

Firearm Safety and Injury Prevention

Position Statement



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Firearm Safety and Injury Prevention

Description

In order to clearly lay out the issues surrounding firearm safety and injury prevention and the position taken by the Emergency Nurses Association (ENA) regarding them, some context is necessary. Therefore, this description of the issues includes a brief discussion of firearms and firearm violence, factors contributing to firearm violence, the categorization of firearm violence, current firearm laws in the United States, and the current state of gun violence and injury prevention research.

Firearms and Firearm Violence

Firearm violence refers to violence committed by people using guns that include, but are not limited to, handguns, shotguns, and semiautomatic rifles. It is important to acknowledge that the term “semiautomatic” can apply to many types of firearms including handguns (Taylor Price, 2022). Semiautomatic refers to the capability of a firearm to automatically reload a round when the shooter pulls the trigger (ATF eRegulations, n.d.), preparing the firearm for additional firing more quickly compared to other firearms that lack this feature.

The term “semiautomatic assault weapon” is a term established by the ATF (ATF eRegulations, n.d.). The definition is lengthy, identifying some firearms by brand name and/or model, and others by features. The definition includes specific types of semiautomatic rifles, semiautomatic pistols and semiautomatic shotguns. The ATF definition has evolved since 1994 to cover devices such as “bump stocks” that can be used to convert a semiautomatic firearm to a fully automatic firearm, also known as a machine gun. As summarized by Koper (2020), the ATF definition of semiautomatic assault weapon refers to “semiautomatic firearms that accept detachable ammunition magazines and have one or more additional military-style features that are considered useful in military and criminal applications but unnecessary in shooting sports or self-defense” (p. 148). The current ATF definition of semiautomatic assault weapon can be found online at [https://regulations.atf.gov/478-11/2021-28398 - 478-11-p610233270](https://regulations.atf.gov/478-11/2021-28398-478-11-p610233270).

Not all semiautomatic firearms are considered assault weapons according to the ATF definition, and this is another distinction that must be acknowledged for the U.S. to move past semantic-related conflicts and collectively focus on making real progress in firearm safety and injury prevention. Research and other data clearly show that the majority of gun violence in the U.S. is committed with handguns, but semiautomatic rifles are used disproportionately in mass shootings (Giffords Law Center, n.d.-a). Perpetrators of many of the deadliest shootings in modern American history used semiautomatic rifles that were classified by the ATF as assault weapons, and many of these were also equipped with large-capacity magazines (also known as “high-capacity magazines”) (Giffords Law Center, n.d.-a). However, major U.S. gun advocacy organizations do not recognize the term “assault weapon” based on the capabilities or features of the firearm alone and also argue that the term “large-capacity magazine” is subjective (National Rifle Association Institute for Legislative Action [NRA-ILA], n.d.; National Shooting Sports Foundation [NSSF], 2022). Regardless of the terminology used in describing firearms and their components, the problem of firearm violence is very real and is one that directly affects the public and emergency nurses every day.

Contributing Factors to Firearm Violence

The underlying factors that contribute to firearm violence vary widely among countries, as do acts of homicide, suicide, and unintentional injuries caused by firearms. Firearm violence in the United States is a complex, challenging problem, in part because people are unable to agree on the root of the problem.

Some blame it on the shooters; others blame it on the guns. Based on currently available data, the truth is much more complex and exists somewhere in the middle.

For example, the media and public are often quick to blame serious mental illnesses for gun violence including mass shootings, but research shows that only about 5–10% of mass shootings are related to severe mental illness, otherwise known as psychosis (Brucato et al., 2021; Peterson et al., 2022). In the United States, the reality is that approximately 25% of mass shootings are committed by people with less severe mental or neurological disorders (Brucato et al., 2021), a figure comparable to the general prevalence of mental illness in the U.S. of approximately 20% (National Institute of Mental Health, 2023). While mental illness is a separate, serious, and sometimes related public health problem, data show that it is not the driving cause of firearm violence in the U.S. Focusing on mental illness as the primary factor responsible for firearm violence perpetuates the stigma of mental illness and the false narrative that people with any form of mental illness are inherently dangerous. Globally, firearm violence is most prominent in Brazil, the U.S., Mexico, Columbia, Venezuela, and Guatemala (Global Burden of Disease 2016 Injury Collaborators et al., 2018). While organized crime, drug cartels, and dysfunctional criminal justice systems are the driving forces of firearm violence in most countries, the U.S. is an outlier (Amnesty International, n.d.; The Global Burden of Disease 2016 Injury Collaborators et al., 2018). As compared to other countries with high incomes, gun violence in the United States has a very disproportionate impact (American Public Health Association, n.d.; Amnesty International, n.d.; The Global Burden of Disease 2016 Injury Collaborators et al., 2018). According to the American Public Health Association, among 24 highly populated, high-income countries, 82% of gun-related deaths occur in the U.S. and over 90% of children aged 0–14 who are killed by guns are from the U.S. (n.d.).

