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## About This Advisory

## Learn More

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A Surgeon General's Advisory is a public statement that calls the American people's attention to an urgent public health issue. Advisories are reserved for significant public health challenges that require the nation's immediate awareness and action.

This document is not an exhaustive review of the literature. Rather, the advisory was developed through a substantial review of the available scientific evidence, primarily found via electronic searches of research articles published in English and resources suggested by subject matter experts, with priority given to meta-analyses and systematic literature reviews. The morbidity and mortality data discussed account only for officially reported and documented incidents of firearm violence. Researchers have long acknowledged that reported firearm-related incidents represent an underestimate of the number of actual firearm-related incidents that occur.

# Firearm violence in America is a public health crisis. 

Since 2020, firearm-related injury has been the leading cause of death for U.S. children and adolescents (ages 1-19), surpassing motor vehicle crashes, cancer, and drug overdose and poisoning (Figure 1).,12

In 2022, 48,204 total people died from firearm-related injuries, including suicides, homicides, and unintentional deaths. ${ }^{2}$ This is over 8,000 more lives lost than in 2019 and over $\mathbf{1 6 , 0 0 0}$ more lives lost than in 2010.²

## Firearms are the leading cause of death for children and adolescents

1-19 years of age in the United States, 2002-2022

Firearm
Motor Vehicle
Poisoning (Drug and Non-drug)
Cancer
Suffocation
Congenital Anomalies
Drowning
Cardiovascular Disease


Source: Adapted from Goldstick, J. E., Cunningham, R. M., \& Carter, P. M. (2022).
Current causes of death in children and adolescents in the United States.
The New England Journal of Medicine, 386(20), 1955-1956.
Office of the
Underlying cause of death data from CDC WONDER.
U.S. Surgeon General

FIGURE 1: Firearms are the leading cause of death for children and adolescents

A recent nationally representative survey ( $n=1,271$ ) found that the majority of U.S. adults or their family members (54\%) have experienced a firearm-related incident. ${ }^{3}$ Among all respondents, $21 \%$ have personally been threatened with a firearm, 19\% have a family member who was killed by a firearm (including by suicide), $17 \%$ have witnessed someone being shot, $4 \%$ have shot a firearm in self-defense, and 4\% have been injured by a firearm (Figure 2). ${ }^{3}$ Nearly 6 in 10 U.S. adults say that they worry "sometimes," "almost every day," or "every day," about a loved one being a victim of firearm violence. ${ }^{3}$ Such high levels of exposure to firearm violence for both children and adults give rise to a cycle of trauma and fear within our communities, contributing to the nation's mental health crisis.

This Advisory describes the public health crisis of firearm violence in America and describes strategies for firearm injury and violence prevention, with a focus on the health and well-being of children, families, and communities.

Based on a recent nationally representative survey*,

of U.S. adults report that either they, or a family member, have experienced a firearm-related incident.

Among all respondents:

have been threatened with a firearm.

19\%
have a family member who was killed by a firearm (including by suicide).

## 17\%

have witnessed someone being shot.
have shot a firearm in self-defense.
have been injured by a firearm.

FIGURE 2: Firearm violence is pervasive in the United States

# Chapter 1 <br> Firearm Violence in the U.S.: Death and Injury 

## Firearm-Related Death

The rate of firearm-related deaths in our nation has been rising and reached a near three-decade high in 2021. ${ }^{2}$ This crisis is being driven, in particular, by increases in firearm-related homicides over the last decade and firearm-related suicides over the last two decades. ${ }^{2}$ Across all firearm-related deaths in 2022, more than half ( $56.1 \%$ ) were from suicide, $40.8 \%$ were from homicide, and the remaining were from legal intervention, ${ }^{\text {b }}$ unintentional injuries, and injuries of unknown intent. ${ }^{2}$ The age-adjusted rate of firearm-related suicide increased by $20.1 \%$ from 2012 ( 6.3 per 100,000) to 2022 ( 7.6 per 100,000), with an absolute increase from 20,666 to 27,032 deaths over the same period. ${ }^{2}$ The age-adjusted rate of firearm-related homicide increased by $62.5 \%$ from $2012(3.8$ per 100,000) to 2022 ( 6.2 per 100,000), with an absolute increase from 11,622 to 19,651 deaths over the same period. ${ }^{2}$

Despite these increases over time in firearm-related deaths, the number of firearm-related homicides decreased from 20,958 (6.7 per 100,000 [age-adjusted]) in 2021 to 19,651 ( 6.2 per 100,000 [age-adjusted]) in 2022. ${ }^{2}$ Furthermore, the provisional firearm-related homicide rate for 2023 (part-year) is lower than the rate in 2022. ${ }^{4}$ The provisional firearm-related suicide rate for 2023 (part-year) remains comparable to the rate in $2022 .{ }^{5}$

When measured over a decade (2012 to 2022), children and younger populations experienced a staggering increase in firearm-related suicide rates: $43 \%$ for $25-34$-year-olds ( 6.5 per 100,000 [crude rate]) in 2012 to ( 9.3 per 100,000 [crude rate]) in 2022, $45 \%$ for $15-24$-year-olds ( 5.0 per 100,000 [crude rate]) in 2012 to ( 7.3 per 100,000 [crude rate]) in 2022, and 68\% for children aged 10-14 ( 0.50 per 100,000 [crude rate]) in 2012 to ( 0.84 per 100,000 [crude rate]) in 2022 (Figure 3). ${ }^{2}$

> The rate of firearm-related deaths in our nation has been rising and reached a near three-decade high in 2021. ${ }^{2}$

${ }^{\text {b }}$ The CDC defines legal intervention as, "firearm injuries inflicted by the police or other law enforcement agents acting in the line of duty." The term legal intervention is a commonly used external cause of injury classification. It does not indicate the legality of the circumstances surrounding the death. (Centers for Disease Control and Prevention (2024, March). About firearm injury and death. U.S. Department of Health and Human Services. https://www.cdc.gov/firearm-violence/about/index.html).

## Rate of firearm-related suicide increased by 20\% across the population, with the highest increases among younger people

United States, 2012-2022

| Crude rate (p | er 100,000) of firearm-related suicide, by age range ${ }^{1}$ | Percentage change |
| :---: | :---: | :---: |
| $10-14$ <br> YEARS OLD | $\begin{aligned} & 0.50-2012 \\ & 0.84-2022 \end{aligned}$ | $4600 / 0$ |
| 15-24 | 5.05 | 150 |
| YEARS OLD | 7.32 |  |
| 25-34 | 6.52 | 0 |
| YEARS OLD | 9.30 |  |
| 35-44 | 7.22 | 10 |
| YEARS OLD | 8.60 |  |
| 45-54 | 9.29 | 0 |
| YEARS OLD | 9.49 | - |
| 55-64 | 9.71 | O |
| YEARS OLD | 10.48 |  |
| $65+$ | 11.12 |  |
| YEARS OLD | 12.75 |  |
| 1. Ages $0-9$ not Source: Fatal in | cluded due to small numbers. ry data from CDC WONDER. | Office of the U.S. Surgeon General |

FIGURE 3: Rate of firearm-related suicide in the United States increased by 20\% across the population, with the highest increases among younger people

