

Reducing Firearm Injuries and Deaths in the United States: A Position Paper From the American College of Physicians

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For more than 20 years, the American College of Physicians (ACP) has advocated for the need to address firearm-related injuries and deaths in the United States. Yet, firearm violence continues to be a public health crisis that requires the nation's immediate attention. The policy recommendations in this paper build on, strengthen, and expand current ACP policies approved by the Board of Regents in April 2014, based on analysis of ap-

proaches that the evidence suggests will be effective in reducing deaths and injuries from firearm-related violence.

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For more than 20 years, the American College of Physicians (ACP) has advocated for the need to address firearm-related injuries and deaths in the United States. In 2014, the ACP published a comprehensive set of recommendations (1). In 2015, it joined the American College of Surgeons, American College of Obstetricians and Gynecologists, American Public Health Association, American Psychiatric Association, American Academy of Family Physicians, American Academy of Pediatrics, American College of Emergency Physicians, and American Bar Association in a call to action to address gun violence as a public health threat, which was subsequently endorsed by 52 organizations that included clinician organizations, consumer organizations, organizations representing families of gun violence victims, research organizations, public health organizations, and other health advocacy organizations (2). Yet, firearm violence remains a problem—firearm-related mortality rates in the United States are still the highest among high-income countries (3).

Firearm violence continues to be a public health crisis in the United States that requires the nation's immediate attention. The ACP is concerned about not only the alarming number of mass shootings in the United States but also the daily toll of firearm violence in neighborhoods, homes, workplaces, and public and private places across the country. The policy recommendations in this paper build on, strengthen, and expand current ACP policies approved by the Board of

Regents in April 2014 (1) and are based on an analysis of approaches that the evidence suggests will be effective in reducing deaths and injuries from firearm-related violence. The ACP has long advocated for policies to reduce the rate of firearm injuries and deaths in the United States and once again calls on its members, nonmember physicians, nonphysician clinicians, policy-makers, and the public to take action on this important issue.

METHODS

This policy paper was drafted by the Health and Public Policy Committee of the ACP, which is charged with addressing issues that affect the health care of the U.S. public and the practice of internal medicine and its subspecialties. The paper builds on, strengthens, and expands current ACP policies approved by the Board of Regents in April 2014 (1). The authors determined that many positions were still relevant and did not revisit those positions or the evidence supporting them. They identified gaps in policy and existing positions that needed to be strengthened, clarified, or expanded on the basis of emerging research and new initiatives on which the ACP did not have clear policy. The authors focused solely on evidence related to the new or modified recommendations and reviewed available studies, reports, and surveys related to firearm violence from PubMed, Google Scholar, relevant news articles, policy documents, Web sites, and other sources. Recommendations were based on reviewed literature and input from the ACP's Board of Governors, Board of Regents, Council of Early Career Physicians, Council of Resident/Fellow Members, Council of Student Members, and Council of Subspecialty Societies. The policy paper and related recommendations were reviewed and approved by the ACP Board of Regents on 21 July

See also:

- Related article 734
- Editorial comments 723, 725

* This paper, written by Renee Butkus, BA; Robert Doherty, BA; and Sue S. Bornstein, MD, was developed for the Health and Public Policy Committee of the American College of Physicians. Individuals who served on the Health and Public Policy Committee at the time of its approval were Sue S. Bornstein, MD† (*Chair*); Jan K. Carney, MD† (*Vice Chair*); Tom Cooney, MD†; Lee Engel, MD†; Heather E. Gantzer, MD†; Tracey L. Henry, MD†; Joshua D. Lenchus, DO†; Bridget M. McCandless, MD†; Jacob Quinton, MD, MPH†; Molly Southworth, MD, MPH†; Fatima Syed, MD‡; Alexandria Valdrighi, BA†; and Mary Anderson Wallace, MD†. Approved by the ACP Board of Regents on 21 July 2018.

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ACP POSITION STATEMENTS AND RECOMMENDATIONS

The following statements represent the official policy positions and recommendations of the ACP. Positions 1, 2, 4, 6, 8, and 9 are reaffirmations of existing ACP policy. The rationale for these positions can be found in "Reducing Firearm-Related Injuries and Deaths in the United States: Executive Summary of a Policy Position Paper From the American College of Physicians" (1). The remainder of the positions represent new or revised policy. The rationale for each is provided in the full position paper (see the **Appendix**, available at Annals.org).

1. *The American College of Physicians recommends a public health approach to firearms-related violence and the prevention of firearm injuries and deaths.*

a. *The College supports the development of coalitions that bring different perspectives together on the issues of firearm injury and death. These groups, comprising health professionals, injury prevention experts, parents, teachers, law enforcement professionals, and others, should build consensus for bringing about social and legislative change.*

2. *The medical profession has a special responsibility to speak out on prevention of firearm-related injuries and deaths, just as physicians have spoken out on other public health issues. Physicians should counsel patients on the risk of having firearms in the home, particularly when children, adolescents, people with dementia, people with mental illnesses, people with substance use disorders, or others who are at increased risk of harming themselves or others are present.*

a. *State and federal authorities should avoid enactment of mandates that interfere with physician free speech and the patient-physician relationship.*

b. *Physicians are encouraged to discuss with their patients the risks that may be associated with having a firearm in the home and recommend ways to mitigate such risks, including best practices to reduce injuries and deaths.*

c. *Physicians should become informed about firearms injury prevention. Medical schools, residency programs, and continuing medical education (CME) programs should incorporate firearm violence prevention into their curricula.*

d. *Physicians are encouraged, individually and through their professional societies, to advocate for national, state, and local efforts to enact legislation to implement evidence-based policies, including those recommended in this paper, to reduce the risk of preventable injuries and deaths from firearms, including but not limited to universal background checks.*

3. *The American College of Physicians supports appropriate regulation of the purchase of legal firearms to reduce firearms-related injuries and deaths. The Col-*

lege acknowledges that any such regulations must be consistent with the Supreme Court ruling establishing that individual ownership of firearms is a constitutional right under the Second Amendment of the Bill of Rights.