According to Amnesty International (n.d.), the magnitude of the problem of firearm violence in the U.S. is directly related to easy firearm access, weak or absent firearm regulations, and inconsistent application of laws that do exist. According to federal law in the U.S., it is legal to leave an unattended, loaded gun in a home, regardless of whether children live in that home (Giffords Law Center, n.d.-b). It is estimated that approximately 4.6 million U.S. minors live in a home with at least one loaded and accessible gun (Giffords Law Center, n.d.-b), and, all too often, they access these guns, even when they have had gun safety education (Giffords Law Center, n.d.-b; Holly et al., 2019). Within the month of January 2023 alone, there were two examples of children accessing unlocked guns featured in national media. One of these incidents occurred in Indiana where a four-year-old played with a loaded handgun while his father slept inside, pointing it at neighbors (Charalambous & Deliso, 2023); the other involved a six-year-old in Virginia who intentionally shot his teacher at school using his mother's gun (BBC News, 2023). These are just two examples of children in the U. S. who were not protected from firearms by their parent or by their country as a whole. In 2022 there were also more shootings on school grounds than in any other year since 1970, when data collection began (Riedman, n.d.).

The U.S. has consistently failed to protect its citizens, including its most vulnerable populations such as children, from firearm violence. As a result, the U.S. has robbed many of its citizens of their rights to health, security, and life (Amnesty International, n.d.). For these reasons, firearm violence in the U.S. has not only become a public health crisis (Centers for Disease Control and Prevention [CDC], n.d.-b) but also a human rights crisis (Amnesty International, n.d.).

Categorizing Firearm Violence

The major terms used to categorize firearm violence are suicide, homicide, and unintentional injury. In 2020, the latest year for which specific data are publicly available, 54% (24,292) of all gun-related deaths in the U.S. were suicides, 43% (19,384) were homicides, and about 1% were unintentional deaths (CDC, n.d.-a). The 2020 total gun-related deaths represent a 34% increase from 2019, a 49% increase over five years, and a 75% increase over 10 years. In the U.S., guns are the most common means of completed suicide in all age groups (Lee et al., 2022); since 2017, gun-related deaths have surpassed motor vehicle crashes as the leading cause of death in children and young adults aged 0–24 in the U.S.

(Goldstick et al., 2022; Katsiyannis et al., 2022; Lee et al., 2022). This shift has been attributed to the concurrent and continuous increases in youth suicide and homicide rates and decreases in motor vehicle deaths (Lee et al., 2022).

While mass shootings represent a very small relative percentage of gun-related injuries and deaths, they are a major public concern in the U.S., especially when they occur in public places. Mass shootings are tracked by several different organizations; they each vary in their affiliations, scope, definitions, and methodology. The Gun Violence Archive (2023) is an independent research group with no affiliation to any advocacy organization. They provide near real-time comprehensive data for gun violence incidents collected from over 7,500 law enforcement, media, government, and commercial sources. The Gun Violence Archive categorizes incidents as mass shootings if four or more people were shot, excluding the shooter, regardless of location and regardless of how many deaths resulted. By this definition, there were 647 U.S. mass shootings in 2022 alone, an alarming increase from 417 in 2019 (Gun Violence Archive, 2023). In contrast, another organization that tracks mass shootings, Everytown for Gun Safety (2023), utilizes a definition for mass shootings that is based on the number of *fatalities* resulting from the incident, excluding the shooter. Among the shootings that occurred in the U.S. between 2009 and 2022, 209 resulted in the death of four or more people excluding the shooter (Everytown for Gun Safety, 2023). A third organization, The Violence Project (2022) is a nonpartisan research organization dedicated to reducing violence and to using data to improve policy and practice. They also collect data on mass shootings but are very limited in their definition of mass shooting, excluding any that are related to domestic violence, gang violence, or other underlying criminal activity (The Violence Project, n.d.). The Violence Project collects data only on mass shootings that match the definition by the Congressional Research Service (Krouse & Richardson, 2015). This definition is, “a multiple homicide incident in which four or more victims are murdered with firearms—not including the offender(s)—within one event, and at least some of the murders occurred in a public location or locations in close geographical proximity (e.g., a workplace, school, restaurant, or other public settings), and the murders are not attributable to any other underlying criminal activity or commonplace circumstance (armed robbery, criminal competition, insurance fraud, argument, or romantic triangle)” (Krouse & Richardson, 2015, Summary Page). The Violence Project Database includes data for 172 public mass shootings in the U.S. that meet this very limited definition from 1966–2019.