## Firearm-Related Death: International Comparison

Rates of firearm-related death in the U.S. are significantly higher than rates in other high-income countries. Data from the Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) found that, in 2015, the overall firearm-related death rate was 11.4 times higher in the U.S. compared to 28 other high-income nations. ${ }^{6}$ During the same year, $83.7 \%$ of all firearm-related deaths across the 29 countries studied occurred in the U.S. despite the U.S. only accounting for about $31 \%$ of the combined population. ${ }^{6}$

The discrepancy between the U.S. and peer nations is even more stark when it comes to firearm-related mortality among children and adolescents. Across the 29 countries referenced, in 2015, more than 9 in 10 children (ages $0-14$ ) who died from firearm-related injuries lived in the U.S. (97\% of children ages 0-4, and 92\% of children ages 5-14). ${ }^{6}$ More recently, data from the Institute for Health Metrics and Evaluation (IHME) showed that, in 2019, the rate of firearm mortality among children and adolescents (ages 1-19) in the U.S. (36.4 per one million) was more than 5 times the rate of firearm mortality among the same age group in Canada (6.2 per one million), about 18 times the rate of firearm mortality in Sweden ( 2.0 per one million), and more than 22 times the rate of firearm mortality in Australia ( 1.6 per one million) (Figure 4). ${ }^{7}$

In 2015, the overall firearm-related death rate was 11.4 times higher in the U.S. compared to 28 other high-income nations. ${ }^{6}$

## Comparison of firearm mortality rates among children and adolescents in select OECD' nations

Per 1,000,000 people ages 1-19 years, United States and peer countries, 2019


1. The Organization for Economic Co-operation and Development

Source: Adapted from McGough, M., Kirzinger, A., Panchal, N., (2023).
Office of the
Child and Teen Firearm Mortality in the U.S. and Peer Countries. KFF.

FIGURE 4: Comparison of firearm mortality rates among children and adolescents in select OECD nations

## Firearm-Related Death: Disproportionate Impacts

Firearm homicides and suicides are not equally distributed, and disparities have been longstanding across population groups in the U.S. In 2022, Black persons endured the highest age-adjusted firearm homicide rates across all ages ( 27.0 per 100,000 (Black or African American) as compared to 6.2 per 100,000 (all races/ ethnicities) $)^{c}$. ${ }^{2}$ In 2022, White individuals ages 45 years and older had the highest rate of firearm suicide ( 14.8 per 100,000 vs. 11.1 per 100,000 all races/ethnicities $\geq 45$ years); while the firearm suicide rate for people under age 45 years old was highest among American Indian or Alaska Native (AI/AN) persons ( 12.3 per 100,000 vs. 5.9 per 100,000 all races/ethnicities <45 years). ${ }^{2}$ The firearm suicide rate was also significantly higher among Veterans in 2021: 62.4\% higher for Veteran men than for non-Veteran men and 281.1\% higher for Veteran women than for non-Veteran women. ${ }^{8}$

There are noteworthy disparities in firearm-related deaths by sex. In 2022, males were approximately six times as likely to die from firearm-related injury than females ( 41,302 firearm-related deaths among males and 6,902 firearm-related deaths among females). ${ }^{2}$ Despite higher numbers of total firearm-related deaths among males, the intersection of intimate partner violence (IPV) and firearm violence disproportionately impacts females. Firearms are used in about 50\% of all IPV-related homicides.9, 10 In 2021, the proportion of homicides attributable to IPV was five times higher for female victims as compared to male victims. ${ }^{11}$

Among youth, disparities by sex and race are also evident. In 2022, male children and adolescents (ages 1-19) were more than five times as likely than their female counterparts to die from a firearm-related injury ( 3,926 firearm deaths for males and 677 firearm deaths for females). ${ }^{2}$ When assessing types of firearm-related deaths in 2022 among White children and adolescents (ages 1-19), 29\% were homicides ( 352 of 1,194 ) and $63 \%$ were suicides ( 757 of 1,194 ). ${ }^{2}$ Among Black children and adolescents (ages $1-19$ ), $86 \%$ of firearm-related deaths were homicides ( 1,961 of 2,279 ) and $10 \%$ were suicides ( 220 of 2,279 ). ${ }^{2}$ Among Hispanic children and adolescents (all-races), $76 \%$ were homicides (688 of 909) and 18\% were suicides (168 of 909); among Asian/Native Hawaiian/Pacific Islander children and adolescents, $39 \%$ were homicides ( 26 of 66 ) and $55 \%$ were suicides ( 36 of 66); and among American Indian or Alaska Native children and adolescents, $44 \%$ were homicides (29 of 66) and 48\% were suicides (32 of 66). ${ }^{2}$ CDC data for 2022 show that the firearm suicide rate among Black adolescents (age 10-19) surpassed the rate among White adolescents (age 10-19) for the first time on record. ${ }^{2}$

[^0]Overall, in 2022, Black children and adolescents accounted for about half of all firearm-related deaths among U.S. children and adolescents, despite making up only $14 \%$ of the U.S. child and adolescent population. ${ }^{2,12}$

## Firearm-Related Death: Mass Shootings

While mass shooting deaths represent only about $1 \%$ of all firearm-related deaths in the U.S., the number of mass shooting incidents is increasing. ${ }^{13,14}$ According to data published by Gun Violence Archive, the U.S. experienced more than 600 mass shooting incidents each year between 2020 and 2023, compared to an average of less than 400 annual mass shooting incidents between 2015 and 2018. ${ }^{15}$ An analysis of the National Violent Death Reporting System found that compared to single homicides ( 1 victim) and multiple homicides ( $2-3$ victims), mass homicides ${ }^{e}$ (4 or more victims, besides the perpetrator) had the highest proportion of female victims (52\%), the highest proportion of White victims (56\%), and the highest proportion of child victims (more than a quarter were younger than 18 years old). ${ }^{16}$ Another analysis of mass shootings between 2014-2019 found that most incidents were associated with domestic violence (59\%), which was defined as at least one victim being a dating partner or family member of the perpetrator, and that domestic violence-related mass shootings had higher average case fatality rates than those unrelated to domestic violence (84\% vs 63\%). ${ }^{17}$

Despite accounting for a relatively small number of firearm deaths, mass shooting incidents cause outsized collective trauma on society and have a strong negative effect on the public's perception of safety (see "Collective Toll" section on page 14). More than three-quarters of adults (79\%) in the U.S. report experiencing stress from the possibility of a mass shooting, and one in three adults (33\%) say fear prevents them from going to certain places or events. ${ }^{18}$

> More than three-quarters of adults $(79 \%)$ in the U.S. report experiencing stress from the possibility of a mass shooting, and one in three adults ( $33 \%$ ) say fear prevents them from going to certain places or events. ${ }^{18}$

[^1]Mass shootings elicit significant fear and concern among the public and can lead to misconceptions about perpetrator characteristics. While findings suggest that perpetrators of mass homicides are more likely to experience mental health challenges than perpetrators of single homicides, ${ }^{16}$ research also supports that one's mental health diagnosis or psychological profile alone is not a strong predictor of perpetrating violence of any type, including a mass shooting. ${ }^{19,20,21}$ An FBI report that examined active shooter incidents in the U.S. between 2000-2013 could only verify that one quarter of perpetrators had been diagnosed with a mental illness of any kind prior to the offensef. ${ }^{19}$ Importantly, most people with serious mental illness are not violent against others. ${ }^{22,23} \ln$ fact, people with serious mental illnesses ${ }^{g}$ are more likely to be victims of violence compared to the general population, even after controlling for demographic differences. ${ }^{23,24}$