a. *Sales of firearms should be subject to satisfactory completion of a criminal background check and proof of satisfactory completion of an appropriate educational program on firearms safety. The American College of Physicians supports a universal background check system to keep guns out of the hands of felons, persons with mental illnesses that put them at a greater risk of inflicting harm to themselves or others, persons with substance use disorders, domestic violence offenders, and others who already are prohibited from owning guns. Clear guidance should be issued on what mental health and substance use records should be submitted to the National Instant Criminal Background Check System (NICS). This should include guidance on parameters for inclusion, exclusion, removal, and appeal. States should submit mental health records and report persons with substance use disorders to the NICS. The federal government should increase incentives and penalties related to state compliance. The law requiring federal agencies to submit substance use records should be enforced.*

i. *ACP supports strengthening and enforcing state and federal laws to prohibit convicted domestic violence offenders from purchasing or possessing firearms. Domestic violence offenders include dating partners, cohabitants, stalkers, and those who victimize a family member other than a partner or child. ACP supports federal legislation to require that such domestic violence offenders be reported to the National Instant Criminal Background Check System.*

a. *Individuals subject to domestic violence restraining orders, including temporary orders, should be prohibited from purchasing and possessing firearms and be required to surrender their firearms for the duration of the order.*

b. *Individuals convicted of a domestic violence misdemeanor should be prohibited from purchasing and possessing firearms based on existing federal law. The federal government should encourage states and localities to create a process for these individuals to surrender firearms they already possess.*

c. *States should be required to report domestic violence offenders, as defined above, to the NICS.*

b. *Although there is limited evidence on the effectiveness of waiting periods in reducing homicides, waiting periods may reduce the incidence of death by suicide, which account for nearly two thirds of firearm deaths, and should be considered as part of a comprehensive approach to reducing preventable firearms-related deaths.*

c. *Lawmakers should carefully consider the growing but limited body of evidence that suggests the concealed-carry laws may create a greater risk of firearms injuries and deaths than any protective value they may provide.*

i. ACP opposes concealed-carry reciprocity legislation that would force every state to accept concealed-carry weapons permits from other states, necessitating states with stronger requirements to allow individuals traveling to their jurisdiction to carry concealed firearms, even if they have not met that state's more stringent requirements.

ii. States that decide to permit concealed carry in their jurisdictions should at a minimum require, as a condition of obtaining a permit, training in appropriate handling and storage of firearms in their homes, automobiles, workplaces, and on their person to reduce the risk of unintentional deaths or injuries.

d. The College supports a ban on firearms that cannot be detected by metal detectors or standard security screening devices, including but not limited to 3D-printed firearms.

e. The College favors strong penalties and criminal prosecution for those who sell firearms illegally and those who legally purchase firearms for those who are banned from possessing them ("straw purchases").

4. The American College of Physicians recommends that guns be subject to consumer product regulations regarding access, safety, and design. In addition, the College supports law enforcement measures, including required use of tracer elements or taggants on ammunition and weapons, and identifying markings, such as serial numbers on weapons, to aid in the identification of weapons used in crimes.

5. Firearm owners should adhere to best practices to reduce the risk of accidental or intentional injuries or deaths from firearms. They should ensure that their firearms cannot be accessed by children, adolescents, people with dementia, people with substance use disorders, and the subset of people with serious mental illnesses that are associated with greater risk of harming themselves and others. ACP supports child access prevention laws that hold firearm owners accountable for the safe storage of firearms. Firearm owners should report the theft or loss of their firearm within 72 hours of becoming aware of its loss.

6. The College cautions against broadly including those with mental illness in a category of dangerous individuals. Instead, the College recommends that every effort be made to reduce the risk of suicide and violence, through prevention and treatment, by the subset of individuals with mental illness who are at risk of harming themselves or others. Diagnosis, access to care, treatment, and appropriate follow-up are essential.

a. Physicians and other health professionals should be trained to respond to patients with mental illness who might be at risk of injuring themselves or others.

b. Ensuring access to mental health services is imperative. Mental health services should be readily available to persons in need throughout their lives or through the duration of their conditions. Ensuring an adequate availability of psychiatric beds and outpatient treatment for at-risk persons seeking immediate treatment for a condition that may pose a risk of violence to themselves or others should be a priority.

c. Community understanding of mental illness should be improved to increase awareness and reduce social stigma.

d. Laws that require physicians and other health professionals to report those with mental illness who they believe pose an imminent threat to themselves or others should have safeguards in place to protect confidentiality and not create a disincentive for patients to seek mental health treatment. Such laws should ensure that physicians and other health professionals are able to use their reasonable professional judgment to determine when a patient under their care should be reported and should not hold them liable for their decision to report or not report.

7. The College favors enactment of legislation to ban the manufacture, sale, transfer, and subsequent ownership for civilian use of semiautomatic firearms that are designed to increase their rapid killing capacity (often called "assault weapons") and large-capacity magazines, and retaining the current ban on automatic weapons for civilian use.

a. Although evidence on the effectiveness of the Federal Assault Weapons Ban of 1994 is limited, the College believes that there is enough evidence to warrant appropriate legislation and regulation to limit future sales and possession of firearms that have features designed to increase their rapid killing capacity and can, along with a ban on large-capacity magazines and bump stocks, be effective in reducing casualties in mass shooting situations.

b. ACP favors a comprehensive definition, including generic feature tests, of semiautomatic firearms that are designed to increase their rapid killing capacity that would be subject to a ban on sale, ownership, and transfer, to ensure that these firearms are no longer lawful in the United States and in individual states. This comprehensive definition should include effective regulation of grandfathered weapons.

c. Such legislation should be carefully designed to make it difficult for manufacturers to get a semiautomatic firearm that is designed to increase its rapid killing capacity exempted from the ban by making modifications in its design while retaining its semiautomatic functionality.

d. Exceptions to a ban on such semiautomatic firearms for hunting and sporting purposes should be narrowly defined.

e. Only as an interim step toward a complete ban, ACP supports increasing the minimum age to purchase semiautomatic firearms that are designed to increase their rapid killing capacity and large-capacity magazines to 21, consistent with the existing federal requirement for handguns.

