 had the highest rates among females (1.9/100,000 and 1.8/100,000 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.

Figure 4.2: Deaths of Undetermined Intent by Type of Weapon and Sex, MA 2008

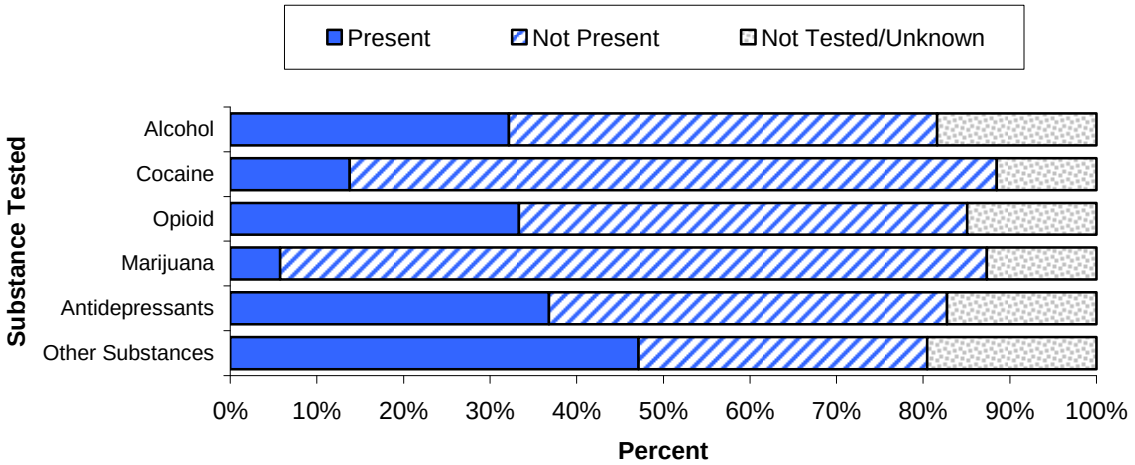


Total (N =87)

- 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 a majority (47%) of deaths of undetermined intent in Massachusetts in 2008 (N=41).
- The leading weapon type was poisoning/drug overdoses for both males (33%, N=19) and females (73%, N=22).
- Other leading weapon types for males and females included drowning and falls.
- Of the poisoning deaths, 61% of victims (N=25) ingested more than one poison/drug.
- Of the poisoning/drug overdose deaths (N=41):
  - 80% (N=33) were due to the ingestion of a street/recreation drug, alcohol, pharmaceutical prescription, or over-the-counter medication.
  - 2% (N=1) was due to carbon monoxide poisoning or other gas, or vapor.
  - 12% (N=5) were due to the ingestion of another poison (such as antifreeze).
  - 5% (N=2) were due to an unknown poison.

[1] Weapons that are less than 10% of the male or female total are included in "0ther." Other weapons for males include "personal weapons" which are from bodily assaults (such as hands and feet), blunt, fire/burn, firearm, hanging/strangulation/suffocation, motor vehicle, other transport, and unknown weapon. Other weapons for females include: other transport and other specified weapon. See Appendix A for a complete list of weapons.

Figure 4.3: Percentage of Undetermined Intent Victims by Toxicology Tests and Results, MA 2008



- Of the 87 victims of undetermined intent deaths, 82% were tested for Blood Alcohol Concentration, 89% for cocaine, 85% for opioids, and 87% for marijuana. Approximately 83% were tested for antidepressants.
- Eighty percent (N=70) of victims were tested for other substances, such as benzodiazepines, anti-psychotics, over-the-counter drugs, and carbon monoxide. Of those, 47% (N= 41) tested positive for an additional substance.[1]
- Almost forty-four percent (N=32) of victims tested were positive for antidepressants. Approximately 39% 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]

Table 4.2: Blood Alcohol Concentration of Undetermined Intent Victims that Tested Positive by Age Group: Number and Percent, MA 2008[1]

	Age Group									
	< 21		21-44		45-64		65+		Total	
BAC %[2]	N	%	N	%	N	%	N	%	N	%
0.010 - 0.04[3]	0	0.0	<5	--	<5	--	0	0.0	<5	--
0.041 - 0.079	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
0.08 and over	<5	--	6	75.0	14	82.4	<5	--	23	82.1
Unknown[4]	0	0.0	<5	--	0	0.0	0	0.0	<5	--
Total	**<5**	**100.0**	**8**	**100.0**	**17**	**100.0**	**<5**	**100.0**	**28**	**100.0**

- Eighty-two percent (N=71) of undetermined intent victims were tested for Blood Alcohol Concentration (BAC) and 39% (N=28) had a positive BAC.
- Eighty-two percent (N=23) 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.
[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 BAC numbers are those where the victim was tested and alcohol was present, but the specific BAC results were not available at the time of abstraction.