Other individual and interpersonal level factors, outside of mental health diagnoses, may also play a role in the risk of perpetrating a mass homicide. ${ }^{19,21,25,26}$ According to a 2023 Department of Homeland Security report on mass attacks in public spaces (the majority of which are perpetrated with firearms) from 2016-2020, about a quarter (24\%) of perpetrators had a diagnosed mental health condition prior to or at the time of their attack ${ }^{\mathrm{h}}$, whereas nearly all attackers (93\%) experienced at least one significant stressor within five years prior to the attack and $77 \%$ experienced such stressors within one year. ${ }^{26}$ These acute and/or persistent life stressors involved romantic and family relationships (51\%), such as death of a loved one or divorce; employment issues (32\%), such as poor performance or termination; and negative social interactions (19\%), such as being bullied in school or experiencing social exclusion, among others. ${ }^{26}$

[^2]
## Firearm-Related Injury

Physical and mental health impacts caused by nonfatal firearm injuries can be significant. Compared to those who lose their lives from firearm injuries each year, many more people are injured with a firearm and survive. ${ }^{27}$ Although firearm-related injury rates are difficult to measure due to challenges with collecting national injury data, studies suggest that there are at least twice as many nonfatal firearm injuries as fatal firearm injuries. ${ }^{27,28}$ Abstractor coded data indicate that most nonfatal firearm injuries treated in emergency departments are deemed to be a result of assaults, followed by unintentional injuries. ${ }^{28,29}$

From 2019 to 2022, the mean number of weekly emergency department visits for firearm injuries was consistently highest among young people (15-24 years old), compared to all other age groups. ${ }^{30}$ The youngest age group (0-14 years old) saw the largest increases in the proportion of firearm-related injury emergency department visits during 2020-2022, compared with 2019. ${ }^{30}$

The impact of surviving a firearm injury includes short-term and long-term health consequences. Physical health consequences for individuals can include, but are not limited to, new limitations to physical functioning; physical disabilities from injury; and increased diagnoses of chronic pain. ${ }^{31,32,33}$ Chronic behavioral health problems are also attributable to firearm injuries such as post-traumatic stress disorders, anxiety, depression, and substance use disorders. ${ }^{33,34,35,36}$ Examination of data from commercial health insurance claims from 2007-2021 suggests that children and adolescents (ages 0-19) who survived a firearm injury experienced long term negative health consequences. ${ }^{35}$ Through one year after injury, compared to matched controls who did not experience a firearm injury, the survivors experienced a $117 \%$ increase in pain disorders (e.g. musculoskeletal pain, headache, and other pain syndromes), a 68\% increase in psychiatric disorders (trauma- and stress-related disorders such as major depressive disorders, and other psychiatric disorders), and a $144 \%$ increase in substance use disorders (i.e., alcohol or drug use disorders). ${ }^{35}$

Further, in a cohort study of 183 adults who survived a firearm injury from 2008-2017, individuals (median time from injury, 5.9 years) self-reported worse physical and mental health compared with the general population. ${ }^{32}$ Nearly 50\% of these participants who survived a firearm injury were identified as having probable post-traumatic stress disorder, as compared to a $6.8 \%$ lifetime prevalence of post-traumatic stress disorder in the U.S. general population. ${ }^{32}$ Rates of unemployment and substance use among the firearm-injury survivor group also increased by $14.3 \%$ and $13.2 \%$, respectively, after injury. ${ }^{32}$

## Chapter 2

# The Collective Toll of Firearm Violence Exposure in the U.S. 

> Beyond the profound consequences of surviving a firearm-related injury, those who do not experience direct bodily harm often grapple with mental health consequences related to firearm violence exposurei, including community members, children and adolescents, and families.

## Impact on Communities

There is increasing evidence that exposure to firearm violence can contribute to elevated stress levels and mental health challenges and threaten the sense of well-being for entire communities. One study examining emergency department admissions between 2014 and 2018 found that children and adolescents in west and southwest Philadelphia, who lived within two to three blocks of where a shooting occurred, had nearly $50 \%$ increased odds of using an emergency room for mental health reasons during the subsequent 30 days after the shooting than other children and adolescents. ${ }^{37}$ The odds were highest among youth who were exposed to multiple shootings and among those who lived closest to a shooting's location. ${ }^{37}$

Health workers who regularly treat firearm-related injuries and are exposed to the consequences of firearm violence may experience secondary traumatic stress. ${ }^{38}$ The same can be seen among community workers and law enforcement officers who directly interface with victims and survivors of firearm violence. For example, in a study population of Chicago community violence interventionists (trained civilians working to intervene in and de-escalate street and firearm violence), $94 \%$ of workers reported at least one secondary traumatic stress indicator in the prior seven days (e.g., feeling emotionally numb, having trouble concentrating or sleeping, reliving the trauma experienced by clients). ${ }^{39}$

[^3]Mass shootings, in particular, can contribute to widespread psychological distress, as these events often implicate whole communities, receive substantial media coverage, and embed themselves in the public consciousness. ${ }^{40}$ Among U.S. adults, $79 \%$ report experiencing stress from the possibility of a mass shooting and 33\% say fear prevents them from going to certain places or events. ${ }^{18}$ For example, the Orlando shooting at Pulse nightclub in June 2016, a shooting that impacted the LGBTQ+ community, was associated with a 25.6 percentage point increase in severe psychological distress for sexual minority men nationwide compared to heterosexual men. ${ }^{41}$

## Impact on Children and Adolescents

Fears and worries about firearm violence are highly prevalent among youth, especially regarding school shootings. A nationally representative survey found that half (51\%) of 14 to 17-year-olds in the U.S. worry about school shootings and nearly six in ten report that they "have recently thought about what would happen if a person with a gun entered" their school or a school nearby. ${ }^{42}$

Further, students exposed to school shootings experience "declines in health and well-being, engage in more risky behaviors, and have worse education and labor market outcomes as young adults" according to a recent study using data on shootings compiled by the Center for Homeland Defense and Security. ${ }^{43}$ Researchers have found that local exposure to fatal school shootings is associated with a $21.4 \%$ increase in youth antidepressant use in the following 2 years. ${ }^{44}$ Evidence suggests an increased risk of suicide or accidental deaths among students affected by the Columbine High School shooting, particularly for boys. ${ }^{45}$

Additionally, exposure to shooting incidents in schools is associated with increased odds of adolescents avoiding school because of feeling unsafe. For example, high school students who are exposed to a school shooting have $20 \%$ greater odds of avoiding school because of feeling unsafe compared to those who have not been exposed. ${ }^{46}$ After the tragedy at Columbine High School, the percentage of students around the country who reported missing school because of safety concerns more than doubled in the months following the shooting. ${ }^{47}$

> Researchers have found that local exposure to fatal school shootings is associated with a $21.4 \%$ increase in youth antidepressant use in the following 2 years. ${ }^{44}$