8. The College supports efforts to improve and modify firearms to make them as safe as possible, including the incorporation of built-in safety devices (such as trigger locks and signals that indicate a gun is loaded). Further research is needed on the development of personalized guns.

9. More research is needed on firearm violence and on intervention and prevention strategies to reduce in-

juries caused by firearms. The Centers for Disease Control and Prevention, National Institutes of Health, and National Institute of Justice should receive adequate funding to study the impact of gun violence on the public's health and safety. Access to data should not be restricted.

10. ACP supports the enactment of extreme risk protection order (ERPO) laws which allow family members and law enforcement officers to petition a court to temporarily remove firearms from individuals who are determined to be at imminent risk of harming themselves or others while providing due process protections.

CONCLUSION

The ACP has pressed for the adoption of policies to reduce the number of deaths and injuries related to firearms for more than 20 years and is disheartened by the lack of action to protect the American public. Although there is more to learn about the causes of firearm violence and the best methods to prevent it, the available data support the need for a multifaceted and comprehensive approach to reducing firearm violence that is consistent with the Second Amendment. Firearm violence is a public health threat in the United States that must not be allowed to continue.

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References

1. Butkus R, Doherty R, Daniel H; Health and Public Policy Committee of the American College of Physicians. Reducing firearm-related injuries and deaths in the United States: executive summary of a policy position paper from the American College of Physicians. *Ann Intern Med.* 2014;160:858-60. [PMID: 24722815] doi:10.7326/M14-0216
2. Weinberger SE, Hoyt DB, Lawrence HC 3rd, Levin S, Henley DE, Alden ER, et al. Firearm-related injury and death in the United States: a call to action from 8 health professional organizations and the American Bar Association. *Ann Intern Med.* 2015;162:513-6. [PMID: 25706470] doi:10.7326/M15-0337
3. Grinshteyn E, Hemenway D. Violent death rates: the US compared with other high-income OECD countries, 2010. *Am J Med.* 2016; 129:266-73. [PMID: 26551975] doi:10.1016/j.amjmed.2015.10.025

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APPENDIX: EXPANDED BACKGROUND AND RATIONALE

The following statements represent the official policy positions and recommendations of the ACP. Positions 1, 2, 4, 6, 8, and 9 are reaffirmations of existing ACP policy. The background and rationale for these positions can be found in "Reducing Firearm-Related Injuries and Deaths in the United States: Executive Summary of a Policy Position Paper From the American College of Physicians" (1). The remainder of the positions represent new or revised policy.

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firearm in the home and recommend ways to mitigate such risks, including best practices to reduce injuries and deaths.

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arms and be required to surrender their firearms for the duration of the order.

b. Individuals convicted of a domestic violence misdemeanor should be prohibited from purchasing and possessing firearms based on existing federal law. The federal government should encourage states and localities to create a process for these individuals to surrender firearms they already possess.

c. States should be required to report domestic violence offenders, as defined above, to the NICS.

b. Although there is limited evidence on the effectiveness of waiting periods in reducing homicides, waiting periods may reduce the incidence of death by suicide, which account for nearly two thirds of firearm deaths, and should be considered as part of a comprehensive approach to reducing preventable firearms-related deaths.

c. Lawmakers should carefully consider the growing but limited body of evidence that suggests the concealed-carry laws may create a greater risk of firearms injuries and deaths than any protective value they may provide.

i. ACP opposes concealed-carry reciprocity legislation that would force every state to accept concealed-carry weapons permits from other states, necessitating states with stronger requirements to allow individuals traveling to their jurisdiction to carry concealed firearms, even if they have not met that state's more stringent requirements.

ii. States that decide to permit concealed carry in their jurisdictions should at a minimum require, as a condition of obtaining a permit, training in appropriate handling and storage of firearms in their homes, automobiles, workplaces, and on their person to reduce the risk of unintentional deaths or injuries.

d. The College supports a ban on firearms that cannot be detected by metal detectors or standard security screening devices, including but not limited to 3D-printed firearms.

e. The College favors strong penalties and criminal prosecution for those who sell firearms illegally and those who legally purchase firearms for those who are banned from possessing them ("straw purchases").

A 2013 study (4) found that the number of firearms per capita per country strongly correlated with and was an independent predictor of firearm-related deaths. The authors found that the United States, which has the most firearms per capita in the world, has the highest rate of deaths from firearms, whereas Japan, which has the lowest rate of firearm ownership, has the lowest rate of firearm deaths. Within the United States, analyses comparing the quantity and type of gun laws enacted in states have found an association between stringent gun laws and lower firearm death rates. The

Giffords Law Center to Prevent Gun Violence, which issues grades to states by using a points-based formula, found that 7 of the 10 states with the most stringent gun laws had the lowest rates of firearm deaths (5). The correlation between stringent gun laws and reduction in firearm violence can be seen in the contrast between the high levels of gun violence in California during the early 1990s and the relatively low rate of gun violence after the adoption of state laws and city and county ordinances aimed at reducing gun deaths. In the early 1990s, California's gun violence rate was 15% higher than the national average (17.48 vs. 15 per 100 000 persons). The rate of gun violence in California has since decreased substantially: The number of Californians killed by gunfire decreased by 56% between 1993 and 2010, to 7.7 per 100 000 persons, compared with the national average of 10.1 per 100 000 persons (6, 7). The abundance of firearms in the United States is a public health hazard, and sensible regulations must be put in place to ensure that persons who should not possess firearms are unable to access them.

Background Checks

The ACP supports requiring criminal background checks for all firearm purchases, including sales by gun dealers, sales at gun shows, and private sales. The "gun show loophole," which refers to all private sales, including those at gun shows, should be closed to ensure that prohibited purchasers, such as felons, persons who have been involuntarily committed for mental illness or are otherwise "adjudicated mentally defective," and others who are prohibited from owning firearms, cannot make purchases. Such a system will be successful only if records are complete and submitted in a timely manner.