Technical Notes

Appendix A:

Technical Notes

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

Annual Estimates of the Population for Counties of Massachusetts, 2008

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:

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

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

Deaths of Undetermined Intent
An important change occurred in 2005 affecting the number of undetermined deaths in Massachusetts. Most injury deaths are referred to the MA 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 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 undetermined. With the new policy, these deaths are assigned a manner of accident/unintentional. This change caused the number of undetermined deaths in 2005, and subsequent years, to be substantially less than in previous years.

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

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

Calculating Rates
In calculating rates for **race, Hispanic origin, sex, age group, and county**, 2008 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, 2008, by year, county, age, bridged race, Hispanic origin, and sex (Vintage 2008). Prepared under a collaborative arrangement with the U.S. Census Bureau; released May 14, 2009. Available from: http://www.cdc.gov/nchs/nvss/bridged_race/data_documentation.htm#vintage2008

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 2006-2008 3-Year Estimates found on the internet at:
http://factfinder.census.gov/servlet/DTTable?_bm=y&-state=dt&-context=dt&-ds_name=ACS_2008_3YR_G00_&-mt_name=ACS_2008_3YR_G2000_C15002&-CONTEXT=dt&-tree_id=3308&-redoLog=true&-geo_id=04000US25&-search_results=01000US&-format=&-_lang=en

And http://factfinder.census.gov/servlet/DTTable?_bm=y&-context=dt&-ds_name=ACS_2008_3YR_G00_&-mt_name=ACS_2008_3YR_G2000_B12001&-CONTEXT=dt&-tree_id=3308&-redoLog=true&-geo_id=04000US25&-search_results=01000US&-format=&-_lang=en

City/town rates are calculated using 2008 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, 2008 (SUB-EST2008-05-25) Source: Population Division, U.S. Census Bureau, Release Date: July 1, 2009.

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

ANNUAL ESTIMATES OF THE POPULATION FOR COUNTIES OF MASSACHUSETTS, 2008

Annual Estimates of the Population for Counties of Massachusetts, 2008[1]		
County	**2008 Population Estimate**	**Percent of population**
Barnstable	221,049	3.4
Berkshire	129,395	2.0
Bristol	545,823	8.4
Dukes	15,527	0.2
Essex	736,457	11.3
Franklin	71,735	1.1
Hampden	460,840	7.1
Hampshire	154,983	2.4
Middlesex	1,482,478	22.8
Nantucket	11,215	0.2
Norfolk	659,909	10.2
Plymouth	492,066	7.6
Suffolk	732,684	11.3
Worcester	783,806	12.1
Total	**6,497,967**	**100.0**

[1] Annual Estimates of the Resident Population for Counties of Massachusetts: April 1, 2000 to July 1, 2008 (CO-EST2008-01-25) Population Division, U.S. Census Bureau, Release Date: March 19, 2009

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).

Circumstance

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

Homicide Circumstances include the following:

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

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

Suicide/Undetermined Circumstances include the following:

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

Unintentional Firearm Circumstances include the following:

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

Glossary

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

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

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

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

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

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

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

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

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

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

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

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.

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

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

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

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

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

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

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

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

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

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

Weapons

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

The following are the weapon choices for NVDRS:

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

Violent Death Age-adjusted Rates

Appendix B:

Violent Deaths

- Table 1: Violent Deaths by Intent and Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008
- Table 2: Violent Deaths by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008
- Table 3: Violent Deaths by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008

Suicides

- Table 4: Suicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008
- Table 5: Suicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted, Rate, MA 2008
- Table 6: Suicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008

Homicides

- Table 7: Homicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008
- Table 8: Homicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008
- Table 9: Homicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008

Deaths of Undetermined Intent

- Table 10: Deaths of Undetermined Intent by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008
- Table 11: Deaths of Undetermined Intent by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008
- Table 12: Deaths of Undetermined Intent by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008

