

# Violent Death Rates: The US Compared with Other High-income OECD Countries, 2010

Erin Grinshteyn, PhD,<sup>a</sup> David Hemenway, PhD<sup>b</sup>

<sup>a</sup>School of Community Health Sciences, University of Nevada-Reno, Reno; <sup>b</sup>Harvard School of Public Health, Boston, Mass.

## ABSTRACT

**BACKGROUND:** Violent death is a serious problem in the United States. Previous research showing US rates of violent death compared with other high-income countries used data that are more than a decade old.

**METHODS:** We examined 2010 mortality data obtained from the World Health Organization for populous, high-income countries (n = 23). Death rates per 100,000 population were calculated for each country and for the aggregation of all non-US countries overall and by age and sex. Tests of significance were performed using Poisson and negative binomial regressions.

**RESULTS:** US homicide rates were 7.0 times higher than in other high-income countries, driven by a gun homicide rate that was 25.2 times higher. For 15- to 24-year-olds, the gun homicide rate in the United States was 49.0 times higher. Firearm-related suicide rates were 8.0 times higher in the United States, but the overall suicide rates were average. Unintentional firearm deaths were 6.2 times higher in the United States. The overall firearm death rate in the United States from all causes was 10.0 times higher. Ninety percent of women, 91% of children aged 0 to 14 years, 92% of youth aged 15 to 24 years, and 82% of all people killed by firearms were from the United States.

**CONCLUSIONS:** The United States has an enormous firearm problem compared with other high-income countries, with higher rates of homicide and firearm-related suicide. Compared with 2003 estimates, the US firearm death rate remains unchanged while firearm death rates in other countries decreased. Thus, the already high relative rates of firearm homicide, firearm suicide, and unintentional firearm death in the United States compared with other high-income countries increased between 2003 and 2010.

© 2015 Elsevier Inc. All rights reserved. • *The American Journal of Medicine* (2015) ■, ■-■

**KEYWORDS:** Accidents; Cross-national; Firearms; Guns; Homicide; Suicide; Unintentional death; Violence

Violent death is a serious public health problem in the United States. Among 15- to 24-year-olds, homicide is the second leading cause of death and suicide is the third leading cause; for 25- to 34-year-olds, suicide is the second leading cause and homicide is the third leading cause of fatality, following unintentional injuries for both groups.<sup>1</sup>

**Funding:** This research was funded in part by The Joyce Foundation Award Number 14-36094 (DH).

**Conflict of Interest:** None.

**Authorship:** Both authors had access to the data and played a role in writing this manuscript.

Requests for reprints should be addressed to Erin Grinshteyn, PhD, School of Community Health Sciences, University of Nevada-Reno, 1664 North Virginia St, Reno, NV 89557.

E-mail address: [egrinshteyn@unr.edu](mailto:egrinshteyn@unr.edu)

The United States is known to have higher levels of violent death, particularly homicide, compared with other developed nations. Although the United States does not appear to have higher rates of nonlethal crime, the rates of lethal violence and especially gun violence are much higher than in other high-income countries.<sup>2,3</sup> There are many more guns and less strong gun laws in the United States than in other developed nations.<sup>3</sup>

Approximately 2 decades ago, a report from the Centers for Disease Control and Prevention used data from the early 1990s to compare the United States with other high-income countries in terms of violent death (ie, suicide, homicide, firearm accidents) for children aged 5 to 14 years.<sup>4</sup> In a previous article, we updated and expanded that comparison to examine all age groups and both sexes using 2003 data. These 2003 data are now more than 12 years old. In this

article, we again update the data plus we provide country-level data for each high-income nation and contrast the US levels of lethal violence for whites, who traditionally have lower homicide rates than nonwhites in the United States, with all citizens (ie, whites and nonwhites) of other high-income nations.

## MATERIALS AND METHODS

### Data Source

Mortality data were assembled by the World Health Organization from national civil registration systems of each individual country. Underlying cause of death was classified as “the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury,”<sup>5</sup> with deaths classified in accordance with the rules of the International Classification of Diseases, 10th Revision (ICD-10).