In 2017, according to the Federal Bureau of Investigation and state officials (8), more than 25 million persons submitted to a background check to purchase or transfer possession of a firearm, and 103 985 were denied purchase. However, in the United States, it is estimated that 22% of gun sales take place without a background check through private sales, with a disproportionate number in states that do not regulate private firearm sales (9).

Evidence suggests that states with laws to address the gun show loophole export fewer guns that are later used in crime. States with laws limiting or eliminating the gun show loophole have an average export rate (controlled for population) of 7.5 crime guns per 100 000 inhabitants. In contrast, 34 states that do not require background checks for all handgun sales at gun shows have an average export rate of 19.8 crime guns per 100 000 inhabitants (10).

There is considerable public support for a comprehensive background check requirement and for closing the private seller and gun show loopholes. An ACP survey of internists revealed that respondents overwhelm-

ingly favored universal background checks (94%) (11). A survey conducted in 2017 by the Pew Research Center (12) found that 84% of Americans favored closing the loopholes, with a large majority of Democratic (90%) and Republican (77%) support. A February 2018 poll conducted by Quinnipiac University revealed that 97% of those surveyed supported universal background checks (13). Despite strong public support, legislation in Congress has not gained enough support to pass.

Domestic Violence Offenders

Between 1990 and 2005, firearms were used in more than two thirds of homicides involving spouses or former spouses (14). Almost half of intimate partner cases involved current dating partners (15), although federal laws prohibiting domestic abusers from accessing guns apply only to spouses and not dating partners. States that have implemented laws prohibiting domestic abusers from accessing firearms have found that female intimate partner homicide rates decreased after implementation (16, 17). In 57% of mass shootings between January 2009 and June 2014, the perpetrator killed an intimate partner, and in nearly 18% of these cases, the perpetrator was previously convicted of domestic violence (18). The proportion of intimate partner homicides committed by a dating partner (48.6%) was higher than the proportion committed by a spouse (46.7%) (10), although dating partners are not covered by law. The presence of a firearm in an episode of domestic violence increases the likelihood of homicide by 500% (20). One survey of women in a California domestic violence shelter found that nearly two thirds who resided in households with firearms reported that their intimate partner used or threatened to use the firearm against them (14). Women in the United States are 16 times more likely to be murdered by a firearm than women in other countries in the Organisation for Economic Co-operation and Development (3). In 2015, about 55% of intimate partner homicides were committed with a firearm (21).

Federal law restricts firearm purchases by persons who have been convicted of a domestic violence misdemeanor or have protective orders against them. Under this law, the offender must be a current or former spouse; be a parent or guardian of the victim; have a child with the victim; be a current or former cohabitant with the victim as a spouse, parent, or guardian; or be similarly situated to a spouse, parent, or guardian of the victim (22). It does not apply to dating partners, stalkers, or persons who commit violence against another family member. Federal law does not restrict an abuser's access to firearms until a restraining order is permanent, allowing violent abusers the opportunity to purchase and use a firearm during the period when a victim has filed for a temporary restraining order. Many

states do not comprehensively submit data on domestic violence and protective orders into the databases used during background checks. Domestic abusers can also circumvent the background check by purchasing from private sellers, further emphasizing the need for a universal system that would require background checks for firearms purchased through gun dealers, sales at gun shows, and private sales.

Gaps in federal laws must be addressed to ensure that victims of domestic violence are protected. The ACP supports strengthening federal and state laws to ensure that convicted domestic violence offenders, including dating partners, cohabitants, stalkers, and persons who victimize a family member other than a partner or child, are prohibited from purchasing or possessing firearms. Persons who are subject to domestic violence restraining orders, including temporary orders, should be prohibited from purchasing and possessing firearms and should be required to surrender their firearms for the duration of the order. Those convicted of a domestic violence misdemeanor should be prohibited from purchasing and possessing firearms and should be required to surrender their firearms. States must do their part to ensure that records regarding domestic violence offenders in the NICS are complete.

Mental Health and Substance Use Record Reporting

Federal law currently prohibits convicted felons; persons who use or are addicted to unlawful substances; those who have been involuntarily committed to inpatient mental health institutions; and those who have been deemed incompetent to stand trial, found not guilty on the grounds of serious mental illness, or otherwise deemed adjudicated mentally defective from receiving or possessing a firearm (23). Reporting of disqualifying records to NICS by states is voluntary, and states vary in what and how much they report. In 2007, the NICS Improvement Amendments Act (NIAA) included financial incentives and penalties to encourage states to submit disqualifying records to NICS. A U.S. Government Accountability Office report examining progress made by states reporting to NICS after enactment of the NIAA (24) found a 9-fold increase in reporting, growing the database from 126 000 records in 2007 to 1.2 million in 2011, primarily from 12 states. The Government Accountability Office acknowledged that this increase in records could be a factor in the increase in the number of purchase denials based on mental health records, from 0.5% of total denials in 2004 to 1.7% in 2011 (24).

Despite the increase in reporting after passage of the NIAA, underreporting of certain records continues to be a concern. One analysis of available reporting data (25) found that even after the enactment of the NIAA, 4 states had not submitted any mental health records to NICS and 33 had not submitted any sub-

stance use records. In addition, the NIAA stipulates that federal departments and agencies report disqualifying records quarterly; however, a lag in reporting continues, with most substance use and mental health records coming from the federal Court Services and Offender Supervision Agency and the Department of Veterans Affairs, respectively (26).

Waiting Periods

Waiting periods have generally been considered to serve as “cooling-off” periods for persons who would otherwise commit suicide or a violent act in the heat of the moment. Opponents of waiting periods believe that they hamper a law-abiding citizen's right to access firearms and could hinder their ability to protect themselves. The evidence on waiting periods is limited, and more research is needed on their benefits and on ideal wait times. One study (27) showed that waiting periods enacted in the interim portion of the Brady Handgun Violence Prevention Act slightly reduced suicide rates in adults aged 55 years or older but did not statistically significantly reduce homicides. The ACP cannot make an evidence-based recommendation on waiting periods because of the lack of data but believes that they should be considered as part of a comprehensive approach to reducing firearm-related deaths because of potentially positive effects on suicides.