Table 1. Violent Deaths by Intent and Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008[1]				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
Intent				
Suicide	503	65.6	7.7	7.4 (6.7, 8.0)
Homicide	170	22.2	2.6	2.6 (2.2, 3.0)
Undetermined	87	11.3	1.3	1.3 (1.0, 1.5)
Unintentional firearm	1	0.1	--	--
Legal Intervention	6	0.8	0.1	0.1 (0.02, 0.2)
Sex				
Male	600	78.2	19.0	18.5 (17.0, 20.0)
Female	167	21.8	5.0	4.8 (4.1, 5.5)
Race/Ethnicity				
White, non-Hispanic	583	76.0	11.2	10.6 (9.7, 11.4)
Black, non-Hispanic	95	12.4	23.5	21.1 (16.8, 25.4)
Asian, non-Hispanic	18	2.3	5.4	6.8 (3.4, 10.3)
Hispanic	63	8.2	11.3	10.6 (7.8, 13.4)
Other/mixed[2]	8	1.0	--	--
Age Group				
0-14	9	1.2	0.8	NA
15-24	122	15.9	13.2	NA
25-34	111	14.5	13.3	NA
35-44	172	22.4	18.1	NA
45-54	188	24.5	18.7	NA
55-64	91	11.9	12.2	NA
65-74	37	4.8	8.6	NA
75-84	24	3.1	8.0	NA
85+	13	1.7	9.1	NA
Unknown	0	0.0	0.0	NA
Total	**767**	**100.0**	**11.8**	**11.4 (10.6, 12.2)**

[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.

Table 2. Violent Deaths by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008[1]				
Female	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	141	84.4	5.3	4.9 (4.1, 5.8)
Black, non-Hispanic	12	7.2	5.8	5.6 (2.4, 8.8)
Asian, non-Hispanic	5	3.0	3.0	3.6 (0.2, 7.1)
Hispanic	7	4.2	2.5	2.3 (0.6, 4.1)
Other/mixed[2]	2	1.2	--	--
Total	**167**	**100.0**	**5.0**	**4.8 (4.1, 5.5)**
Male	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95% CI)**
White, non-Hispanic	442	73.7	17.6	16.6 (15.1, 18.2)
Black, non-Hispanic	83	13.8	42.1	37.1 (28.8, 45.5)
Asian, non-Hispanic	13	2.2	8.0	10.3 (4.2, 16.4)
Hispanic	56	9.3	20.1	19.0 (13.5, 24.5)
Other/mixed[2]	6	1.0	--	--
Total	**600**	**100.0**	**19.0**	**18.5 (17.0, 20.0)**

Table 3. Violent Deaths by County: Number, Percent, Crude Rate, Age-adjusted Rate, MA 2008				
County	**N**	**Percent[3]**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95% CI)**
Barnstable	36	5.1	16.3	15.7 (10.3, 21.1)
Berkshire	18	2.6	13.9	14.2 (7.4, 20.9)
Bristol	61	8.7	11.2	10.9 (8.2, 13.7)
Dukes	2	0.3	--	--
Essex	75	10.7	10.2	10.0 (7.7, 12.3)
Franklin	7	1.0	9.8	8.6 (1.9, 15.3)
Hampden	64	9.1	13.9	14.0 (10.6, 17.5)
Hampshire	16	2.3	10.3	10.1 (5.0, 15.3)
Middlesex	113	16.1	7.6	7.1 (5.8, 8.5)
Nantucket	2	0.3	--	--
Norfolk	55	7.8	8.3	7.9 (5.8, 10.0)
Plymouth	54	7.7	11.0	11.0 (8.0, 13.9)
Suffolk	122	17.4	16.7	14.9 (12.2, 17.5)
Worcester	78	11.1	10.0	9.7 (7.5, 11.8)
Unknown/Outside MA[4]	64	--	--	--
Total known MA county	**703**	**100.0**	**--**	**--**
Total	**767**	**--**	**11.8**	**11.4 (10.6, 12.2)**

[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 violent death (N=703); total rate is based on total violent deaths (N=767).
[4] Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

Table 4. Suicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008[1]				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	393	78.1	12.5	12.1 (10.9, 13.3)
Female	110	21.9	3.3	3.1 (2.6, 3.7)
Race/Ethnicity				
White, non-Hispanic	459	91.3	8.8	8.2 (7.5, 9.0)
Black, non-Hispanic	12	2.4	3.0	2.9 (1.2, 4.5)
Asian, non-Hispanic	12	2.4	3.6	4.1 (1.6, 6.6)
Hispanic	18	3.6	3.2	3.7 (1.8, 5.6)
Other/mixed[2]	2	0.4	--	--
Age Group				
0-14	4	0.8	--	NA
15-24	48	9.5	5.2	NA
25-34	55	10.9	6.6	NA
35-44	118	23.5	12.4	NA
45-54	139	27.6	13.9	NA
55-64	73	14.5	9.8	NA
65-74	33	6.6	7.7	NA
75-84	23	4.6	7.7	NA
85+	10	2.0	7.0	NA
Total	**503**	**100.0**	**7.7**	**7.4 (6.7, 8.0)**