### Study Population

We examined data for all populous (ie, >1 million inhabitants), high-income countries (as defined by the World Bank) that were members of the Organization for Economic Co-Operation and Development (OECD) in 2010.<sup>6</sup> Data were limited to 2010, the most recent year that had complete data for the greatest number of countries. Of the 27 high-income OECD countries that provided mortality to the World Health Organization (Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Slovak Republic, Spain, Sweden, Switzerland, United Kingdom [England and Wales, Northern Ireland, Scotland], and the United States), Iceland and Luxembourg were excluded for having very small populations.

Mortality data were categorized into 6 mutually exclusive categories using the ICD-10 classification system. Countries were included if they reported their mortality data using detailed 3- or 4-character ICD-10 codes. These categories were defined as firearm-related homicide (X93, X94, X95, U01.4), firearm-related suicide (X72, X73, X74), non-firearm-related homicide (X85, X86, X87, X88, X89, X90, X91, X92, X96, X97, X98, X99, Y00, Y01, Y02, Y03, Y04, Y05, Y06, Y07, Y08, Y09, U01.0, U01.2, U01.3, U01.5, U01.6, U01.7, U01.8, U01.9, U02), non-firearm-related suicide (X60, X61, X62, X63, X64, X65, X66, X67, X68, X69, X70, X71, X75, X76, X77, X79, X80, X81, X82, X83, X84, Y87.0, U03), unintentional firearm death (W32, W33, W34), or firearm death of undetermined cause (Y22,

Y23, Y24). Cause of death data included both 3- and 4-character ICD-10 codes (eg, X93 included both X93 and X930-X939) except where the 4-character code was specified as the being important to the definition (ie, Y87.0, Y87.1, U01.0-U01.3, U01.5-U01.9). All countries used detailed ICD-10 character codes except Korea, which provided only 3-character ICD-10 codes. Thus, 133 deaths were excluded using “Y87” because it was not possible to determine if those were Y87.0 (non-firearm-related suicide), Y87.1 (non-firearm-related homicide), or Y87.2-Y87.9, which were neither of these. Greece and Switzerland were excluded for not using detailed 3- or 4-character ICD-10 codes, because their method of reporting could not be aggregated with data from the other 23 countries. Thus, the final list of populous, high-income OECD countries included in this analysis included Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France,

Germany, Hungary, Ireland, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Portugal, Slovak Republic, Spain, Sweden, United Kingdom (England and Wales, Northern Ireland, Scotland), and the United States.

### Statistical Analysis

Data were stratified by age category (0-4 years, 5-14 years, 15-24 years, 25-34 years, 35-64 years, and 65+ years) and by sex. Death rates per 100,000 population were calculated for the United States, for each individual country, and for the aggregation of all non-US countries, by age and sex categories and overall. Overall numbers include small numbers of deaths attributed to those with an unknown age, although an “unknown” column is not presented in the tables because of the numbers being so small. Ratios were calculated comparing the United States with all non-US countries. Tests of significance were performed using Poisson and negative binomial regression techniques to assess the statistical significance of fatalities in the United States versus non-US countries. Negative binomial models were used if the dispersion parameter showed that the data were overdispersed, whereas Poisson models were used when the data were not overdispersed. All analyses were performed using Excel (Microsoft Corp, Redmond, Wash) and Stata version 13.1 (StataCorp LP, College Station, Tex).<sup>7</sup>

This research project was exempt from institutional review board approval and exempt from certification of exemption from institutional review board review based on determination from the University of Nevada Reno Institutional Review Board.

## CLINICAL SIGNIFICANCE

- The firearm homicide rate is 25 times higher and the firearm suicide rate is 8 times higher in the United States than in other high-income countries.
- Among all 23 countries, with less than half the total population, the United States accounted for 82% of all firearm deaths.
- Ninety percent of women, 91% of all children aged 0 to 14 years, and 92% of youth aged 15 to 24 years who were killed by firearms were in the United States.

Download English Version:

<https://daneshyari.com/en/article/5876033>

Download Persian Version:

<https://daneshyari.com/article/5876033>

[Daneshyari.com](https://daneshyari.com)