

# LDI *Issue Brief*

Volume 8, Number 2  
October 2002

Leonard Davis Institute of Health Economics

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## *Firearm Injury in America*

Editor's Note: In 2000, nearly 29,000 people in the U.S. died from firearm injury. The vast majority of these people died from suicide (58%) or homicide (38%). And for every person who died, at least two others were shot and survived, often with permanent disability. The Firearm Injury Center at Penn (FICAP), founded in 1997, is a unique collaboration among health professionals, researchers and communities to address the magnitude and impact of firearm injury and violence. In this Issue Brief, FICAP presents an overview of firearm violence, and discusses public health approaches to reducing the toll of violent injury.

## *The impact of firearm violence is immense and pervasive*

No one is untouched by firearm violence in the U.S. It devastates individuals and families directly affected by firearm death and injury; beyond that, it threatens our sense of personal safety and creates a cycle of fear, which leads to more firearms, more violence, and more fear.

- Death by firearms is the second leading cause of fatal injuries in the U.S. (motor vehicle crashes are first.) 2000 was only the second year since 1971 that firearm deaths numbered below 30,000.
- After increasing substantially from 1983-1993, firearm deaths have decreased in the U.S. since 1993. However, the rate remains much higher than in other highly industrialized nations and more than twice as high as the U.S Department of Health and Human Services' "Healthy People" goals for the year 2010.
- The nature of firearm injury differs in rural and urban areas, although the overall risk of firearm death is similar. Rural areas are disproportionately affected by firearm suicide while urban areas experience greater rates of firearm homicide.

**United States Firearm Death Profile, 2000**

	<b>Number</b>	<b>Rate*</b>
<b>Total Firearm Deaths</b>	<b>28,663</b>	<b>10.4</b>
<b>Suicides</b>	<b>16,586 (57.9%)</b>	<b>6.0</b>
<b>Homicides</b>	<b>10,801 (37.7%)</b>	<b>3.9</b>
<b>Unintentional</b>	<b>776 (2.7%)</b>	<b>0.3</b>
<b>Legal Intervention</b>	<b>270 (0.9%)</b>	<b>0.1</b>
<b>Undetermined</b>	<b>230 (0.8%)</b>	<b>0.1</b>

\* Death rate per 100,000 population.

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- In 1994, treatment of firearm injuries in the U.S was estimated at \$2.3 billion in lifetime medical costs (about \$17,000 per injury). Most of these costs accrue from the long-term consequences of being shot, rather than from acute care.
  - Firearm violence imposes an economic burden far beyond the medical costs of treating firearm injuries. Although hard to quantify, these costs accrue from the tangible and intangible ways we react to the threat of firearm violence, and are paid through public resources devoted to law enforcement and violence prevention, decreased property values, limits on choices of where to live and visit, and safety concerns.

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### ***Not all firearms are alike***

An estimated 38% of all households in the U.S. have a firearm; 23% have a handgun. It is critical to understand the different types of firearms and their contribution to firearm injury.

- Roughly two-thirds of the 192 million firearms owned in the U.S are long guns (rifles and shotguns) and one-third are handguns (pistols and revolvers). However, handguns account for almost 80% of firearm homicides and about 70% of firearm suicides.
- Firearm owners report that their primary motivation for owning firearms is recreation (hunting and other sport shooting) and self-protection (against crime). Nearly 75% of owners have more than one gun, and 44% own both a long gun and a handgun.
- Significant differences exist among handgun types, although they are often lumped together in existing data sources. Revolvers typically hold 5-6 cartridges in a revolving cylinder and must be manually reloaded when the cylinder is empty. A revolver fires one bullet with each trigger pull. In contrast, pistols are typically semiautomatic, hold 7 or more cartridges, and have an internal magazine where ammunition is stored. The chamber of a semi-automatic weapon is reloaded automatically after each round is fired, but the trigger must be pulled for each firing.
- Since the 1980s, semi-automatic pistols (especially 9mm pistols) have replaced revolvers as the most popular handguns. In 2000, semi-automatic pistols were the most frequently traced handguns in criminal investigations, especially among youth under age 18. The use of semi-automatic weapons has been associated with an increase in multiple bullet wounds, which increases the likelihood of fatal injury.

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### ***When people commit suicide with firearms***

In 2000, 16,586 people used a firearm (usually a handgun) to commit suicide. About 57% of all suicides are committed using firearms.

- Firearms are a particularly effective means of suicide: about 80% of suicide attempts using a firearm are fatal (compared to 10%-15% by other means).
- About 87% of all people committing suicide with a firearm are men. Although women are two to three times more likely to attempt suicide than men, men are four times as likely to complete suicide primarily because of the lethality of the firearm.