When discussing the mental health impacts of violence exposure on children, there is a strong body of literature supporting the impact on childhood development. Specifically, childhood exposure to witnessing firearm-related incidents has been associated with higher odds of adolescent handgun carrying. ${ }^{48}$ As children age, cumulative exposure to firearm violence and other traumatic experiences may impact development and contribute to mental and behavioral problems. ${ }^{49}$ As reported in the 2030 Healthy People Report, "children and adolescents exposed to violence are at risk for poor long-term behavioral and mental health outcomes, such as depression, anxiety, and post-traumatic stress disorder, regardless of whether they are victims, direct witnesses, or hear about the crime."50

Certain groups experience disproportionate impacts from firearm violence exposure. For example, among youth living in large U.S. cities, Black and Hispanic/ Latino youth were up to 7 times more likely to experience (firsthand and proximity to) a past-year firearm homicide than White youth, and on average experienced incidents closer to home. ${ }^{51}$

## Impact on Families

Research demonstrates that siblings of children and adolescents who died from firearm injury exhibited a 2.3 -fold increase in psychiatric disorders, mothers exhibited a 3.6 -fold increase, and fathers exhibited a 5.3 -fold increase, as compared to families who did not experience firearm fatalities. ${ }^{35}$ Further, parents of children and adolescents who died from a firearm injury used more mental health services: 15.3 -fold higher for mothers and 86.6 -fold higher for fathers, compared to parents who did not lose a child to firearm violence. ${ }^{35}$

Family members of survivors of firearm violence also experience increased risk of mental health challenges. Specifically, there was a $12 \%$ increase in psychiatric disorders (including anxiety, mood disorders, psychosis, and other disorders) among family members (including spouses, children, parents, and other dependents) of individuals who survived a firearm injury compared to control participants who did not have a family member injured by firearm violence. ${ }^{36}$ In another study, mothers of children and adolescents who survived a firearm injury experienced a $75 \%$ increase in mental health visits compared to non-affected mothers. ${ }^{35}$ The same study found that parents of children and adolescents who survived a firearm-related injury experienced about a $30 \%$ increase in psychiatric disorders compared to control participants. ${ }^{35}$

Further, a separate study found that mothers who witness at least one shooting in their neighborhood or local community exhibit more symptoms of depression and are more likely to meet criteria for depression than mothers who do not witness a shooting. ${ }^{52}$

While far too many parents lose children to firearm violence, children are also losing parents. Between 1999 and 2020, a cross-sectional study estimated that 434,000 youth (<18 years old) experienced a firearm-related parental death. ${ }^{53}$ Black youth in this study experienced a disproportionate impact of parental deaths, primarily due to firearm-related deaths among fathers. ${ }^{53}$ Adverse childhood experiences, which may include the homicide or suicide of a parent, can be associated with lifelong negative effects on health (e.g., depression, heart disease, and cancer) and life opportunities, like education and job potential of children. ${ }^{54}$ As firearm-related injuries and deaths increase, the grief, trauma and risk of mental health challenges for children and family members of victims increases too.

> Between 1999 and 2020, a cross-sectional study estimated that 434,000 youth (<18 years old) experienced a firearm-related parental death. ${ }^{53}$

# Firearm violence leads to cascading harm across society 



## Those who are injured

Those who are direct witnesses

Those who are exposed in affected communities, including schools

Those who experience collective trauma and fear

In 2022, 48,204 people died from firearm injuries, over 8,000 more lives lost than in 2019. ${ }^{1}$

From 2019 to 2022, the mean number of weekly ED visits for firearm injuries were consistently highest among young people (15-24 years). ${ }^{2}$

Mothers who witness at least one shooting in their community are up to $\mathbf{6 0 \%}$ more likely to meet criteria for depression. ${ }^{3}$

Siblings of children and adolescents who died from firearm injury exhibited a 2.3-fold increase in psychiatric disorders, mothers exhibited a 3.6 -fold increase, and fathers exhibited a 5.3 -fold increase. ${ }^{4}$

51\% of U.S. teens (ages 14-17) say they worry "about a shooting happening at my school or a local school near me."5

79\% of U.S. adults report experiencing stress from the possibility of a mass shooting, while 33\% say fear prevents them from going to certain places or events. ${ }^{6}$
(2023) National Center for Health Statistics Mortality Data on CDC WONDER. WONDER. 2. Zwald, M.L., Van Dyke, M.E., Chen, M.S., et al. (2023) Emergency department visits for firearm injuries before and during the COVID-19 pandemic - United States, January 2019-December 2022. MMWR Morb Mortal Wkly Rep, 72, 333-337 3. Leibbrand, C., Rivara, F., \& Rowhani-Rahbar, A. (2021). Gun violence exposure and experiences of depression among mothers. Prevention Science: The Official Journal of the Society for Prevention Research, 22(4), 523-533. 4. Song, Z., Zubizarreta, J.R., Giuriato, M., Koh, K.A., \& Sacks, C.A. (2023). Firearm members. Health Affairs, 42(11) 5. The Sold economic consequences among survivors and family and Policy \& Polarization attitudes on guns report. 6. American Psychological Association. (2019). One-Third of us adults say fear of mass shootings prevents them from going to certain places or events.

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FIGURE 5: Firearm violence leads to cascading harm across society

## Chapter 3

# Contributing Factors to Firearm Violence 

## The factors strongly associated with firearm-related deaths and injuries in the U.S. are complex. ${ }^{55,56,57,58}$

The COVID-19 pandemic impacted several known contributing factors to firearm violence with a disproportionate impact on marginalized communities. ${ }^{59,60,61}$ Furthermore, leading up to and during the COVID-19 pandemic, an estimated 5.4 million U.S. adults in a household without a firearm purchased a firearm for the first time. ${ }^{62}$

Developing an understanding of the social determinants of healthi, impacts of firearm violence exposure, and other factors that contribute to firearm violence in the U.S. is critical to addressing this public health crisis. While not an exhaustive list, the following section discusses important factors that may contribute to rates of firearm violence in the U.S.

## Socioeconomic, Geographic, and Racial Inequities

Socioeconomic, geographic, and racial inequities as well as the associations between these factors may contribute to firearm violence outcomes and exposure. Structural factors that significantly increase the risk of experiencing firearm violence include, "poverty, living in an area with low social mobility, or being in a historically marginalized group impacted by structural racism," among others. ${ }^{63}$

A nationwide study found that social capital (levels of trust in institutions), social mobility, income inequality, and social service spending demonstrated significant associations with firearm homicide rates. ${ }^{64}$ Specifically, a one standard deviation increase in upward social mobility was related to a $25 \%$ reduction in the firearm homicide rate, and increased institutional social capital was linked to a 17\% decrease in the number of firearm homicide incidents. ${ }^{64}$ Similarly, an increase in socioeconomic status by one standard deviation has been associated with a $31 \%$ reduction in firearm suicide risk among men. ${ }^{65}$ Conversely, increases in the neighborhood percentages of residents living in poverty and of males living alone were associated with up to $27 \%$ and $12 \%$ higher firearm-related homicide rates, respectively. ${ }^{64}$