The analysis and interpretation of various databases that conduct rigorous studies related to mass shootings or other forms of firearm violence requires a thorough understanding of the definitions and methods used by the research organizations. Understanding how each of the main categories of firearm violence, homicide, suicide, and unintentional firearm deaths, are affected by prevention measures, and how those impacts are reflected within national statistics is also necessary when deciding how to create laws and other policies to help prevent them in the future. Finally, any discussion of firearm violence injury prevention efforts must consider the developmental differences between children and adults, and how those differences affect their behavior when they have access to guns. This is especially true when considering the relationships between access to firearms and suicide, unintentional injuries, and mass shootings.

Interventions to decrease firearm injuries and deaths should focus on harm reduction, an injury prevention approach that has been successful in reducing injuries due to other public-health problems such as fire safety interventions and motor vehicle crashes (Lee et al., 2022). This approach requires interventions at the individual, household, community, and policy levels.

Current Firearm Laws in the U.S.

In the United States, federal laws have regulated firearms for approximately a century, and these laws have evolved to become more comprehensive over time. These laws serve as the minimum requirements for legal firearm use and sales. Federal laws can be supplemented by state legislation, resulting in significant variation in firearm regulations across the country (Congressional Research Service, 2022).

The two primary federal laws that govern firearm use and transactions are the National Firearms Act (NFA) of 1934 and the Gun Control Act of 1968 (Congressional Research Service, 2022). The landmark Bipartisan Safer Communities act of 2022 tightened existing federal gun laws by expanding background checks for purchasers between the ages of 18 and 21, by incentivizing states to pass “red flag” or extreme risk laws that include people deemed to be a threat to themselves or others, by strengthening laws regarding domestic violence, and by allocating funding for school safety and mental health. The act provided \$500 million of funding to support schools as safety nets for children and adolescents. This funding was earmarked to increase student access to mental health by providing financial support for more school counselors, school social workers, and school psychologists.

Since 1986, when the Firearm Owners Protection Act was passed by Congress, fully automatic weapons such as machine guns, have been illegal. Semiautomatic weapons remain legal on a federal level, but a few states have enacted laws that ban them (Giffords Law Center to Prevent Gun Violence, n.d.-a) or specific subsets of them, such as assault weapons. States that have chosen to regulate “assault weapons” vary in how to identify them. State definitions typically reference a specific list of features and/or a list of specific named firearm models and weapons that are considered “copycats” of those named models (Giffords Law Center, n.d.-a). Some proponents of stronger firearm legislation have suggested that semiautomatic rifles be reclassified to require the same extensive NFA registration process that is already in place for fully automatic “machine” guns that remain in circulation (Giffords Law Center, 2019; Zdziarski, 2022). Under the NFA process, applicants must submit a photo and fingerprints and undergo an extensive background check to purchase or transfer the covered firearm. A process such as this one would make it much more difficult to lie or otherwise cheat the system, such as by using a fake ID when purchasing a semiautomatic rifle (Zdziarski, 2022).

Federal laws already prohibit several populations from having guns, such as convicted felons, fugitives, unlawful drug users, those addicted to controlled substances, domestic violence perpetrators, and people who have been committed to psychiatric hospitals or found to be not guilty of a crime due to mental illness (Congressional Research Service, 2019). The law has been extended in some states, but not all, to include members of the public who are “posing a threat to themselves or others” or “addicted to alcohol” (National Conference of State Legislatures, 2021).

Federal laws currently set the minimum age to purchase handguns from a licensed dealer at 21 but only require a person to be 18 to purchase “long guns” such as semiautomatic rifles and their ammunition (Bureau of Alcohol Tobacco, Firearms, and Explosives., n.d.). Therefore, according to U.S. law as of March 2023, an 18-year-old can legally purchase an assault weapon. Twenty-two states have raised their minimum age requirements for gun purchase as of December 2, 2022, but the criteria vary from state to state.

