

FIREARM INJURY IN THE U.S.

The authors of this Resource Book have collective expertise in areas of public health, medicine, nursing, epidemiology, demography, and public policy. The information presented here is based on a wide body of literature and has been reviewed by academic scholars from many different disciplines. Our goal is to offer an inclusive introduction to the field of firearm injury prevention by providing a resource for multiple levels of study.

This Resource Book will help readers:

- Understand the problem of firearm injuries in terms of national public health: the magnitude of gun-related injury, disability, and psychological and economic impact to our society.
- Review the current data available for firearm injury, their limitations, and where more information and study is needed.
- Understand the disproportionate magnitude of firearm injury in the U.S. on an international level of comparison.
- Understand the benefit of addressing firearm injury from a public health approach.
- Learn how potential interventions can be identified to reduce death and disability from firearm injury.

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A NOTE ABOUT THE DATA SOURCES

Data are presented from available sources to illustrate the magnitude of firearm injury in terms of deaths, nonfatal injuries, and other effects on society. Thirteen national data systems are available in the U.S., each managed by a single federal agency, to compile information on firearm mortality, morbidity (nonfatal injury outcomes), and associated risks and behaviors.¹ These data systems primarily collect broad-based information for surveillance and have been created largely in the last 10-15 years. Some advances in these data systems have occurred; however, significant limitations remain. Most importantly, with the exception of the National Violent Death Reporting System, systems are not linked. Important information, such as community-level data, circumstances of firearm deaths, types of weapons used, victim-offender relationships, involvement of substance abuse, or place where the firearm injury occurred, are not consistently collected, leaving the data fragmented. The nonfatal injury data for firearms are particularly limited, as they remain non-specific and difficult to use for epidemiological study.

The main data sources cited in this resource book are:

- The Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS) publishes annual data on deaths from different causes in the National Vital Statistics System. It takes about 18 months to collect, compile, verify and release these statistics to the public, accounting for the lag time in much of the data reported in this resource book. Beginning in 1999, mortality data have been coded using ICD-10 codes. Graphs that include data from 1999 have a break in the trend line because the NCHS has recommended not combining these data. These data can be accessed through: www.cdc.gov/ncipc/wisqars. More detail is available through: <http://wonder.cdc.gov/mortSQL.html>.
- The Federal Bureau of Investigation (FBI) Uniform Crime Reporting (UCR) system compiles crime statistics annually from 17,000 city, county, and state law enforcement agencies that submit data voluntarily. The UCR publishes crime data annually, with a lag time of approximately one year, and is considered the most reliable crime data on homicides. UCR data provide detail on circumstances, and relationships of victims and suspects, when known. The voluntary nature of reporting can cause coverage and comparison issues.
- The Bureau of Justice Statistics (BJS) in the Department of Justice (DOJ) provides the National Crime Victimization Survey (NCVS), collecting data on reported and unreported fatal and nonfatal violent crimes against persons 12 or older. Survey data include crimes that were not reported in law enforcement or health statistics and can be useful in triangulating data. These data are subject to reporting biases and sampling issues.
- The National Electronic Injury Surveillance System (NEISS) provides data for nonfatal firearm injury. NEISS data is collected from a sample of 91 hospitals in the U.S. by the Consumer Product Safety Commission and is extrapolated to the national population to estimate the extent of nonfatal injuries. CPSC's National Electronic Injury Surveillance System (NEISS) is a national probability sample of hospitals in the U.S. and its territories.

Patient information is collected from each NEISS hospital for every emergency visit involving an injury associated with consumer products.