Concealed-Carry Laws

Opponents of concealed-carry laws argue that concealed firearms increase the risk for preventable injuries and deaths and may increase impulsive acts of violence. Supporters contend that criminals are less likely to attack someone who they believe to be armed and that most persons who legally carry a concealed firearm abide by the law and do not misuse their firearms. Although evidence on the effect of concealed-carry laws on unintentional firearm injuries and violence is limited, recent research analyzing 2 nearly identical jurisdictions that differed only in their right-to-carry status found that those with right-to-carry laws had higher crime rates (28). Researchers used statistical modeling methods to identify similar states with and without right-to-carry laws and to weight crime rates. Crime rates for the 10 years preceding adoption of the right-to-carry laws and projected crime rates for the next 10 years were analyzed for 33 states that enacted right-to-carry laws. States with right-to-carry laws had violent crime rates that were 7% higher than in states without such laws 5 years after enactment, and the gap increased to almost 15% after 10 years. Another analysis of models for aggregate violent crime rates reached a similar conclusion. Researchers observed a positive association between implementation of shall-issue concealed-carry laws and violent crime rates (29).

As a condition of obtaining a permit, states that permit concealed carry in their jurisdictions should re-

quire, at a minimum, training in appropriate handling and storage of firearms in their homes, automobiles, and workplaces and on their person to reduce the risk for unintentional deaths or injuries. Connecticut's permit-to-purchase law, which requires a minimum of 8 hours of approved handgun safety training, was estimated to reduce firearm homicides in the state by 40% between 1996 and 2005 (30).

In December 2017, the U.S. House of Representatives passed H.R. 38, the Concealed Carry Reciprocity Act of 2017, which would allow persons with a concealed-carry permit in one state to carry a concealed weapon in another state. The ACP opposed this legislation because it would force every state to accept concealed-carry permits from other states, necessitating states with stronger requirements to allow travelers to their jurisdiction to carry concealed firearms even if they have not met that state's more stringent requirements. For example, 27 states and the District of Columbia currently prohibit persons convicted of misdemeanor violent crimes from carrying concealed firearms in public. Reciprocity would allow them to carry firearms across the country, even if they are prohibited from doing so in their own state. In addition, reciprocity would preempt stronger state laws requiring training in firearm safety as a condition of obtaining a permit, would weaken background checks, and would endanger victims of domestic violence by preempting state laws that prohibit persons who have been subject to restraining orders or have been charged with domestic violence from obtaining a concealed-weapon permit.

Undetectable Firearms

Under the Undetectable Firearms Act of 1988, it is a federal offense to manufacture, sell, import, export, deliver, possess, transfer, or receive a firearm capable of passing through an airport metal detector undetected or unseen. The act requires that any firearm, minus the stock, grips, and magazine, have an x-ray detection signature no less than that of a calibration sample containing 3.7 ounces of stainless steel (31). The law contained a sunset provision after 10 years and was allowed to expire in 1998. A 5-year extension of the law was signed by President Bill Clinton in 1998, and a 10-year extension was signed by President George W. Bush in 2003. On 9 December 2013, the law was reauthorized for an additional 10 years.

Three-dimensional (3D) printing, a relatively new process, works by using software to map out blueprints of a subject, slicing it into sections for the printer to read, and using various materials to layer the sections until the item is built. On 6 May 2013, Cody Wilson, the director and founder of the nonprofit organization Defense Distributed, successfully built and fired the first 3D-printed weapon, which he called “the Liberator.” Wilson previously demonstrated an ability to print magazines capable of firing up to 30 rounds without break-

ing or melting as well as printing the receiver of a semi-automatic assault rifle, which is considered the primary component of a firearm and is regulated by the government. The process of building the firearm entailed assembling several distinct parts printed individually. The Liberator, which requires standard ammunition and a metal firing pin, shot 1 bullet without damage (32).

Wilson obtained a federal firearms license from the U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), which allowed him to manufacture and sell firearms that do not violate the Undetectable Firearms Act. A week after the blueprints were published online, Wilson complied with a request by the U.S. Department of State to remove them because of potential violations of International Traffic in Arms Regulations (33). Despite the removal of the blueprints from Wilson's Web site, they have been downloaded more than 100 000 times and others have modified and printed other weapons and accessories, including a rifle.

In November 2013, the ATF released a question-and-answer sheet explaining its knowledge and monitoring of 3D-printed firearms (34). In conjunction with this, the agency posted videos of tests conducted under controlled circumstances using various 3D-printed versions of the Liberator gun. Although some of the videos showed the gun firing effectively, others did not, including 1 that showed the gun exploding into several pieces upon firing. Still, the ATF considers 3D-printed guns to be dangerous and lethal weapons (35).

Straw Purchases

Straw purchasers—persons who unlawfully purchase firearms for others who are in a prohibited category—move several thousand firearms into criminal channels each year, and penalties for such purchasers must be strong (36). In a 2000 report from the ATF, "Following the Gun: Enforcing Federal Laws Against Firearms Traffickers" (37), the agency found that over a 2.5-year period between 1996 and 1998, 46% of all trafficking investigations involved straw purchases and approximately a third of illegally diverted firearms were associated with such purchases. The proportion is concerning to the ATF, which reported that the numbers underscore a significant public safety problem. A survey of federally licensed firearm dealers in 2011 found that 67.3% of respondents reported potential straw purchases (38), indicating that both attempted and successful straw purchases are obstacles in keeping guns out of the hands of persons who are prohibited from having them.

The month after "Following the Gun" was released, the ATF, the U.S. Department of Justice, the Office of Justice Programs, and the National Shooting Sports Foundation collaborated on the creation of the "Don't Lie for the Other Guy" campaign to educate gun dealers about detecting potential straw purchases. In 2008,

the program added an awareness component for consumers through the Department of Justice's Project Safe Neighborhoods initiative about the consequences of participating in straw purchasing (39). In 2014, the Supreme Court upheld the federal law banning straw purchases in a 5-4 decision on *Abramski v. United States* (40).

