Gun violence in the United States: A call to action

Gun-related violence has become ubiquitous in the United States. After an initial decline in firearm injuries in the 1990s, which was sustained throughout the 2000s, rates for firearm-related suicides and assaults recently are on the rise.[1] As of writing, mass shootings now occur virtually daily in our country.[2]

Trauma in general may be a leading cause of death up to the age of 44 years, but firearm-mediated mortality knows no age restriction. Recent research indicates that nonfatal firearm violence has increased to a level not seen since 1995.[1] According to the Centers for Disease Control (CDC), firearm-related suicide and homicide are the leading causes of violence-related deaths for all age cohorts.[3] Recent data indicate that 67% of homicides, 50% of suicides, 43% of robberies, and 21% of aggravated assaults involve the use of firearms.[4]

Trauma surgeons have been actively engaged in nearly every injury prevention target except gun violence control, largely because of the inability to achieve consensus for a specific measure that does not potentially conflict with the various interpretations of the Second Amendment of the US Constitution. To some degree, this impasse has resulted from the politically motivated limitations on research to define the magnitude of the problem and study the impact of efforts to reduce the societal toll of firearm abuse.[5]

HOW DID WE GET HERE?

The United States leads all other high-income countries in rates of firearm-related death. This finding was first established in the *Journal*, using data drawn from 23 countries by the World Health Organization in 2003.[6] The authors of this study recently revisited their work with an updated data set from 2010, finding that the gun homicide rate in the United States is 25.2 times higher than that of other high-income countries.[7] Eight-two percent of all people killed by firearms worldwide were from the United States. Moreover, it seems that the national rates of firearm-mediated homicide, suicide, and unintentional death increased from 2003 to 2010.

These rates cannot be decoupled from the social and political circumstances in which they have arisen. Embedded in the country's legislative genome is the right to engage in violence. The Second Amendment reads, "A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed." The intent and interpretation of this provision is a source of active academic debate—some argue it harks to a past in which collective armed action was a paramount concern, while others hold it to refer to an unlimited individual right. Academics aside, in 2008, the US Supreme Court ruled that the amendment protected a private citizen's right to possess firearms, at least for "traditionally lawful purposes."[8] The U.S. is unique in its obligation to balance the right to "bear arms" with other inalienable rights (e.g. life and security).

The landmark Supreme Court decision did not occur in a vacuum. Gun control has long been a contentious issue in the United States, prompting legislators (and their lobbyists) to cast a critical eye on research. In 1993, work funded by the CDC resulted in a study associating guns in the home with an increased risk of homicide.[9] Three years later, Congress noted that federal funding to the CDC could not be used "to advocate or promote gun control."[10]

While not banning research outright, federal action has had a chilling effect on firearm-related lines of study. In 2011, Congress added language echoing its restrictions on the CDC to legislation funding the National Institutes of Health.[11] Despite activism from medical professionals,[12] congressional bans on gun violence research have been renewed. Sen. John Boehner, when asked about the rationale for the prohibition, stated, "…a gun is not a disease."[13]

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WHAT CAN BE DONE?

Trauma is a disease, and one that encompasses firearm-associated injuries and death. This point was underscored by C. William Schwab nearly 25 years ago in his American Association for the Surgery of Trauma presidential address,[14] and more recently in Livingston et al's landmark analysis of gunshot wound prevalence at the community level.[15] However, as noted in an editorial earlier this year, reduction of gun-related violence entails the need for wholesale cultural change.[16] Science and medicine are excellent instigators of progress, and calls for expanded research into reducing gun violence are mounting in the research community.[17]

Conceptually, there are three potential areas to address:

1. Prohibit access to guns by individuals who are inclined to premeditated use against other humans.
2. Attenuate the capability of the weapons to inflict lethal injury to multiple individuals in an isolated setting.
3. Reduce opportunities for unintentional firearm injuries by improving and enforcing gun safety.

The first issue has been recently studied, finding that the few existing firearm laws are associated with reduced mortality,[18] while the second is the ongoing debate on assault-style weapons, including their magazine capacity. The third area focuses on protecting children, teenagers, and persons at risk for suicide who lack the maturity and/or the mental clarity to safely handle unlocked weapons. While our society has made impressive strides in technology and public education regarding other injuries, most notably those related to motor vehicles, we lag behind in gun safety. For example, the Consumer Product Safety Act, which imposes health and safety standards on consumer products, exempts firearms and ammunition from its requirements.[19] There is evidence that legislation requiring handguns be locked in certain circumstances is associated with fewer suicides.[20] This is a widely accepted strategy and may be a solid ground on which disagreeing parties can start a discussion.[21]

While prevention efforts are laudatory, they ultimately rest on the need to modify social norms—that is, negotiate the tensions inherent in the American conception of an armed albeit democratic society. This is no easy order, and navigating these issues requires conclusions drawn from substantive scientific research. Other branches of medicine are hampered by scarce funding and lines of inquiry effectively paralyzed by political wrangling, but trauma surgeons occupy a unique space. Opportunities to conduct scientific investigations into the causes, effects, and ramifications of gun violence enter operating rooms every day. It falls to acute care surgeons, who deal with the fallout of firearms daily and whose investigations are not reliant on federal funding, to turn the grist of violence into a foundation of sound and actionable science.

This issue of the *Journal* is meant to revitalize interest and stimulate participation of trauma surgeons in efforts to reduce gun-related violence in the United States. Among the contributions in this issue are reviews describing the science of gunshot wounds, the American Association for the Surgery of Trauma call for further research, and the current efforts by the American College of Surgeons' Committee on Trauma to reach a consensus on action.

AUTHORSHIP

J.L. Crebs, A. Sauaia and E.E. Moore wrote this editorial.

DISCLOSURE

E.E.M. is an avid hunter with an impressive collection of firearms. The remaining authors have nothing to disclose.

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