[^4]Regarding geographic factors, firearm homicide rates are generally higher in urban areas (metropolitan counties) and firearm suicide rates are often higher in rural areas (non-metropolitan counties). Data analyzed from the Big Cities Health Coalition reported a total of 67,000 firearm deaths (2010-2021) in 35 member cities, $66 \%$ of which were homicides and $32 \%$ were suicides. ${ }^{66}$ Further, in a cross-sectional study from 2011 to 2020, the most rural counties had a $76 \%$ higher firearm-related suicide rate and a $46 \%$ lower firearm-related homicide rate compared to the most urban counties. ${ }^{67}$

Structural, institutional, and individual racism have also contributed to inequities in exposure to firearm violence in the U.S. For example, structural racism has contributed to inequities in economic, housing, and educational opportunities that are associated with risk for violence and other health conditions among racial and ethnic minority groups. ${ }^{68,69}$ Racial and ethnic minority population groups are more likely to live in neighborhoods with concentrated economic disadvantage due to imposed economic setbacks, historic divestment, and harmful discriminatory policies like redlining. ${ }^{70}$ In 2020, counties with the highest levels of poverty experienced firearm homicide rates 4.5 times as high, and firearm suicide rates 1.3 times as high, as counties with the lowest poverty levels. ${ }^{71}$

## Lethality, Availability, and Access

In 2022, the majority of all homicides ( $79 \%$ [19,651 of 24,849 ) and suicides ( $55 \%$ [27,032 of 49,476]) in the U.S. were carried out with a firearm. ${ }^{2}$ When discussing the contributing factors to the firearm violence crisis in the U.S., the lethality, availability of, and access to firearms should be acknowledged. The presence of a firearm in the home has been associated with higher risk of being a victim of homicide and suicide among all household members, and an unlocked firearm in the home is associated with higher risk of suicide and unintentional firearm injury among children and adolescents. ${ }^{72,73}$

Studies suggest that a fatal outcome is more likely when a firearm is used in a violent situation or in a suicide attempt rather than other methods. ${ }^{28,74}$ Nearly $90 \%$ of suicide attempts with a firearm end in death, a case fatality rate (CFR) that exceeds that of hanging/suffocation (CFR: 84.5\%), drowning (CFR: 80.4\%), gas poisoning (CFR: 56.6\%), jumping (CFR: 46.7\%), drug/liquid poisoning (CFR: 8.0\%), and cutting (CFR: $4.0 \%$ ). ${ }^{75}$ Acts of violence and suicide attempts often involve a rapid transition from thought to action, and access to a firearm during a time of acute stress can lead to deadly outcomes. Some suicide attempt survivors report that they acted within minutes or hours of deciding to end their lives. ${ }^{76,77}$

Suicide is one of the top leading causes of death in the United States for individuals ages 10-64. ${ }^{78}$ While mental health is an important risk factor for suicide, many people who die by suicide (all means) do not have a known mental health
condition. ${ }^{79,80}$ As such, people who die by suicide may not come to the attention of health workers when effective prevention interventions could be delivered. Research shows that negative life events, such as family relationship problems, job-related stress, physical health issues, and financial or legal problems, are common circumstances of suicide, including among those without a mental health diagnosis. ${ }^{80}$ While the relationship between mental illness and suicide risk is complex, it is clear that access to a firearm can turn a moment of crisis into a fatal one. Attempting suicide by firearm is almost always an irreversible act that allows for little or no reconsideration by an individual.

> While the relationship between mental illness and suicide risk is complex, it is clear that access to a firearm can turn a moment of crisis into a fatal one.

Firearm storage practices ${ }^{k}$ vary widely among firearm owners. A 2022 survey found that among firearm owners, most of whom owned more than one firearm (65\%), $71 \%$ used one type of storage or locking device on at least one firearm, but $65 \%$ reported at least one unlocked firearm. ${ }^{81}$ Even among firearm owners with children, findings from a national survey ( $\mathrm{n}=1363$ ) in 2021 suggest that $36 \%$ have unlocked firearms. ${ }^{82}$ Unlocked firearms can be accessed by unauthorized users, including family members with dementia or suicidal thoughts, children and adolescents, or through theft. According to a 2023 CDC analysis, 56\% of unintentional firearm deaths among children and adolescents (ages 0-17) happened while they were in their own home, and approximately two-thirds (67\%) of shooters were playing with or showing the firearm to others when it discharged. ${ }^{83}$ The firearms used in these unintentional deaths were often stored loaded (74\%) and unlocked (76\%) and were most commonly accessed from sleeping areas such as nightstands, under a mattress or pillow, or on a bed (Figure 6). ${ }^{83}$

[^5]
## Analysis of unintentional firearm deaths among children and adolescents

0-17 years of age in the United States, 2003-2021


Among incidents with known firearm storage information,

## 76\%

of the firearms used were stored unlocked.

When stored unlocked, the firearms were most commonly accessed from these locations:


Source: Wilson, R.F., Mintz, S., Blair, J.M., Betz, C.J., Collier, A., \& Fowler, K.A. (2023). Unintentional firearm injury deaths among children and adolescents aged 0-17 yearsNational Violent Death Reporting System, United States, 2003-2021. MMWR, 72, 1338-1345.

FIGURE 6: Analysis of unintentional firearm deaths among children and adolescents

## Chapter 4

# Public Health Approach to Firearm Injury and Violence Prevention 

> A public health approach is designed to prevent and reduce harm by changing the conditions and circumstances that contribute to risk of firearm violence as measured by deaths, injuries, as well as the reverberating mental health and emotional impacts detailed in this Advisory.

This cross-sector approach complements the work of clinical health care providers to treat those who are victims and survivors of violence and the work of law enforcement to hold perpetrators accountable. To be successful, this approach must include everyone, from firearm owners to health workers to community leaders.

The CDC has defined a public health approach to violence prevention, which can be used to address a range of public health crises, as a four-step process rooted in a systematic and scientific method. ${ }^{84}$ First, the problem must be defined and monitored. Second, risk and protective factors must be identified. Third, prevention strategies must be developed and tested to determine their effectiveness in preventing injuries, and fourth, widespread adoption must be assured through implementation and dissemination strategies based on available evidence. Widespread adoption relies on and is supported by strong collaborations between state/federal leaders and community organizations/local leadership.

During an emergency, like that of firearm violence in the U.S., a public health approach requires combining the best available scientific evidence with scientific judgment and expertise to take life-saving action quickly. This involves simultaneously implementing promising prevention strategies and policies, continuing to gather more evidence, and iterating to improve interventions. This entire approach is continuous and iterative.

Past successful public health approaches have focused on prevention and addressed population level risk, taking a solution-oriented and evidence-informed approach. For example, this approach contributed to a more than $70 \%$ decline in the prevalence of cigarette smoking among U.S. adults, from $42 \%$ in 1964 to $11.5 \%$ in $2021 .{ }^{55,86}$ In another example, the enactment and enforcement of traffic safety laws, reinforced by public health education campaigns, led to sustained and improved motor vehicle safety. According to the National Safety Council, the mileage death rate in 1923 ( 21.65 deaths per 100 million miles driven) has decreased by more than $93 \%$ in 2021 ( 1.38 deaths per 100 million miles driven)..$^{87}$ The public health approaches to cigarette smoking and motor vehicle crashes achieved success through changes to policies, systems, and environments such as evidence-informed laws (e.g. age-minimums for tobacco purchases, driver's licenses), evidence-driven changes in products themselves (e.g. air bags, seat belts), and evidence-driven public health education campaigns. Taking such an approach to firearm violence prevention has the potential to curb the alarming trends of firearm-related injury and death in America and the resulting health impacts.