4. *The American College of Physicians recommends that guns be subject to consumer product regulations regarding access, safety, and design. In addition, the College supports law enforcement measures, including required use of tracer elements or taggants on ammunition and weapons, and identifying markings, such as serial numbers on weapons, to aid in the identification of weapons used in crimes.*

5. *Firearm owners should adhere to best practices to reduce the risk of accidental or intentional injuries or deaths from firearms. They should ensure that their firearms cannot be accessed by children, adolescents, people with dementia, people with substance use disorders, and the subset of people with serious mental illnesses that are associated with greater risk of harming themselves and others. ACP supports child access prevention laws that hold firearm owners accountable for the safe storage of firearms. Firearm owners should report the theft or loss of their firearm within 72 hours of becoming aware of its loss.*

Firearm owners should take every step possible to reduce the risk for accidental or intentional injuries or deaths from firearms. The ACP supports child access prevention laws that hold firearm owners accountable for the safe storage of firearms by imposing criminal liability on those who negligently store firearms under circumstances where minors could or do gain access to them. A disproportionately large share of unintentional firearm fatalities was found to occur in states where gun owners were more likely to store their firearms loaded. The greatest risk occurred in states where loaded firearms were more likely to be stored unlocked (41). Parents of adolescents, who have the highest risk for firearm-related injuries among youths, were found to be more likely than parents of younger children to unsafely store household firearms (42% vs. 29%) (42). A study of rural households (43) found that the prevalence of loaded, unlocked guns was 4.5 times higher in households with a handgun than in households with a long gun (that is, a rifle or shotgun) only. The study also found that households with someone with a lifetime prevalence of alcohol abuse or dependence were about twice as likely as other households to report having loaded, unlocked firearms. An estimated 40% to 60% of people with dementia live in a home with a firearm, where they are less likely to be safely stored (44, 45). A study of household firearm storage practices in Oregon (46) revealed that an estimated 6.2% of households with children had firearms that were

loaded and unlocked, and about 40 000 children lived in these households. Drinking 5 or more alcoholic beverages on 1 or more occasions in the past month or drinking 60 or more alcoholic beverages in the past month was independently associated with living in households with loaded and unlocked firearms. Laws to prevent child access to firearms have been shown to be effective at reducing suicides and unintentional firearm injuries and fatalities among children. Keeping a gun locked, keeping it unloaded, storing ammunition locked, and storing it in a separate location have each been found to be associated with a protective effect (47). A study of child access prevention laws in 12 states found that unintentional firearm deaths decreased by 23% from 1990 to 1994 among children younger than 15 years (48). These laws were also associated with an 8.3% decrease in suicide rates among those aged 14 to 17 years (49).

In addition to taking measures to protect members of their household from firearm injuries or deaths, firearm owners should help protect the public by reporting theft or loss of their firearms within 72 hours of becoming aware of its loss so that law enforcement officers can track down the firearms and the criminals who use them. Nearly 1.4 million firearms, or an annual average of 232 400, were stolen during burglaries and other property crimes between 2005 and 2010 (50). According to ATF reports, more than a quarter of its criminal gun trafficking investigations involve stolen guns. Seven states (Connecticut, Massachusetts, Michigan, New Jersey, New York, Ohio, and Rhode Island) and the District of Columbia currently require that lost or stolen firearms be reported to law enforcement agencies (51). The ACP supports these laws and urges law-abiding firearm owners to take every measure possible to keep their firearms out of the hands of criminals and others who should not have access to them.

6. *The College cautions against broadly including those with mental illness in a category of dangerous individuals. Instead, the College recommends that every effort be made to reduce the risk of suicide and violence, through prevention and treatment, by the subset of individuals with mental illness who are at risk of harming themselves or others. Diagnosis, access to care, treatment, and appropriate follow-up are essential.*

a. *Physicians and other health professionals should be trained to respond to patients with mental illness who might be at risk of injuring themselves or others.*

b. *Ensuring access to mental health services is imperative. Mental health services should be readily available to persons in need throughout their lives or through the duration of their conditions. Ensuring an adequate availability of psychiatric beds and outpatient treatment for at-risk persons seeking immediate treatment for a condition that may pose a risk of violence to themselves or others should be a priority.*

c. *Community understanding of mental illness should be improved to increase awareness and reduce social stigma.*

d. *Laws that require physicians and other health professionals to report those with mental illness who they believe pose an imminent threat to themselves or others should have safeguards in place to protect confidentiality and not create a disincentive for patients to seek mental health treatment. Such laws should ensure that physicians and other health professionals are able to use their reasonable professional judgment to determine when a patient under their care should be reported and should not hold them liable for their decision to report or not report.*

7. *The College favors enactment of legislation to ban the manufacture, sale, transfer, and subsequent ownership for civilian use of semiautomatic firearms that are designed to increase their rapid killing capacity (often called "assault weapons") and large-capacity magazines, and retaining the current ban on automatic weapons for civilian use.*

a. *Although evidence on the effectiveness of the Federal Assault Weapons Ban of 1994 is limited, the College believes that there is enough evidence to warrant appropriate legislation and regulation to limit future sales and possession of firearms that have features designed to increase their rapid killing capacity and can, along with a ban on large-capacity magazines and bump stocks, be effective in reducing casualties in mass shooting situations.*

b. *ACP favors a comprehensive definition, including generic feature tests, of semiautomatic firearms that are designed to increase their rapid killing capacity that would be subject to a ban on sale, ownership, and transfer, to ensure that these firearms are no longer lawful in the United States and in individual states. This comprehensive definition should include effective regulation of grandfathered weapons.*

c. *Such legislation should be carefully designed to make it difficult for manufacturers to get a semiautomatic firearm that is designed to increase its rapid killing capacity exempted from the ban by making modifications in its design while retaining its semiautomatic functionality.*

d. *Exceptions to a ban on such semiautomatic firearms for hunting and sporting purposes should be narrowly defined.*

e. *Only as an interim step toward a complete ban, ACP supports increasing the minimum age to purchase semiautomatic firearms that are designed to increase their rapid killing capacity and large-capacity magazines to 21, consistent with the existing federal requirement for handguns.*