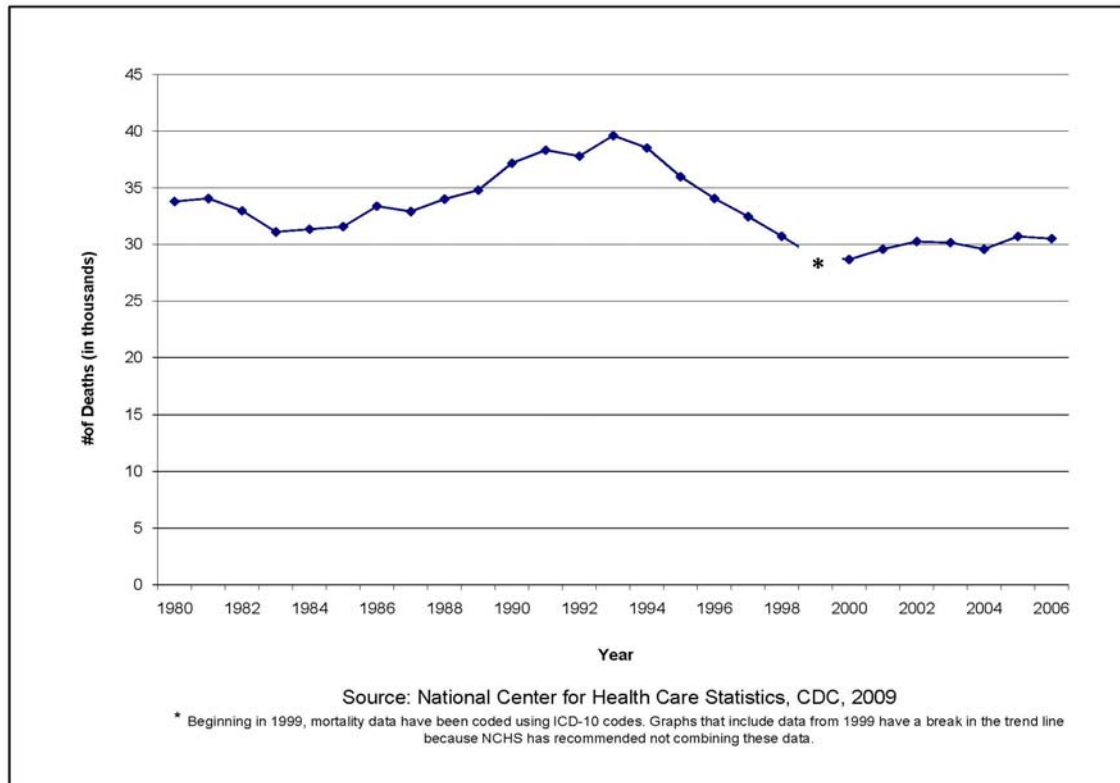
- Data are now available from 16 states participating in the National Violent Death Reporting System (NVDRS). Violent deaths reported for these states represent 25.7 % of firearm deaths in U.S. This project links victim, perpetrator, circumstance and weapon information, which provides the most detailed picture of shooting incidents. This is not a representative sample, so findings do not represent the nation as a whole.
- Professional journals provide other firearm-related research (i.e., trauma registries, surveys, clinical studies), but are mostly limited to single experience, case reports and retrospective analysis.

SECTION I. FIREARM INJURY IN THE UNITED STATES

Firearm injury in the United States has averaged 32,300 deaths annually between 1980 and 2006 (See Figure 1).^{2,3} It is the second leading cause of death from injury after motor vehicle crashes.⁴ An estimated two nonfatal injuries occur for every firearm death.^{5,6} The 2006 age adjusted death rate from firearm injury is 10.2/100,000 with an estimated nonfatal injury rate of 23.6.⁷ Firearms are involved in 68% of homicides, 52% of suicides, 43% of robberies, and 21% of aggravated assaults.^{8,7} Deaths peaked in 1993 at 40,000 in the early 1990s and fell below 30,000 in 1999. Yet even at these lower levels, firearm injury represents a significant public health impact, accounting for 6.6% of premature death in this country (Years of Potential Life Lost (YPLL) prior to age 65).⁹ The fatality rate of firearm violence is more than twice the U.S. Department of Health and Human Services' "Healthy People" goal for the year 2010.

Figure 1. Annual Firearm Mortality – U.S., 1980-2006

In the last twenty-four years, an average of 32,300 Americans died each year from firearm injuries.