Federal law already requires the National Instant Criminal Background Check System (NICS) to conduct background checks on all people seeking to purchase a firearm or explosive from a Federal Firearms Licensee (FFL) (Federal Bureau of Investigation [FBI], n.d). These background checks are designed to prevent the purchase of guns by prohibited individuals (e.g., convicted felons, minors, fugitives from justice, other). As part of this process, the FBI is required to report the NICS-denied transactions to state, local, or tribal law enforcement within 24 hours. However, it is estimated that 22% of firearm purchases occur through private transactions that do not currently require this protective process (Miller et al., 2017; Everytown for Gun Safety, n.d.-a). The Bipartisan Safer Communities act of 2022 did expand background checks to require an investigation of juvenile and mental health records and checks with state and local law enforcement for purchasers under the age of 21).

Current State of Gun Violence and Injury Prevention Research

In 2020, for the first time in over 20 years, \$25 million in federal funding was allocated for firearm violence research. These funds were distributed evenly between the CDC and the National Institutes of

Health (NIH) (Weir, 2021). CDC's National Center for Injury Prevention and Control (NCIPC) (CDC, n.d.-c) has been the leading national public health authority on violence and injury prevention for almost 30 years. The 20-year lag in firearm violence injury prevention research was largely due to the passing of the Dickey Amendment in 1996 that, combined with a defunding of the CDC's firearm injury prevention budget, effectively shut down CDC research into firearm-related injuries, deaths, and crime (Dickey & Rosenberg, 2012; Omnibus Consolidated Appropriations Act of 1997, 1996).

Emergency nurses, regardless of their personal opinions about guns or gun control, are ethically bound to treat firearm injuries and educate about injury prevention and harm reduction efforts as an exercise of their professional duties in the same nonjudgmental way that they would any other public health issue. Due to the enormous scope of firearm safety and injury prevention ENA has published a topic brief by the same name that goes into more detail regarding the prevalence and demographics of firearm injuries in the U.S. It also discusses at-risk populations, specific safe storage practices, and suggestions for patient education (Winger, 2019).

ENA Position

It is the position of the Emergency Nurses Association that:

1. Universal definitions for firearms and their parts (i.e., "assault weapons," "assault rifles," "semiautomatic weapons," and "high-capacity magazines") be created to support more consistent research and data collection for all stakeholders.
2. The sale, transfer, use, loan, transportation, distribution, importation, and manufacture of assault weapons as defined by the United States Bureau of Alcohol Tobacco, Firearms and Explosives be prohibited, except for the military and law enforcement.
3. Continued and consistent federal funding for data collection and research related to firearm injuries and injury prevention is necessary to understand the problem and to guide law and policy regarding effective firearm injury prevention strategies at levels comparable to other threats to public health and safety.
4. Federal-level extreme risk owner laws (also known as red flag laws) be implemented that prohibit firearm purchases by high-risk individuals such as those with suicidal thoughts or thoughts of harming others. When implemented, they should include requirements for the person to immediately surrender any firearms in their possession regardless of whether they previously passed a background check.
5. Universal background checks be required for all firearm transactions including online sales, gun shows, and sales from unlicensed and licensed dealers.
6. Federal prohibitions be placed on 3D printing of firearms and firearm components (also known as ghost guns) or guns produced using alternative technologies that bypass product regulation).
7. All states adopt and enforce "negligence" child (under the age of 18) access prevention laws that hold owners criminally liable if a child can or does access a firearm regardless of whether reckless intent is present and regardless of whether anyone is harmed.
8. Evidence-based, age-appropriate screening tools be implemented in emergency departments to assist in the identification of individuals at high risk for death or injury from firearms.
9. The federal age for purchase of all firearms be increased to 21.

10. Healthcare facilities provide emergency nurses with education about firearm safety and injury prevention to empower emergency nurses to educate patients and the public about firearm safety and injury prevention measures including safe storage of firearms.
11. Emergency nurses support evidence-based programs that target the prevention of firearm injuries such as school- or other community-based programs.