The ACP has long supported a ban on automatic weapons and was in favor of the 1994 Public Safety and Recreational Firearms Use Protection Act (Federal As-

sault Weapons Ban). This act, which was included as part of the Violent Crime Control and Law Enforcement Act of 1994, sought to reduce gun violence by prohibiting the sale of 18 models and variations of semiautomatic firearms with military-style features or features that seem to have an innately criminal application and create the appearance of an automatic weapon. The ban also applied to copies or duplicates of those weapons. Thus, the law is considered by many to be more of an accessories ban than a ban on the actual weapon. Perhaps the most important provision of the bill prohibited the use of most large-capacity magazines (LCMs), which could be used in weapons within and outside the scope of the weapons ban. Such magazines are considered to be ammunition-feeding devices with more than 10 rounds of ammunition. When the ban became effective, an estimated 40% of guns not included in the ban had the ability to use LCMs (52). An estimated 18% of civilian-owned firearms and 21% of civilian-owned handguns were equipped with LCM capability when the ban took effect (52).

The law contained a grandfather clause that allowed for the continued possession and use of semiautomatic firearms and LCMs that were banned under the law but obtained legally before implementation. This provision is sometimes cited as the reason that the law did not have as much of an effect on crime rates related to assault weapons or LCMs.

The effect of the Federal Assault Weapons Ban has been greatly debated. Inconsistent reporting after the ban took effect and a large increase in production of assault weapons and LCMs that would be grandfathered under the law before the implementation of the ban made it difficult to accurately judge the effect of the overall law or the assault weapon and LCM bans independently. The Urban Institute published an impact assessment of the law in 1997 (53) and found that the grandfathering stipulation limited measurement of the overall effect of the law. A report submitted to the Department of Justice (53) noted a lack of evidence but suggested that the ban may have reduced crime slightly if it had been in place for an extended period.

Nevertheless, some evidence suggests that the Federal Assault Weapons Ban had an effect on the use of assault weapons in crimes. The last of 3 reports submitted to the Department of Justice on the ban's effect (54) analyzed crime data from 6 major cities after the ban took effect and found that crimes involving the most common types of assault weapons decreased by 17% to 72% and that the number of assault weapons used in crimes decreased by 24% to 60% in the same areas. The author noted a steady or increasing use of other guns equipped with LCMs in the same jurisdictions.

A ban on LCMs has been shown to be effective in reducing the number of casualties associated with mass shootings. One study (36) found that semiautomatic

firearms were 34% to 56% more likely to be used in a crime. Such weapons are associated with significantly more wounds per gun in homicides than revolvers or long guns and are associated with higher mortality (55, 56). Semiautomatic and automatic pistols are believed to be capable of inflicting greater injury because more bullets can be fired in a shorter period (57). Thirty-seven percent of police departments surveyed indicated an increase in the use of assault weapons by criminals after the Federal Assault Weapons Ban was lifted (58). When Maryland imposed a more stringent ban on assault pistols and LCMs in 1994, it led to a 55% decrease in assault pistols recovered by the Baltimore Police Department.

Although evidence on the effectiveness of the Federal Assault Weapons Ban is limited, the ACP believes that there is sufficient evidence that appropriate legislation and regulation to limit future manufacture, sale, transfer, and possession of weapons that are designed to increase their rapid killing capacity, along with a ban on LCMs and such devices as bump stocks that accelerate the rate of fire of a semiautomatic firearm, can be effective in reducing casualties in mass shootings. Although such a ban may not reduce overall crime or firearm deaths significantly, it would reduce the number of casualties that would occur in mass shootings before the shooter could be disarmed, arrested, or subdued by police. The ACP acknowledges the need for more research in this area to better inform policy.

The ACP also recognizes that defining the types of firearms that should be subject to a ban on sales and ownership has proved to be complicated and contentious (59–61). The Giffords Law Center to Prevent Gun Violence notes that states that have banned such weapons use different ways to define those that should be included, with states using some combination of listing banned weapons by name and applying 1 or more generic feature definitions to determine whether a weapon is designed to have the rapid-fire capacity to cause the greatest number of casualties (59) in the shortest time. It notes that “although a generic feature test is the most comprehensive approach, if the law also includes a list of banned weapons by name, it provides a mechanism authorizing an appropriate governmental official or agency to add new and/or modified models to the list.” States with assault weapon bans also differ in their treatment of grandfathered weapons that are in legal possession before the ban, with some requiring registration, prohibiting transfer of grandfathered weapons, or imposing location limits and licensure requirements.

As an organization representing physicians, the ACP's view is that the overriding objective of a ban must be to keep semiautomatic firearms that are designed to increase their rapid killing capacity, as well as LCMs and bump stocks (which are designed to enable

a user to kill people rapidly and effectively), from being available to civilians and that definitions and regulations must be comprehensive enough to achieve this goal. Accordingly, the ACP favors a comprehensive definition, including generic feature tests, of semiautomatic firearms that are designed to increase their rapid killing capacity that would be subject to a ban on sale, ownership, and transfer to ensure that such firearms are no longer lawful in the United States and in individual states. This comprehensive definition should include effective regulation of grandfathered weapons.