The remainder of this section describes critical components of a public health approach to firearm violence prevention, building on the earlier sections of the Advisory which define the problem and identify risk and protective factors. It describes the need for critical research investments to accelerate the public health approach, provides an overview of prevention strategies, and discusses ways to address the mental health toll of firearm violence.

> Taking a public health approach to firearm violence prevention has the potential to curb the alarming trends of firearm-related injury and death in America and the resulting health impacts.

## Critical Research Investments

## Firearm violence prevention is dependent on a strong foundation of research.

Researchers, community leaders, government officials, and health workers widely acknowledge the critical need to increase research funding for the improvement of data collection and analysis to inform and evaluate firearm violence prevention strategies. Historical underfunding for firearm violence prevention research has created challenges for expanding the evidence-base and implementing life-saving policies. ${ }^{88}$ The federal investment in firearm violence research is drastically less than the federal investment in research for causes of death with comparable mortality. ${ }^{89}$ For example, in relation to mortality rates over a 10 -year period (2004-2014), firearm violence killed about as many people as sepsis but funding for firearm violence research was less than $1 \%$ of that for sepsis. ${ }^{89}$ Over the same period, research for firearm violence was funded at a similar level to research on drowning; yet the firearm-related mortality rate (age-adjusted) was nearly 7 times as high: 10.25 per 100,000 ( 350,139 firearm-related fatalities) compared to 1.47 per 100,000 (49,891 drowning-related fatalities). ${ }^{2,89}$ Among children and adolescents (ages 1-18), federal research dollars between 2008-2017 totaled $\$ 878$ million for motor vehicle crashes, averaging \$26,136 per youth death. ${ }^{90}$ In contrast, during the same period, firearm injury prevention federal research dollars totaled $\$ 12$ million, averaging $\$ 597$ per youth death. ${ }^{90} \mathrm{~A}$ significant increase of funding for firearm injury and mortality research is necessary to expand our understanding of the causes of and the strategies to reduce and prevent firearm violence in America.

These critical research investments include:

- Improve data sources and data collection to inform prevention activities. Accurate, timely, publicly accessible, detailed, and nationally comprehensive firearm injury data systems are needed. For example, there is no national data collection system that includes all nonfatal firearm injuries and, thus, many states and communities are unable to access or utilize data on nonfatal firearm injuries. Without proper data, the extent and severity of firearm violence outcomes as well as evaluations of prevention efforts and interventions will be limited. Prioritizing coordination across organizations that have access to firearm injury data (health systems, states, localities, public health agencies, non-profits, law enforcement, etc.) will allow for more complete analysis of firearm violence.
- Expand research to examine short-term and long-term outcomes of firearm violence and evaluate specific prevention strategies. Multiple research gaps related to firearm-related violence and injury prevention have been described, including but not limited to, community-based firearm violence, suicide prevention, shootings by law enforcement, mass shootings, domestic violence involving firearms, reducing risks to children and adolescents, the
use of firearm-related technology, and the effects of existing policies and laws. Research should also evaluate health outcomes of individuals directly and indirectly exposed to firearm violence, including survivors, their families, and communities. Additionally, research should be expanded to evaluate the effectiveness of firearm violence prevention strategies in new settings or within sub-populations, and to support follow-up evaluations of the long-term outcomes associated with such strategies.
- Conduct implementation science research to improve effectiveness of prevention strategies. There are existing firearm violence prevention strategies that have evidence of effectiveness. However, expanding support and investment for implementation science research is necessary to improve the uptake of evidence-based strategies, policies, and practices in communities. Implementation science research can support the adoption, implementation, and sustainment of evidence-based prevention strategies and also help ensure that such strategies are not having any unintended impact.


## Community Risk Reduction and Education Prevention Strategies

## While increased funding and growing the evidence base are vital to informing effective firearm violence prevention strategies, we can take action now to reduce firearm-related injuries and deaths.

Prevention strategies should include investments in community-based interventions and educational programs that have the potential to prevent firearm-related death and injury.

- Implement community violence interventions to support populations with increased risk of firearm violence involvement. Community violence interventions (CVI) use evidence-informed, multidisciplinary, and tailored strategies to disrupt cycles of violence and connect individuals at risk of violence involvement with services that address trauma and improve physical, social, and economic circumstances. ${ }^{91}$ The CVI approach employs credible messengers and practitioners to resolve potential violent conflicts and deliver key intervention elements such as connecting individuals with healthcare, housing, employment services, and other resources. ${ }^{92}$ Similarly, hospital-community partnerships can connect those who have experienced violence, or are at risk for violence, with appropriate services. Hospital-based violence intervention programs (HVIPs) typically combine a short intervention in the hospital with intense case management and services in the community upon release. ${ }^{93,94}$
- Incorporate organizational violence prevention and emergency preparedness elements into safety programs. These programs may include systematic models for early intervention such as the establishment of behavioral threat assessment and management (BTAM) teams ${ }^{1}$, as well as emergency action plans to address the threat from firearm violence. Communities can facilitate the development of trauma-informed preparedness and response plans for schools and the implementation of student programs before, during, and after school to ensure safety. Organizations can implement workplace violence prevention programs and take steps to mitigate workplace violence through appropriate changes to the physical environment, administrative processes, and employee training. ${ }^{95}$
, BTAM offers a systematic and fact-based model for early intervention in potential cases of violence. BTAM teams are multidisciplinary groups comprised of providers from education, mental health, social services, law enforcement, faith community, and other community support stakeholders who assess threats and develop case management strategies, creating a non-punitive alternative to criminal justice interventions for individuals at risk of mobilizing to violence. (U.S. Department of Homeland Security. (n.d.) Threat assessment and management teams. Office for Targeted Violence and Terrorism Prevention. https://www.dhs.gov/sites/default/files/publications/threat_assessment_and_ management_team_v7.pdf)
- Encourage health systems to facilitate education on safe and secure firearm storage. Health systems can support health workers in talking with patients during routine and preventive medical visits about safe storage of firearms, as well as the temporary transfer of a firearm during a high-risk period. Unlocked firearms pose a safety risk and can be accessed by unauthorized users, including family members with dementia or suicidal thoughts, children and adolescents, or through theft. The American Medical Association, American Academy of Family Physicians, American Academy of Pediatrics, American Public Health Association, American College of Physicians, American College of Surgeons, and American Psychiatric Association all support counseling of patients on firearm injury prevention, among additional prevention strategies. ${ }^{96,97}$
- Address structural determinants that increase the risk of firearm violence. All communities in the U.S. are affected by firearm violence, but higher rates of community firearm violence are concentrated in historically marginalized communities. ${ }^{98}$ To decrease risk of firearm violence exposure, injury, and/or death, communities can, for example, promote and invest in safe and supportive physical environments and housing, equitable access to high-quality education and health care, and opportunities for employment and economic growth.

Firearm Risk Reduction Prevention Strategies In addition to community-based prevention
strategies, public health leaders and
policymakers can use available scientific
evidence combined with scientific judgment
and expertise to consider prevention strategies
that build distance in terms of time and space
between firearms and people who are at risk
of harming themselves or others.