Background

Further background relevant to the issues of firearm safety and injury prevention includes content related to: semiautomatic rifles, conversion devices, and high-capacity magazines; child development and its relationship to firearm policy; children, adolescents, mental illness, and suicide; firearm possession by violent offenders and perpetrators of domestic violence; extreme risk protection laws; background checks, mass shooters, safe storage and youth access to firearms; gaps in the research; screening in the ED, and the role and responsibility of schools in firearm injury prevention.

Semiautomatic Rifles, Conversion Devices, and High-Capacity Magazines

In 1994, the Violent Crime Control and Law Enforcement Act implemented a “federal assault weapons ban” (FAWB) prohibiting a specific set of firearms, including semiautomatic rifles and high-capacity ammunition feeding devices after reviewing evidence that they were the “weapons of choice among drug dealers, criminal gangs, hate groups and mentally deranged persons bent on mass murder.” The FAWB expired in 2004, rendering semiautomatic rifles and high-capacity magazines legal again.

Bump stock and similar devices that can convert semiautomatic weapons to machine guns became illegal in 2019 when Congress categorized them as machine guns (Bureau of Alcohol, Tobacco, Firearms and Explosives, n.d.). However, fully automatic weapons made prior to 1986 remain legal as legacy firearms under tight regulations, and some conversion devices remain legal due to semantics or legal loopholes (Everytown for Gun Safety, 2023; Shabad, 2022).

While machine guns are no longer legally manufactured, fully automatic guns are still created thanks to advances in low-cost manufacturing tools like 3D printers, in addition to the expansion of global internet commerce. There is an extensive illegal market for machine guns and the parts that convert semiautomatic guns to fully automatic guns (Glover & Devine, 2022). High-capacity magazines, which remain legal in the U.S., are defined by the ATF as magazines that can hold more than 10 rounds of ammunition (ATF e-Regulations, n.d.). When semiautomatic rifles are used with high-capacity magazines they make possible dozens of gunshots without the need to reload (Bradyunited.org, n.d.-a). When shooters use assault weapons or high-capacity magazines, 155 percent more people are shot, and 47 percent more people are killed (Bradyunited.org, n.d.-a). According to Koper (2020), high-capacity magazines for assault weapons are one of the key drivers of mortality in mass shootings. However, their impacts are diluted when examining them as part of overall homicides instead of within the context of the mass shootings in which they tend to be utilized.

The Importance of Child Development to Firearm Policy

Gun-related injuries now represent the leading cause of death for children under age 18 (Centers for Disease Control and Prevention, n.d.), making firearm violence a specific pediatric public health crisis, in addition to being a general public health crisis. Multiple factors contribute to the disproportionate effects of gun violence on the pediatric and young adult population. Children are naturally vulnerable to unintentional injury by firearm because of their developmental tendency to explore their surroundings. Young children develop the physical strength to pull a trigger long before they are able to develop the cognitive ability to understand the potential consequences of their actions.

A factor that contributes to the disproportionate impact of gun violence in the adolescent and young adult population is the fact that the age of 18 as “adult age” is a definition based on linear growth, not cognitive or emotional maturity. At age 18, the adolescent tends to stop growing in height, but their brains are not fully developed until around age 25 (Lankford & Hoover, 2019). The prefrontal cortex, critical to understanding consequences of actions and to impulse control, doesn’t fully develop until about age 25 (Cha et al., 2022). Despite this fact, under current federal law in the U.S., at age 18 adolescents can legally purchase “long guns,” including semiautomatic rifles.

Children, Adolescents, Mental Illness, and Suicide

According to the National Institute of Mental Health (2023), young adults aged 18–25 years have the highest prevalence of mental illness (30.6%) compared to any other age group. Suicide is the third leading cause of death among people aged 15–24 (National Institute of Mental Health, n.d.) Young adults are in the age group that is the most likely to commit suicide—at triple the rate of adults aged 21 and over (Everytown for Gun Safety, n.d.-b). Furthermore, research shows that an adolescent’s risk of dying by suicide is at least three times greater if they live in a household with firearms (Swanson et al., 2021). Despite these facts, approximately 40% of youth under 18 live in a house with guns, and about 36% of those guns are loaded, unlocked, or both (Miller & Azrael, 2022).

While guns are not the most common method for suicide attempts, when guns are accessible, the attempt is much more likely to end in death (Bradyunited.org, n.d.-a; Conner & Miller, 2019). Research shows that 85–90% of suicide attempts using a firearm end in death (Bradyunited.org, n.d.-a; Connor & Miller, 2019). Most people who have a failed suicide attempt will not try again (Bradyunited.org, n.d.-a). Even when an alternate method is attempted, the alternate method is nearly always less likely to be fatal than using a firearm (Yip et al., 2012).