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- The elderly are particularly prone to attempting suicide with a firearm. White males over 75 have the highest rate of suicide by firearms.
  - Recent research has pointed to widening disparities in suicide rates between urban and rural areas. Rural men have about twice the suicide rate of urban men, which may be attributable to the greater prevalence of firearms in rural areas. Firearm suicides account for more than 75% of all suicides in rural counties, as compared to about half of all suicides in the most urban areas.

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### ***When people use firearms against one another***

In 2000, 10,801 people died as a result of homicide by firearm (80% with a handgun). About two-thirds of all homicides are committed using firearms.

- The majority (77%) of firearm homicide victims are younger than 40. More than half are between ages 15-29.
- African American men and women are more likely to be victims of firearm homicide than white men and women. African American men experience a firearm homicide rate more than eight times that of white men.
- The majority of people assaulted with a firearm do not die. About three-quarters survive, some of whom are left with longstanding disabilities.
- Firearms play a significant role in other violent crimes. According to the FBI, in 2000, firearms were used in about 66% of murders, 41% of robberies, and 18% of aggravated assaults.
- Each year, the FBI analyzes the circumstances surrounding murder and nonnegligent manslaughter. In 2000, more than 25% of firearm murders occurred in the context of an argument or brawl, while nearly 18% occurred in connection with a known or suspected felony. The FBI estimates that 1,478 people were killed by offenders during these felonies.
- Justifiable homicide is defined as the killing of a felon by a law enforcement officer in the line of duty, or the killing of a felon, during the commission of a felony, by a private citizen. In 2000, there were 434 cases of justifiable homicide using a firearm; 297 people were slain by law enforcement officers, and 137 people were justifiably killed by private citizens.

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### ***When firearms discharge unintentionally***

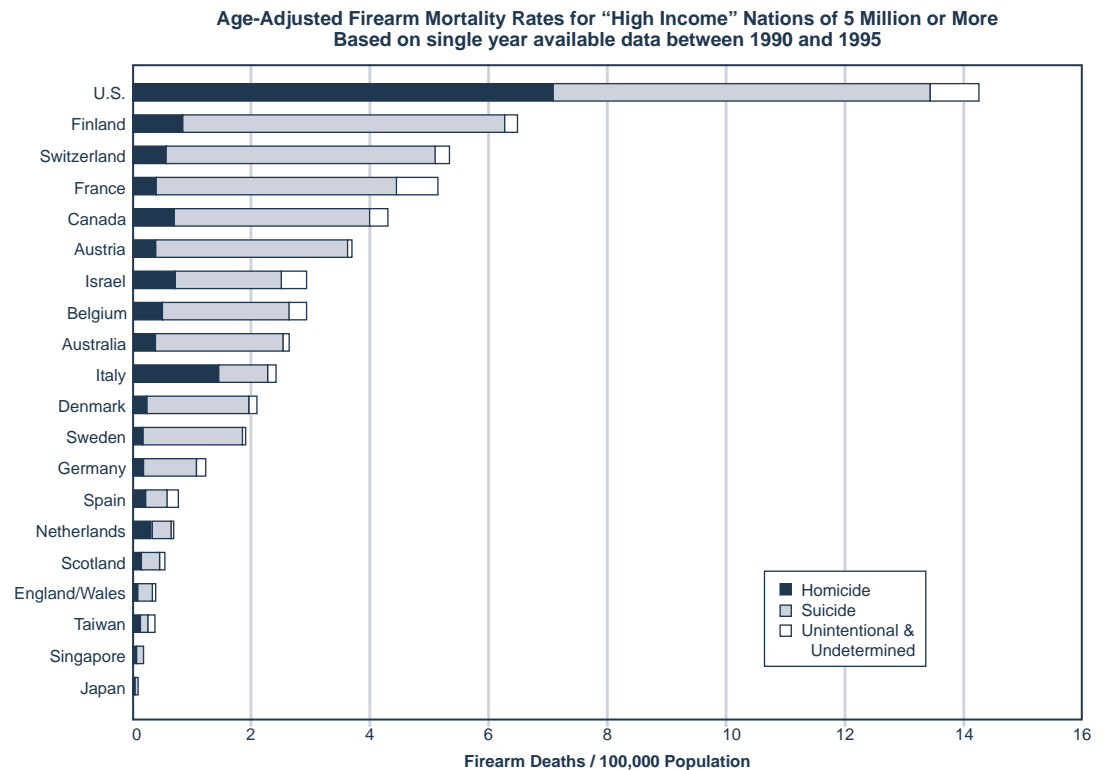
In 2000, 776 people died from unintentional firearm injuries, 25% of whom were under age 20. This figure understates the magnitude of unintentional firearm violence, since the vast majority of people with unintentional firearm injuries survive.

- Because no one is aiming the firearm and planning to shoot, just 8% of unintentional firearm injuries are fatal.
- Males ages 15-24 have the highest rates of unintentional firearm mortality.
- The proportion of firearm deaths resulting from unintentional injuries has been steadily declining since the 1930's. This decline has paralleled decreases in the proportion of the population that engages in hunting, lives in rural areas, and handles firearms regularly.