- Require safe and secure firearm storage, including child access prevention laws. Safe and secure firearm storage means that firearms are stored unloaded and locked in a secure place, such as a firearm safe that is only accessible to authorized users, and that ammunition is stored separately from the firearm(s). ${ }^{99}$ Various safe storage and child access prevention laws have been implemented at the state level to require safe storage of firearms and penalize those who put children at risk due to failures related to safe storage.
- Implement universal background checks and expand purchaser licensing laws. Universal background checks would expand on current federal law (which requires any person engaged in the business ${ }^{m}$ of dealing firearms to obtain a license and conduct background checks) to include mandatory background checks for all firearm purchases, including private sales and transferring/ gifting firearms. Firearm purchaser licensing, or permit-to-purchase laws, vary by jurisdiction but may be further augmented by enhancing minimum age requirements for all firearm purchases and requiring additional steps to physically possess a firearm, such as safety training requirements and/or a built-in waiting period between the purchase and the possession of a firearm. ${ }^{100}$
- Implement effective firearm removal policies. Extreme Risk Protection Orders (ERPOs) ${ }^{n}$ and Domestic Violence Protection Orders (DVPOs) are complementary civil court orders, each with defined due process protections and that share the common goal of preventing harm. DVPO and ERPO laws vary by jurisdiction and operate in different contexts. DVPOs, which have been implemented in some
${ }^{m}$ A Federal rule was recently amended to broaden the definition of when a person is considered "engaged in the business" as a dealer in firearms and makes clear that any person engaged in the business of dealing firearms must get licensed and conduct background checks for all firearm sales. (U.S. Department of Justice. (2024). Definition of "engaged in the business" as a dealer in firearms. https://www.federalregister.gov/documents/2024/04/19/2024-07838/definition-of-engaged-in-the-business-as-a-dealer-in-firearms)
${ }^{n}$ ERPOs may be referred to by other names, such as "red flag laws," depending on the state.
capacity in all 50 states $^{\circ}$, primarily focus on protecting victims of domestic violence. Federal law bans the purchase or possession of firearms by individuals convicted of a felony and/or misdemeanor crime of domestic violence and most people subject to a final DVPO ${ }^{\text {p }}{ }^{101}$ ERPOs, which have been implemented in fewer states, are mechanisms that can temporarily prohibit individuals at risk of harming themselves or others from purchasing or possessing a firearm, and in such circumstances, they can also allow for the temporary removal of firearms already in a person's possession. ${ }^{102}$
- Ban assault weapons and large-capacity magazines for civilian use. Assault weapons may encompass automatic weapons ${ }^{9}$ and some semiautomatic weapons that may include military-style features that make the firearm more lethal, such as detachable large-capacity magazines. A large-capacity magazine (also known as a high-capacity magazine) is commonly defined as a device that has the capacity to hold more than 10 rounds of ammunition. ${ }^{103}$ Mass shootings that involve a firearm with a large-capacity magazine result in significantly more injuries and deaths than shootings that do not involve such magazines. ${ }^{104}$
- Create safer conditions in public places related to firearm use and carry, including through policies that govern who can carry a loaded firearm in public spaces, concealed or open, and through rules around using deadly force with a firearm in public situations where the individual(s) could have safely retreated without firing a weapon.
- Treat firearms like other consumer products. Unlike motor vehicles which have safety standards that are regulated by the National Highway Traffic Safety Administration (NHTSA), pesticides that are regulated by the Environmental Protection Agency (EPA), or prescription drugs that are regulated by the Food and Drug Administration (FDA), there are no federal standards or regulations regarding the safety of firearms produced in the U.S. Therefore, firearms manufactured and sold in the U.S. may not undergo safety testing or include safety features like warning labels related to associated risk or authorized-use technology ("smart" firearm technology) for firearm access. ${ }^{105}$ Treating firearms as a consumer product' could result in changes which may enhance safety.
- The specific laws, procedures, and terminology regarding DVPOs may vary from state to state.
${ }^{\mathrm{p}}$ In 2022, the implementation of the Bipartisan Safer Communities Act narrowed the so-called "boyfriend loophole" by prohibiting dating partners convicted of domestic violence from purchasing or possessing firearms. (Congressional Research Service. (2022). Firearms eligibility: Domestic violence and dating partners. https://crsreports.congress.gov/product/pdf/IF/IF12210)
${ }^{\text {a }}$ Civilian ownership of fully automatic firearms is heavily restricted or banned in most jurisdictions. In 1986, the Firearm Owners Protection Act banned the possession or transfer of machine guns (a common subset of automatic weapons) that were not registered before 1986, effectively prohibiting the manufacture of new machine guns for civilian ownership after that date. (Firearm Owners' Protection Act, P.L. 99-308 (1986). https://www.govinfo.gov/content/pkg/PLAW-109publ92/html/PLAW-109publ92.htm).
'Currently, the Protection of Lawful Commerce in Arms Act (PLCAA), which was signed into law in 2005, provides that manufacturers, distributors, dealers, and importers of firearms or ammunition products, in the U.S. cannot be held liable when crimes are committed with their products. (Protection of Lawful Commerce in Arms Act, P.L. 109-93 (2005). https://uscode.house.gov/view.xhtml?path=/ prelim@title15/chapter105\&edition=prelim).


## Mental Health Access and Support

## The mental health burden and trauma for those exposed to firearm violence warrants greater attention and action through increased mental health supports and trauma-informed

 resources.- Prioritize increased access to affordable, high-quality mental health care, substance use treatment, and other trauma-informed resources. Health workers and community-based organizations can address the mental health consequences associated with firearm violence by providing a continuum of trauma-informed care for individuals who experience firearm violence, especially disproportionately impacted youth, families, and communities. ${ }^{106,107}$ Health systems and health workers can connect individuals at risk for suicide to timely mental health resources and care. ${ }^{108}$ Policymakers can provide support to sustain mental health access and crisis support services.
- Enhance safety measures and mental health resources in learning settings for children and adolescents. This can include the expansion of a school-based mental health workforce to build a positive school climate and the capacity and resources needed to connect students to mental health services. ${ }^{109}$ Most recently, the Bipartisan Safer Communities Act provided historic levels of funding to address youth mental health, including $\$ 2$ billion for the U.S. Department of Education to create safe, inclusive learning environments for students and to hire and train more mental health professionals for schools - where students are most likely to receive these crucial services. ${ }^{110}$


## Conclusion

## This Advisory describes the health impact of firearm violence in the U.S. The increasing number of children and adolescents dying from firearm-related injuries and the reverberating mental health impacts on society make firearm violence an urgent public health crisis in America.

There are many experts and leaders who work tirelessly each day to protect families and communities from the trauma and suffering that have become all too common in our country. They include community leaders, health workers, and educators and school staff who emphasize healing and connection and lead violence-intervention initiatives in their neighborhoods. They also include researchers, medical associations, and community-based organizations whose actionable recommendations to mitigate firearm violence are advancing efforts to save lives.

But it will take more - the collective commitment of the nation-to turn the tide on the crisis of firearm violence in America. A public health approach can guide our strategy and actions, as it has done in the past with successful efforts to address tobacco-related disease and motor vehicle crashes. It is up to us to take on this generational challenge with the urgency and clarity the moment demands. The safety and well-being of our children and future generations are at stake.