One bad moment for an adolescent is more likely to serve as a trigger for suicide than a similar crisis as an adult. Adolescents have a natural, greater vulnerability to emotional triggers and suicidal thoughts resulting from events that occur during young adulthood such as the end of a relationship (Sullivant & Dowd, 2021). According to data from the CDC Youth Behavior Survey, during 2019, 18.8% of students aged 14–18 reported having seriously considered suicide, with prevalence estimates highest among female youth (24.1%); white non-Hispanic students (19.1%); those who reported having sex with persons of the same sex or with both sexes (54.2%); and those who identified as lesbian, gay, or bisexual (46.8%) (Ivey-Stephenson et al., 2020).

Firearm Possession by Violent Offenders and Domestic Violence Perpetrators

There is a fivefold greater likelihood of domestic violence victims being murdered if their abusers have access to a firearm (The John Hopkins Center for Gun Violence Solutions, 2022). Policies that remove access to guns for abusers have been shown to reduce domestic violence related homicides by up to 25% (The John Hopkins Center for Gun Violence Solutions, 2022). Siegel & Boine (2019) examined the effect of state firearm laws on gun-related homicides from 1991–2016 using historical data. The data suggest that laws that prohibit gun possession by those with a history of violent crime or threat of violence, including those who have a domestic violence restraining order, should be prioritized in order to reduce the number of homicides (Siegel & Boine, 2019). The 2022 Bipartisan Safer Communities Act tightened what has long been known as the “boyfriend loophole” by expanding the definition of domestic violence perpetrator to include someone dating the victim (Rummler, 2022). This act also expanded federal restrictions on gun possession to include perpetrators of misdemeanor domestic violence.

Extreme Risk Protection Laws

“Extreme risk” protection laws, when implemented and enforced, can help prevent suicide, domestic violence, and mass shootings before they occur by temporarily removing guns and prohibiting their

purchase based on warning signs or concerning behaviors noted by family members, coworkers, or others close to an individual (BradyUnited.org, n.d.-c). Siegel and Boine (2019) stress that, to be effective, such laws must include requirements for the person to immediately surrender any firearms in their possession, regardless of whether they previously passed a background check, and a plan to confiscate any firearms if they are not voluntarily surrendered. Based on historical data, extreme risk protection laws that provide a process to remove firearms from those deemed to be a threat to themselves or others should be prioritized to reduce homicide rates (Siegel & Boine, 2019).

Background Checks

Background checks decrease suicides and homicides by firearm, as well as violent crime in general. There is good reason to extend that which is already required of commercial sales to private sales, such as “gun shows,” as well as implementation of universal background checks (RAND Corporation, 2018; Talley et al., 2019; Wintemute, 2018). A comprehensive analysis of the effect of state firearm laws on gun-related homicide from 1991–2016 found that states that require universal background checks for all purchases, including online and unlicensed dealers, have a 10% lower homicide rate than states that do not (Siegel & Boine, 2019; Gifford Law Center to Prevent Gun Violence, Universal background checks, n.d.-b).

Mass Shooters

Mass shootings are rare relative to overall homicides, but when mass shootings are examined specifically, themes emerge related to the shooters that are important to recognize so that they can help inform firearm policy and injury prevention efforts. For example, from 2018–2022, the shooters were 21 or younger in six out of the nine deadliest mass shootings in the U.S. (Thursh & Richtel, 2022). Yet, under federal law as of the time of writing, 18-year-olds can legally purchase and use long guns, which include semiautomatic rifles. Approximately one in three adolescents live in a household with a firearm, and approximately one-third of those are unlocked, loaded, or both (Miller & Azrael, 2022). A comprehensive analysis of mass shootings from 1966 to 2021 by the U.S. Department of Justice collected data on 179 mass shooters who killed at least some of their victims in a public location (del Carmen et al., 2022). Shooters who were adolescents or young adults (in their 20's) committed 45% of the shootings (del Carmen et al., 2022). Teenage shooters were most likely to commit mass shootings at schools. The results of this study showed that mass shooters at schools, universities and the workplace tend to be committed by “insiders” or someone known to the institution. Most of the school shooters (12 of 13) “leaked” or communicated their intentions prior to the shooting. Nearly half of the remaining mass shooters did so. According to del Carmen et al. (2022), 65% of the deaths of the mass shooters were by suicide and that percentage is much higher when examining only school shooters. This indicates the mass shooter’s intent to die and highlights a possible link between suicide prevention and mass shooting prevention. More than 50% of the weapons used in the mass shootings were handguns. Of those that were not handguns, 25% were assault rifles, 13% were rifles, and 12% were shotguns. This study reported that about 69% of these mass shooters who shot people in public locations displayed “signs of mental illness” prior to the mass shooting, but this included signs and symptoms in those who did not have a diagnosed disorder (del Carmen et al., 2022). A deeper investigation into the role of mental illness in shooters within this database was conducted by Peterson et al. (2022), and results indicated that mental illness appeared to play a major role in only about 11% of the mass shootings. Notably, the average number of mass shootings during the time frame studied, according to their very narrow definition, was just three per year; now they occur at much higher frequency.