Several additional facts compel the interdisciplinary study of firearm injury and development of interventions to reduce its impact:

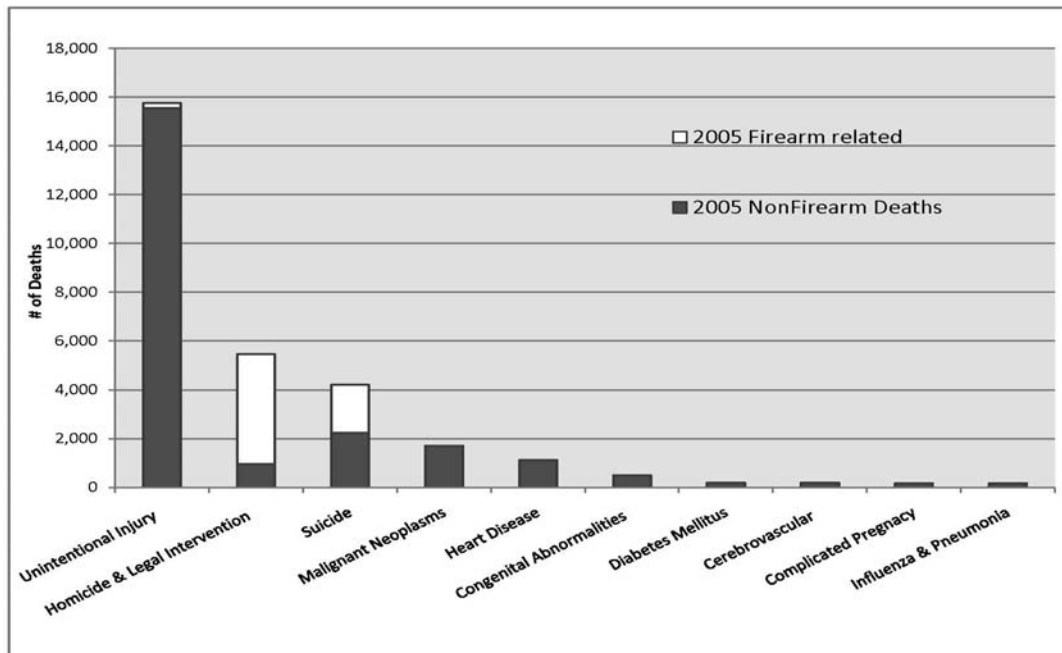
- Firearm injury and its subsequent repercussions are preventable. Research on firearm injury provides evidence that specific changes can be made that will reduce the deaths, disability, and costs to society.

- Firearm injury disproportionately affects young people, resulting in lives cut short or forever affected by violence (See Figure 2).
- Compared to other causes of death, the number of firearm injury and death in the United States demonstrates its impact on American society. Firearms, especially handguns, are effective lethal weapons with the capability to escalate often-impulsive acts of interpersonal violence or suicidal thoughts into death.
- States with higher rates of household firearm ownership had significantly higher homicide victimization rates in multivariate analyses.¹⁰

Figure 2. U.S. Youth Firearm Deaths Compared to Other Causes, 2005

Firearm injury disproportionately affects young people. Among the leading causes of death for those ages 15-24, homicide ranks second and suicide ranks third, and the majority of both are firearm-related. Many diseases that attract more public attention and research funding cause far fewer deaths than firearms.