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## International comparisons

Firearm injuries are not a solely American phenomenon, but the rate in the United States far exceeds that of other nations considered “high income” by the World Bank. The following chart shows comparative data from the 1990’s for high-income countries with at least five million people:



- As shown, annual rates of fatal firearm injury in the U.S. are more than twice as high as the next highest country, with firearm homicide rates more than eight times higher, and firearm suicide rates 1.5 times higher.
- Children under age 15 are disproportionately affected by firearm violence in the U.S. The overall firearm-related death rate among U.S. children is nearly 12 times higher than among children in other high-income countries combined. This holds true across all forms of firearm violence: homicide rates, nearly 16 times higher; suicide rates, nearly 11 times higher; and unintentional death rates, nine times higher.

## Public health approach points to many potential interventions

The root causes of firearm injury are complex and resistant to simple solutions. It is useful to apply a public health approach to this problem, in which firearm injuries arise from an interaction among individuals, weapons, and the social and physical environment. This then points to possible preventive strategies, such as:

- Changing individual knowledge, attitudes and behavior. Potentially useful interventions include educating people about the proper use and storage of firearms, modifying beliefs about carrying firearms, requiring training and licensing for carrying firearms, and providing more comprehensive mental health services for people at-risk for suicide.

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## ***...potential interventions***

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- Modifying the firearm to reduce its unintentional or criminal use. Potentially useful interventions include adding features such as indicators that the gun is loaded, magazine safeties, personalizing the weapon to prevent unauthorized use, trigger locks, firearm fingerprinting, and restricting semi-automatic handguns and high-muzzle velocity weapons.
- Altering the environment in which firearms are purchased, stored, or used. Potentially useful interventions include limiting the frequency and quantity of handgun purchases, enacting safe storage laws, regulating ammunition availability, and expanding law enforcement in high-risk neighborhoods.

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## ***POLICY IMPLICATIONS***

Although the human cost of firearm violence in this country is staggering, enacting policies to reduce unacceptably high levels of death and injury has proven to be difficult. All too often policy in this arena has been stymied by extreme positions about an absolute “right” to own a firearm or a need to ban handguns completely. A public health approach, in which the multifactorial nature of firearm violence is understood and effective interventions are applied, offers a way to end this polarizing debate.

- A public health approach requires consistent and complete data on each violent episode, including information on the shooter, victim, the weapon, as well as the intent, location and demographics of the incident. A National Violent Death Reporting System (modeled on a similar national system for reporting motor vehicle deaths) would quantify fatal firearm violence in the context of other violence, and help identify community-specific issues and intervention points. The federal government has recently provided pilot funding for such a system in six states.
- Because the nature of firearm violence varies, as do public attitudes about firearms themselves, community involvement is key to designing sensible and effective interventions. The Firearm Injury Center at Penn has worked with three mid-size communities—Allentown/Bethlehem, PA; Iowa City, IA; and Youngstown, OH to establish firearm injury prevention sites in local trauma centers. FICAP worked collaboratively to collect five years of detailed data on firearm deaths in each community and created community-specific profiles for local advisory boards to use as they design interventions to reduce firearm violence. Data collection has now expanded to all violent death.
- An evidence-based approach to reducing firearm injury requires that interventions be evaluated as they are implemented. Not all promising interventions will be effective; most of the strategies mentioned above have not been tried, much less evaluated. However, this should not be an excuse for inaction, given the magnitude of the problem. Local, regional and national policymakers should identify appropriate short-term and longer-term outcomes, and devote the resources necessary to measuring those outcomes.

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## About FICAP

The Firearm Injury Center at Penn was established in the Division of Traumatology and Surgical Critical Care at the University of Pennsylvania in 1997. Its mission is to create safer communities through the systematic reduction of firearm injury and its repercussions to the individual, family and society. FICAP seeks to achieve its mission by stimulating firearm injury research, supporting efforts to translate research findings into practice, and broadly disseminating information to policymakers. It receives funding from the Joyce Foundation, the American Trauma Society, and other generous contributors.

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*This Issue Brief is based on Firearm Injury in America: A Resource Book, published electronically by the Firearm Injury Center at Penn. The Resource Book is based on a wide body of research and has been reviewed by scholars from many different disciplines. It can be accessed at [www.uphs.upenn.edu/ficap/america.htm](http://www.uphs.upenn.edu/ficap/america.htm)*

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*Published by the Leonard Davis Institute of Health Economics, University of Pennsylvania, 3641 Locust Walk, Philadelphia, PA 19104-6218, 215-898-5611.  
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Published by the  
Leonard Davis Institute  
of Health Economics  
University of Pennsylvania

## Issue Brief



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Philadelphia, PA 19104-6218  
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