Safe Storage and Youth Access to Firearms

A high proportion of U.S. youth have access to unsecured firearms in their homes (Sullivant & Dowd, 2021). This is one key example of where stronger federal firearm access laws could offer protections for youth who are not being adequately protected by their caregivers. Research indicates that many gun

owners tend to underestimate their children's ability to access guns that are in their homes, as well as underestimate their child's willingness to handle a gun unsupervised if they find one. For instance, a 2019 systematic review of the available data on school- and community-based gun safety programs for children aged 3–18 found that many children, even those who have had gun safety education or been taught about guns from a young age by their parents, will still handle a gun unsupervised if they find one (Holly et al., 2019). This data is consistent with the results of earlier research by Hardy et al. (1996) that served as the first systematic attempt to reduce gun play in young children. Hardy et al. investigated the efficacy of a community-based firearm safety program taught by police officers at reducing gun play in 48 preschool children age four to six. Based on the results of that study, the researchers concluded that preschool age children could not be effectively taught to “leave the gun alone,” and furthermore, many of these children were incapable of differentiating toy guns from real guns. According to parental self-report, 44% (21) of these children lived in a household that contained at least one gun (Hardy et al., 1996).

Research indicates that many gun owners also underestimate their adolescent's ability to access guns in the home. In a national study published in 2021, 280 parent-adolescent dyads who lived in homes that contained at least one loaded firearm were surveyed about access to loaded firearms in the home. Seventy percent of the parents reported that their adolescent could not independently access a loaded firearm in the home, while more than one-third of the adolescents insisted that they could access the firearm in under 5 minutes, even if it was locked up (Salhi et al., 2021). Since unintentional firearm deaths that occur by youth who access firearms in a home are a very small proportion of overall firearm deaths, the effects of policy and other interventions designed to prevent youth access to firearms is diluted if it is examined within the context of impacts on overall firearm deaths.

Always storing firearms safely—that is, locked in a firearm safe and/or with a trigger lock or a cable lock that passes through the firearm's chamber or barrel—has consistently been shown to decrease not only deaths from unintentional discharge among children but also suicide among both adolescents and adults (Violano et al., 2018; RAND Corporation, 2018). Clinicians can play an effective role in educating people about safe storage practices, although such interventions appear to be more effective when a free lock is provided (RAND Corporation, 2018). Child access prevention laws, which place responsibility for a child accessing a firearm on its owner and therefore presume the safe storage of firearms, also have been shown to reduce firearm injuries and deaths in children and young adults and are broadly popular across ideological lines (Rand Corporation, 2018). “Negligence” child access laws that hold firearm owners accountable when children can or do access unsecured firearms are effective in reducing the number of children injured and killed by firearms (Azad et al., 2020). These laws impose criminal liability if a gun is stored unsafely. An analysis of over 2,000 incidents of unintentional firearm injuries in children found that 91% were under age 18, and 7 of 10 occurred in a home. It also found that the states with secure storage or “negligence” child access prevention laws had the lowest rates of injury or death from child shootings. The less strict child access laws that hold the gun owner accountable only in the case of recklessness have not shown an association with reduced firearm deaths in children (Azad et al., 2020).