## Additional Recent Resources on Prevention Strategies

This is not a comprehensive list:

- American Academy of Pediatrics

American Academy of Pediatrics, Technical Report 2022: Firearm-Related Injuries and Deaths in Children and Youth. The AAP leads a nonpartisan national coalition of medical, public health, and research organizations dedicated to firearm violence prevention research. This report provides evidence for specific interventions to reduce firearm violence in the U.S., with a specific focus on children and adolescents. This report also includes a review of the effectiveness of legislation in firearm injury prevention.

- Aspen Health Strategy Group

Reducing the Health Harms of Firearm Injury, 2024. The mission of the Aspen Health Strategy Group, part of the Health, Medicine \& Society Program at the Aspen Institute, is to promote improvements in policy and practice by providing leadership on complex health issues. This compilation document explores the causes and consequences of firearm violence and opportunities - using the tools of public health-to lessen the toll of injury and death associated with firearms.

- Johns Hopkins Center for Gun Violence Solutions
U.S. Gun Violence in 2021: An Accounting of a Public Health Crisis. The Center for Gun Violence Solutions develops and applies scientific research to identify a range of firearm violence solutions and advocates for systemic changes. This report discusses a public health approach to prevent firearm violence using a population level approach that addresses both firearm access and the factors that contribute to and protect from firearm violence.
- RAND

The Science of Gun Policy: A Critical Synthesis of Research Evidence on the Effects of Gun Policies in the United States, Third Edition 2023. The RAND
Corporation launched the Gun Policy in America initiative to create resources where policymakers and the public can access information on effective firearm policies. This report, now in its third edition, synthesizes the available scientific evidence for the effects of various firearm policies.

## Other Resources

This is a non-exhaustive list that can be helpful to learn more about firearm-related violence prevention. If you or someone you know is struggling or in crisis, help is always available. Call or text 988 or chat 988lifeline.org

- Addressing Trauma and Mass Violence, SAMHSA, provides resources for those experiencing grief following mass shootings. It also offers resources developed by the National Child Traumatic Stress Network.
- Gun Violence, National Institute of Justice, houses a library of publications, events and trainings, articles, and funding opportunities for understanding and addressing firearm violence.
- National Strategy for Suicide Prevention, U.S. Department of Health and Human Services, provides concrete recommendations for a coordinated and comprehensive approach to addressing gaps in the suicide prevention field.
- Preventing Firearm Injury and Death, CDC, overviews strategies to reduce firearm injuries and death.
- Prevention Resource Finder, U.S. Department of Homeland Security, provides information on the resources needed to help prepare for and prevent targeted violence and terrorism.
- Reducing Gun Violence, U.S. Department of Justice, includes fact sheets on safe firearm storage, information on efforts to reduce violent crime, and other resources.
- Resource for School Administrators on Importance of Safe Firearm Storage, U.S. Department of Education, provides tools that schools can use to communicate with parents and families about the importance of safe firearm storage.
- Suicide Prevention is Everyone's Business: A Toolkit for Safe Firearm Storage, U.S. Department of Veterans Affairs, guides communities through the process of building coalitions to raise awareness about safe storage.
- Suicide Prevention Resource for Action, CDC, describes the best available evidence for suicide prevention.
- Trauma and Violence, SAMHSA, provides additional information and resources for understanding and addressing trauma and its impacts.
- Violence Prevention Resources for Action, CDC, provides information to help communities make decisions based on the best available evidence to prevent different forms of violence.
- Violence Research Initiatives, NIH, supports scientific research and provides information to increase understanding on firearm injury and mortality prevention.


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[^0]:    ${ }^{\text {c }}$ Unless stated otherwise, the race categories Black, White, Asian/Native Hawaiian/Pacific Islander, and American Indian/Alaska Native should generally be taken to imply "non-Hispanic." The Office of Management and Budget defines "Hispanic or Latino" as a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race. (United States Census Bureau. (n.d). Why we ask questions about... Hispanic or Latino origin. U.S. Department of Commerce. https://www.census.gov/acs/www/about/why-we-ask-each-question/ethnicity/)

[^1]:    ${ }^{d}$ The definition of mass shooting varies by source. The Congressional Research Service defines "mass shootings" as "a multiple homicide incident in which four or more victims are killed by firearms, within one event, and in one or more locations in proximity." (Krouse, W.J \& Richardson, D.J. (2015) Mass murder with firearms: incidents and victims, 1999-2013. Congressional Research Service. https://sgp.fas. org/crs/misc/R44126.pdf). This Advisory uses a broader definition based on the Gun Violence Archive definition of a mass shooting as four or more shot or killed, not including the shooter. (Gun Violence Archive. (2023). General methodology. https://www.gunviolencearchive.org/methodology)
    ${ }^{e}$ All types of mass homicides, including mass shootings.

[^2]:    ${ }^{\dagger}$ Per the report, "the number of documented, diagnosed mental illness may be the result of a number of factors, including those related to situational factors (access to health care) as well as those related to the study factors (access to mental health records)." The FBI could not determine if a diagnosis had been given in $37 \%$ of cases.
    ${ }^{g}$ According to the Substance Abuse and Mental Health Services Administration (SAMHSA), serious mental illness in adults is defined as, "someone over 18 having (within the past year) a diagnosable mental, behavior, or emotional disorder that causes serious functional impairment that substantially interferes with or limits one or more major life activities." (Substance Abuse and Mental Health Services Administration. (2023). Mental health and substance use disorders. https://www.samhsa.gov/ find-help/disorders). Serious mental illness commonly refers to, "a diagnosis of psychotic disorders, bipolar disorder, and either major depression with psychotic symptoms or treatment-resistant depression." (Evans, T. S., Berkman, N., Brown, C., Gaynes, B., \& Weber, R. P. (2016). Disparities within serious mental illness. (AHRQ Publication No. 16-EHC027-EF) U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality. https://www.ncbi.nlm.nih.gov/books/ NBK368427/).
    ${ }^{\text {h }}$ Formally diagnosed mental health conditions included depression, anxiety, post-traumatic stress disorder, intermittent explosive disorder, schizophrenia, and bipolar disorder. The percentage does not include perpetrators who had observable symptoms without a formal diagnosis.

[^3]:    i In the scientific literature, exposure to firearm violence may range from being directly injured or witnessing firearm violence to living in a community affected by such violence or encountering these incidents on the news or social media.

[^4]:    ${ }^{j}$ The U.S. Department of Health and Human Services (HHS) defines social determinants of health as, "the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks." (Office of Disease Prevention and Health Promotion. (n.d.) Social determinants of health. Department of Health and Human Services, Office for the Assistant Secretary of Health. Retrieved March 15, 2024. https:// health.gov/healthypeople/priority-areas/social-determinants-health)

[^5]:    ${ }^{\text {k }}$ Safe storage and secure storage are complementary. Safe means unloaded, and secure means locked up. (Center for Gun Violence Solutions. (n.d.) Safe and secure gun storage. Johns Hopkins Bloomberg School of Public Health. Retrieved March 15, 2024. https://publichealth.jhu.edu/center-for-gun-violence-solutions/solutions/safe-and-secure-gun-storage).