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

Table 5. Suicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008[1]				
Female	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	99	90.0	3.7	3.5 (2.8, 4.2)
Black, non-Hispanic	4	3.6	--	--
Asian, non-Hispanic	4	3.6	--	--
Hispanic	3	2.7	--	--
Other/mixed[2]	0	0.0	0.0	0.0
Total	**110**	**100.0**	**3.3**	**3.1 (2.6, 3.7)**
Male	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	360	91.6	14.4	13.5 (12.1, 14.9)
Black, non-Hispanic	8	2.0	4.1	3.8 (1.1, 6.5)
Asian, non-Hispanic	8	2.0	4.9	6.0 (1.5, 10.5)
Hispanic	15	3.8	5.4	6.7 (2.8, 10.6)
Other/mixed[2]	2	0.5	--	--
Total	**393**	**100.0**	**12.5**	**12.1 (10.9, 13.3)**

Table 6. Suicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008				
County	**N**	**Percent[3]**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95% CI)**
Barnstable	32	6.8	14.5	13.3 (8.4, 18.3)
Berkshire	14	3.0	10.8	11.1 (5.1, 17.1)
Bristol	46	9.7	8.4	8.2 (5.8, 10.6)
Dukes	2	0.4	--	--
Essex	50	10.5	6.8	6.5 (4.7, 8.3)
Franklin	6	1.3	8.4	7.5 (1.1,13.8)
Hampden	43	9.1	9.3	9.3 (6.5, 12.1)
Hampshire	16	3.4	10.3	10.1 (5.0, 15.3)
Middlesex	88	18.6	5.9	5.5 (4.3, 6.6)
Nantucket	1	0.2	--	--
Norfolk	41	8.6	6.2	5.8 (4.0, 7.6)
Plymouth	38	8.0	7.7	7.6 (5.2, 10.1)
Suffolk	39	8.2	5.3	5.1 (3.5, 6.8)
Worcester	58	12.2	7.4	7.2 (5.3, 9.1)
Unknown/Outside MA[4]	29	--	--	--
Total known MA county	**474**	**100.0**	**--**	**--**
Total	**503**	**--**	**7.7**	**7.4 (6.7, 8.0)**

[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=474); total rate is based on total number of suicides (N=503).
[4] Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

Table 7. Homicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008[1]				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	143	84.1	4.5	4.5 (3.7, 5.2)
Female	27	15.9	0.8	0.8 (0.5, 1.1)
Race/Ethnicity				
White, non-Hispanic	44	25.9	0.8	0.8 (0.6, 1.1)
Black, non-Hispanic	76	44.7	18.8	16.3 (12.6, 20.0)
Asian, non-Hispanic	2	1.2	--	--
Hispanic	42	24.7	7.5	6.4 (4.4, 8.4)
Other/mixed[2]	6	3.5	--	--
Age Group				
0-14	2	1.2	--	NA
15-24	66	38.8	7.1	NA
25-34	45	26.5	5.4	NA
35-44	31	18.2	3.3	NA
45-54	17	10.0	1.7	NA
55-64	8	4.7	1.1	NA
65-74	1	0.6	--	NA
75-84	0	0.0	0.0	NA
85+	0	0.0	0.0	NA
Total	**170**	**100**	**2.6**	**2.6 (2.2, 3.0)**

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

Table 8. Homicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008[1]				
Female	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	15	55.6	0.6	0.5 (0.3, 0.8)
Black, non-Hispanic	7	25.9	3.4	3.2 (0.8, 5.6)
Asian, non-Hispanic	0	0.0	0.0	--
Hispanic	3	11.1	--	--
Other/mixed[2]	2	7.4	--	--
Total	**27**	**100.0**	**0.8**	**0.8 (0.5, 1.1)**
Male	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	29	20.3	1.2	1.1 (0.7, 1.6)
Black, non-Hispanic	69	48.3	35.0	29.4 (22.4, 36.5)
Asian, non-Hispanic	2	1.4	--	--
Hispanic	39	27.3	14.0	11.6 (7.9,15.4)
Other/mixed[2]	4	2.8	--	--
Total	**143**	**100.0**	**4.5**	**4.5 (3.7, 5.2)**