A 2014 study by Prickett et al. utilized nationally representative data from the Early Childhood Longitudinal Study-Birth Cohort (n = 8100) to investigate the relationship of state-level firearms legislation to firearm ownership and storage in households that included preschool-aged children. After controlling for family- and state-level characteristics, the researchers found that firearm legislation and CAP laws interacted to predict ownership and storage behaviors. They concluded that unsafe firearm storage was least likely among families in states with both CAP laws and stronger firearm legislation (Prickett et al., 2014). To protect children against unintentional child shootings, all 10 states with the lowest rates of injuries and deaths have some form of child access laws in place. (Everytown for Gun Safety, n.d.-b). The 10 states with the highest rates of injuries and fatalities from unintentional child shootings did not have such laws when the fatalities were tracked or only had laws that applied in limited and extreme circumstances (Everytown for Gun Safety, n.d.-b). As of 2021, 17 states had no laws to prevent child access of firearms (Everytown for Gun Safety, n.d.-b).

Gaps in the Research

Rigorous studies of the effects that firearm injury mitigation strategies have on self-protection or other outcomes of interest to gun enthusiasts have rarely been conducted (Azrael et al., 2017; Hart Research Associates, 2018; Parker et al., 2017; RAND Corporation, 2023). Such research is important not only for a complete and balanced understanding of firearms in America but also because partnerships between firearm violence prevention researchers and pro-gun communities are a vital part of effective firearm injury prevention interventions (; Barber et al., 2017; Barry et al., 2018; Branas et al., 2017 Brownson et al., 2018; Metz et al., 2018; RAND Corporation, 2023; Stewart et al., 2018; Talley et al., 2019).

Data on firearm injuries that is used for research as well as to inform policy may originate from several types of databases that vary in how they identify the “intent” of firearm injuries. Researchers have reported that when firearm injuries are identified based on hospital discharge data, such as the Nationwide Emergency Department Sample, they are typically identified via billing classification codes and may therefore contain statistical bias secondary to coding inaccuracies (Cook & Parker, 2022; Miller et al., 2022). Medical coding for emergency department visits is performed primarily for billing purposes, not research or reporting. Miller et al. (2022), in their study of 1,227 patients from three U.S. Trauma centers found that 28% of intentional firearm injuries resulting in emergency department admissions were inaccurately coded as accidents. They also found that coding performed by trauma registrars was considerably more accurate than coding performed by other hospital staff. The authors recommended that the current ICD-10 classification system for firearm injuries be improved to reflect more differentiation in the etiology of the injuries (Miller et al., 2022). Cook and Parker (2022) support this stance as well, suggesting that the International Classification of Diseases Tenth Revision, Clinical Modification (ICD-10) coding instructions change to include a default medical coding classification of “assault” rather than the current default of “unintentional” for an ambiguous firearm injury since the vast majority of nonfatal firearm injuries are assaults (Cook & Parker, 2022).

Screening in the Emergency Department

Suicidal and homicidal patients should be screened for access to firearms in the emergency department, and safety measures should be implemented to reduce the chance that they will gain access to a firearm (Azrael et al., 2017; Mann & Michel, 2016; American Foundation for Suicide Prevention, n.d.; Wintemute et al., 2016). It is important that emergency nurses know (1) that such screening is protected by the First Amendment, and (2) that firearm owners might be concerned that their answers to such questions could constitute a record of firearm ownership that might be used against them in the future, especially as medical records become increasingly permanent and portable in the digital era (Doctors for Responsible Firearm ownership, n.d.; Leventhal, 2015). Emergency nurses should be explicit with patients about the degree to which they will document firearm ownership information in the medical record.

The Role and Responsibility of Schools in Firearm Injury Prevention

Recommendations by the Institute for Predictive Analytics in Criminal Justice, based on their landmark analysis of mass shootings, include calling for schools to be proactive in nonpunitive interventions for students who display signs of a mental health crisis, use threatening language, or indicate suicidal ideation (del Carmen et al., 2022). Such assistance may be provided by school counselors, psychologists, or other health professionals such as school nurses. School nurses represent the front line of student health; when they are present in schools, they are often the first ones to identify behavioral health problems in students and connect them with needed resources (National Association of School Nurses, n.d.). However, school nurses are not being utilized consistently in U.S. schools despite consistent recommendations by major medical and nursing organizations that schools employ a minimum of one full-time nurse per school (American Academy of Pediatrics Council on School Health, 2016; National Association of School Nurses, 2021). As of a 2018 workforce study, less than 40% of U.S. Schools

employed a full-time school nurse, and 25% don't employ a school nurse at all (Willgerodt et al., 2018). School nurses have the potential to be a major safety net for many students in crisis when they are staffed according to nationally recognized professional guidelines.

Resources

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