Top 10 Leading Causes of Death for 15-24 Year Olds, U.S. 2005

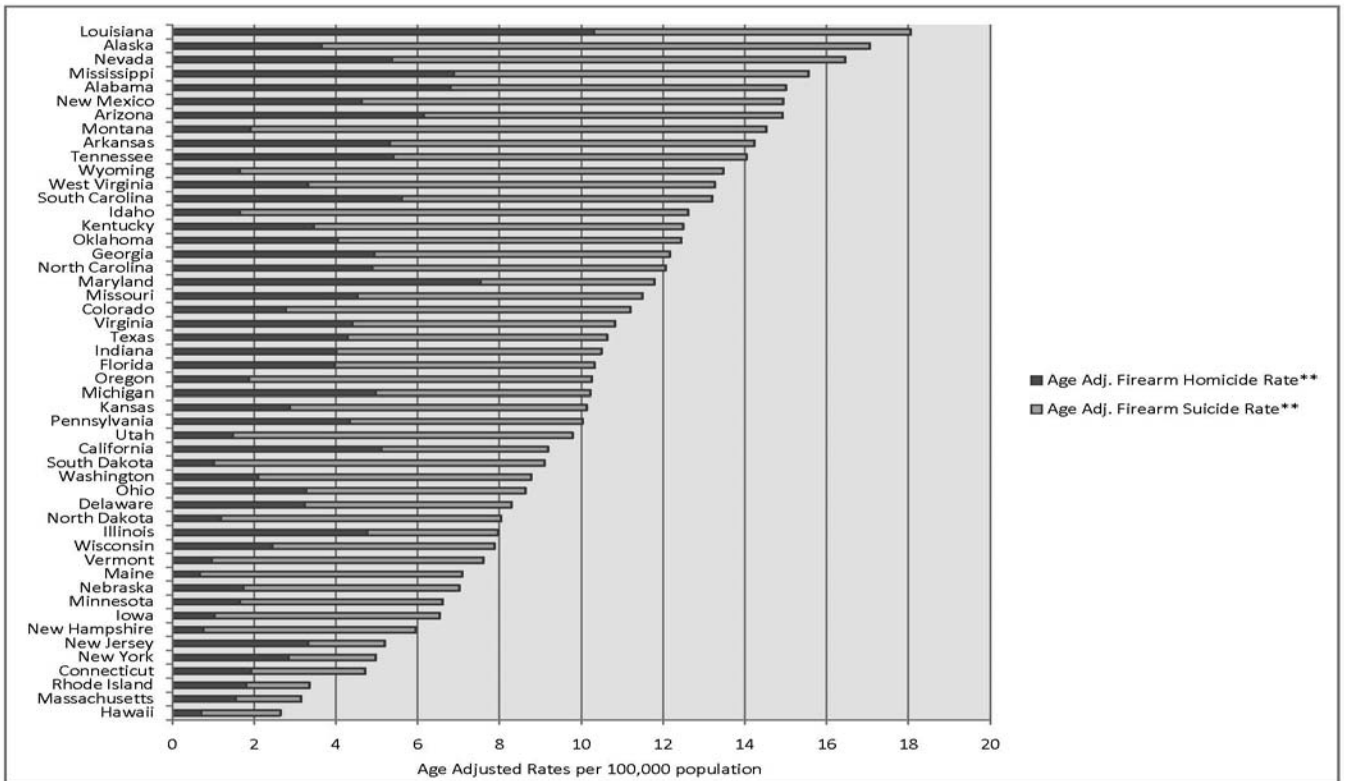


Source: National Center for Injury Prevention and Control, CDC.

STATE COMPARISONS

Firearm death rates in the United States vary by state. The five states with the highest firearm death rates are Louisiana, Alaska, Nevada, Mississippi and Alabama. The states with the lowest rates include Hawaii, Massachusetts, Rhode Island, Connecticut and New York. For most states, firearm suicide rates exceed those of firearm homicide. Rates have been age adjusted to the year 2000 population. This allows comparisons that are not affected by differing population age distributions between states.

Figure 3. Firearm Homicide and Suicide Rates per 100,000, by State, 2003 – 2005.