Table 9. Homicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008[1]				
County	**N**	**Percent[3]**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95% CI)**
Barnstable	2	1.2	--	--
Berkshire	4	2.4	--	--
Bristol	9	5.5	1.6	1.7 (0.6, 2.8)
Dukes	0	0.0	0.0	0.0
Essex	15	9.1	2.0	2.1 (1.0, 3.2)
Franklin	0	0.0	0.0	0.0
Hampden	18	11.0	3.9	4.0 (2.2, 5.9)
Hampshire	0	0.0	0.0	0.0
Middlesex	17	10.4	1.1	1.2 (0.6, 1.7)
Nantucket	0	0.0	0.0	0.0
Norfolk	6	3.7	0.9	1.0 (0.2, 1.8)
Plymouth	10	6.1	2.0	2.1 (0.8, 3.4)
Suffolk	71	43.3	9.7	8.2 (6.3, 10.1)
Worcester	12	7.3	1.5	1.5 (0.7, 2.4)
Unknown/Outside MA[4]	6	--	--	--
Total known MA county	**164**	**100.0**	**--**	**--**
Total	**170**	**--**	**2.6**	**2.6 (2.2, 3.0)**

[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=164), total rate is based on total number of homicides (N=170).
[4] Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

Table 10. Deaths of Undetermined Intent by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008[1]				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	57	65.5	1.8	1.7 (1.3, 2.2)
Female	30	34.5	0.9	0.8 (0.5, 1.2)
Race/Ethnicity				
White, non-Hispanic	74	85.1	1.4	1.3 (1.0, 1.7)
Black, non-Hispanic	6	6.9	1.5	1.7 (0.3, 3.1)
Asian, non-Hispanic	4	4.6	--	--
Hispanic	3	3.4	--	--
Other/mixed[2]	0	0.0	0.0	0.0
Age Group				
0-14	2	2.3	--	NA
15-24	7	8.0	0.8	NA
25-34	9	10.3	1.1	NA
35-44	21	24.1	2.2	NA
45-54	31	35.6	3.1	NA
55-64	10	11.5	1.3	NA
65-74	3	3.4	--	NA
75-84	1	1.1	--	NA
85+	3	3.4	--	NA
Unknown	0	0.0	0.0	NA
Total	**87**	**100.0**	**1.3**	**1.3 (1.0, 1.5)**

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

Table 11. Deaths of Undetermined Intent by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008[1]				
Female	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	27	90.0	1.0	0.9 (0.6, 1.3)
Black, non-Hispanic	1	3.3	--	--
Asian, non-Hispanic	1	3.3	--	--
Hispanic	1	3.3	--	--
Other/mixed[2]	0	0.0	0.0	0.0
Total	**30**	**100.0**	**0.9**	**0.8 (0.5, 1.2)**
Male	**N**	**Percent**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95%CI)**
White, non-Hispanic	47	82.5	1.9	1.8 (1.3, 2.3)
Black, non-Hispanic	5	8.8	2.5	3.4 (0.0, 6.9)
Asian, non-Hispanic	3	5.3	--	--
Hispanic	2	3.5	--	--
Other/mixed[2]	0	0.0	0.0	0.0
Total	**57**	**100.0**	**1.8**	**1.7 (1.3, 2.2)**

Table 12. Deaths of Undetermined Intent by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2008[1]				
County	**N**	**Percent[3]**	**Crude Rate per 100,000**	**Age-adjusted Rate per 100,000 (95% CI)**
Barnstable	2	3.4	--	--
Berkshire	0	0.0	0.0	0.0
Bristol	4	6.9	--	--
Dukes	0	0.0	0.0	0.0
Essex	9	15.5	1.2	1.2 (0.4, 2.0)
Franklin	1	1.7	--	--
Hampden	2	3.4	--	--
Hampshire	0	0.0	0.0	0.0
Middlesex	8	13.8	0.5	0.5 (0.1, 0.8)
Nantucket	1	1.7	--	--
Norfolk	7	12.1	1.1	0.9 (0.2, 1.6)
Plymouth	4	6.9	--	--
Suffolk	12	20.7	1.6	1.6 (0.7, 2.4)
Worcester	8	13.8	1.0	0.9 (0.3, 1.5)
Unknown/Outside MA[4]	29	--	--	--
Total known MA county	**58**	**100.0**	**--**	**--**
Total	**87**	**--**	**1.3**	**1.3 (1.0, 1.5)**

[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= 58); total rate is based on total number of undetermined intent deaths (N=87).
[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, 2008
Massachusetts Department of Public Health