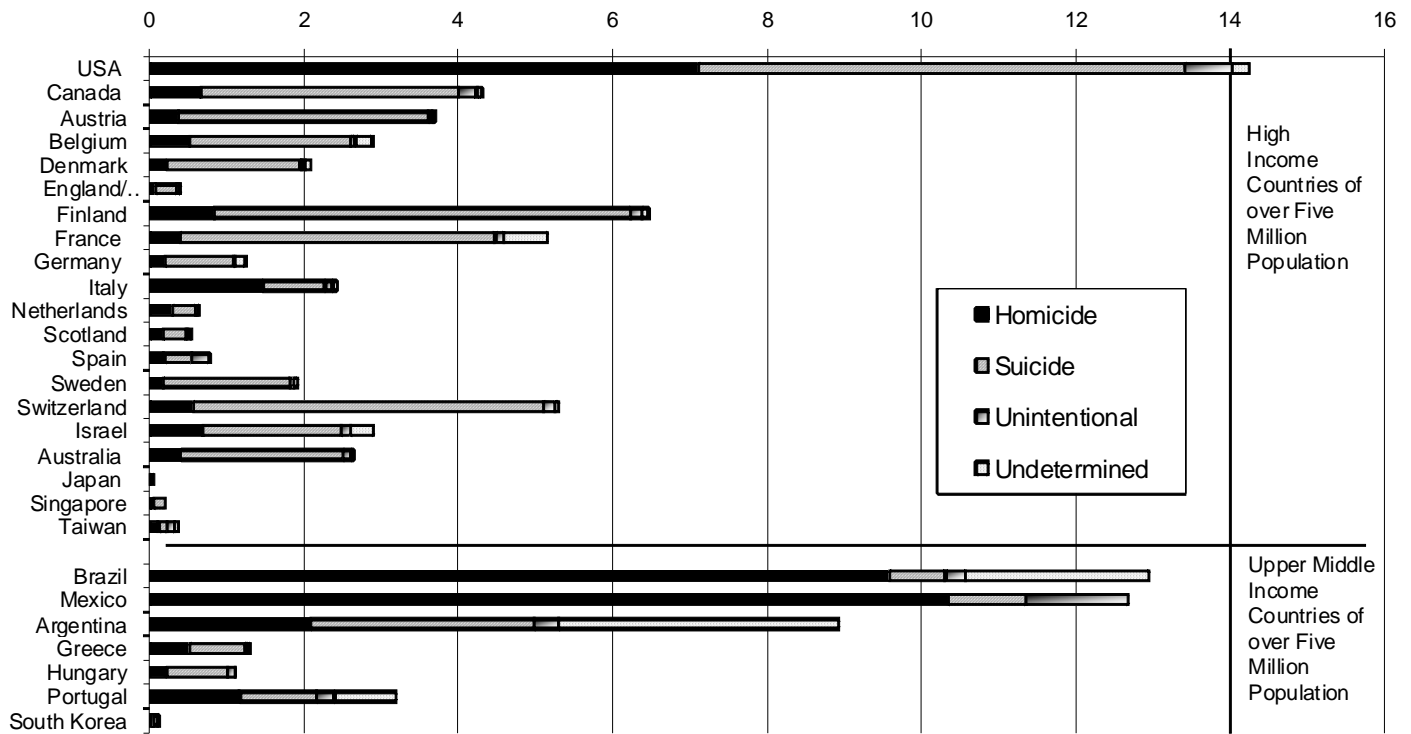


INTERNATIONAL COMPARISONS

Compared to other industrialized countries, violence and firearm death rates in the United States are disproportionately high. Of the approximately 50 upper- and middle-income countries with available data, an estimated 115,000 firearm deaths occur annually and the U.S. contributes about 30,000.¹¹ Among industrialized nations, the U.S. firearm-related death rate is more than twice that of the next highest country (See Figure 4). The firearm death rate for this period in the U.S. (14.24 per 100,000) is eight times the average rate of its economic counterparts (1.76).¹²

Global non-conflict related firearm deaths are estimated to be 196,000 to 229,000 in 2000.¹³ Public data are not available for 122 countries, representing more than three billion (54%) of the world’s population, predominately in lower and lower middle-income countries. Estimates of firearm death for the countries without data range from 33,200 to 66,200.

Figure 4. Age-Adjusted Firearm Mortality Rates per 100,000 Population, by Intent.
Based on single year available data between 1990 and 1995



Source: Krug et al. International Journal of Epidemiology, 1998.

- Compared to high-income Asian countries (Taiwan, Singapore, Hong Kong, and Japan), the firearm mortality rate in the U.S. is over 70 times higher (14.24 per 100,000 in the U.S. compared to 0.1925 per 100,000 in Asia).¹²
- The correlation between firearm availability and rates of homicide is consistent across high-income industrialized nations: where there are more firearms, there are higher rates of homicide overall.¹⁴ The U.S. has among the highest rates of both firearm homicide and private firearm ownership. In 2001 an estimated 35% of U.S. households had a firearm.¹⁵
- Rates of youth violence and death are high worldwide.¹⁶ In the U.S., the youth firearm death rate is high relative to other countries. The death rate for all causes of firearm mortality (homicide, suicide, and unintentional) is higher for people less than 25 years old in the U.S. than in other high-income nations.¹²
- In 1995, the overall firearm-related death rate among American children younger than 15 years was nearly 12 times higher than for children in 25 other industrialized countries combined.¹⁷

- Excluding firearm suicides, the rate of child suicide in the U.S. would be similar to that of other countries.¹⁸
- Among all industrialized countries, more men are killed by firearms than women. However, women in the U.S. die from firearm injuries in a higher proportion than in most other high-income countries.¹²

Endnotes

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