Federal law prohibits licensed dealers from selling long guns to persons younger than 18 years and handguns to those younger than 21 years. Unlicensed dealers face no age restrictions in selling long guns but may not sell handguns to persons younger than 18 years. An analysis of the existing literature by the RAND Corporation found evidence suggesting that increasing the minimum purchasing age for firearms could decrease the suicide rate (62). An analysis of crime data from the Federal Bureau of Investigation found that adults aged 18 to 20 years are 4 times more likely to commit homicide with a gun than those who are older than 21 years (63). The ACP supports an increase in the minimum age to purchase semiautomatic firearms that are designed to increase their rapid killing capacity and LCMs to 21 years—consistent with the existing federal requirement for handguns—but only as an interim step toward a complete ban. Increasing the purchasing age will not be nearly as effective in reducing injuries and deaths in mass shootings as a complete ban on the sale, possession, and transfer of assault weapons and LCMs. Many of the mass shootings in the United States have been committed by persons who are older than 21 years, so increasing the legal age of purchase to 21 years will only marginally affect the availability of such weapons. Accordingly, the ACP can support laws to increase the purchasing age only as an interim step toward a complete nationwide ban, not as a substitute for it.

8. *The College supports efforts to improve and modify firearms to make them as safe as possible, including the incorporation of built-in safety devices (such as trigger locks and signals that indicate a gun is loaded). Further research is needed on the development of personalized guns.*

9. *More research is needed on firearm violence and on intervention and prevention strategies to reduce injuries caused by firearms. The Centers for Disease Control and Prevention, National Institutes of Health, and National Institute of Justice should receive adequate funding to study the impact of gun violence on the public's health and safety. Access to data should not be restricted.*

10. *ACP supports the enactment of extreme risk protection order (ERPO) laws which allow family members and law enforcement officers to petition a court to*

temporarily remove firearms from individuals who are determined to be at imminent risk of harming themselves or others while providing due process protections.

Extreme risk protection order (ERPO) laws allow family members or law enforcement officers to petition a judge to issue an order to prevent a person who may be at imminent risk to themselves or others from purchasing firearms and to confiscate firearms they already possess. Generally, the judge can make an expedited initial ruling after submission of the petition, which takes effect immediately, without the subject of the petition being present. A hearing would then be held within weeks, if not days, with the subject present. If the judge upholds the order, it can be extended; the confiscated firearms and revocation of firearm purchasing rights can be withheld from the subject of the order for a few weeks to up to a year. To date, 5 states have enacted ERPO or ERPO-style laws, and 24 states are considering them. The ACP supports the enactment of these laws because they enable family members and law enforcement agencies to intervene when there are warning signs that a person is experiencing a temporary crisis that poses an imminent risk to themselves or others while providing due process protections.

Although most of these laws have been enacted recently, data from Connecticut (the earliest adopter) suggest that they have been effective in reducing the suicide rate (64). Between 1999 and 2013, there were 762 cases where an ERPO was used to confiscate a firearm from a person in Connecticut. Most of these cases involved men who intended to harm themselves. An analysis of population-level data for self-injury mortality rates determined that about 72 suicides by firearm were averted due to ERPOs.

Web-Only References

4. Bangalore S, Messerli FH. Gun ownership and firearm-related deaths. *Am J Med.* 2013;126:873-6. [PMID: 24054955] doi:10.1016/j.amjmed.2013.04.012
5. Giffords Law Center to Prevent Gun Violence. 2013 State Scorecard: Why Gun Laws Matter. San Francisco: Giffords Law Center to Prevent Gun Violence; 2013. Accessed at <http://smartgunlaws.org/2013-state-scorecard-why-gun-laws-matter> on 26 March 2014.
6. Giffords Law Center to Prevent Gun Violence. The California Model: Twenty Years of Putting Safety First. San Francisco: Giffords Law Center to Prevent Gun Violence; 2013. Accessed at <http://smartgunlaws.org/the-california-model-twenty-years-of-putting-safety-first> on 26 March 2014.
7. Henry J. Kaiser Family Foundation. Number of Deaths Due to Injury by Firearm per 100,000 Population. Menlo Park, CA: Henry J. Kaiser Family Foundation; 2014. Accessed at <http://kff.org/other/state-indicator/firearms-death-rate-per-100000> on 26 March 2014.
8. Federal Bureau of Investigation. National Instant Criminal Background Check System (NICS) Operations 2010. Washington, DC: U.S. Department of Justice; 2010. Accessed at <https://www.fbi.gov/file-repository/2010-nics-ops-report-4-19-11-1.pdf/view> on 21 September 2018.
9. Miller M, Hepburn L, Azrael D. Firearm acquisition without background checks: results of a national survey. *Ann Intern Med.* 2017;166:233-9. [PMID: 28055050] doi:10.7326/M16-1590

10. **Mayors Against Illegal Guns.** Coalition Analysis of ATF Trace Data. 2013. Accessed at www.cityoflarkspur.org/DocumentCenter/View/2685/Item-71-Exhibit-C-Mayors-Against-Illegal-Guns-Coalition-Analysis-of-ATF-Trace-Data?bidId= on 21 September 2018.
11. **Butkus R, Weissman A.** Internists' attitudes toward prevention of firearm injury. *Ann Intern Med.* 2014;160:821-7. [PMID: 24722784] doi:10.7326/M13-1960
12. **Parker K, Horowitz J, Igielnik R, Oliphant B, Brown A.** America's Complex Relationship with Guns: An In-Depth Look at the Attitudes and Experiences of U.S. Adults. Washington, DC: Pew Research Center; 2017. Accessed at <http://assets.pewresearch.org/wp-content/uploads/sites/3/2017/06/06151541/Guns-Report-FOR-WEBSITE-PDF-6-21.pdf> on 14 July 2018.
13. **Quinnipiac University.** U.S. Support for Gun Control Tops 2-1, Highest Ever, Quinnipiac University National Poll Finds; Let Dreamers Stay, 80 Percent of Voters Say. 2018. Accessed at <https://poll.qu.edu/national/release-detail?ReleaseID=2521> on 14 September 2018.
14. **Sorenson SB, Wiebe DJ.** Weapons in the lives of battered women. *Am J Public Health.* 2004;94:1412-7. [PMID: 15284052]
15. **Bureau of Justice Statistics.** Homicide Trends in the U.S.: Intimate Homicide. 2007. Accessed at www.lb7.uscourts.gov/documents/08-37701.pdf on 14 September 2018.
16. **Vigdor ER, Mercy JA.** Do laws restricting access to firearms by domestic violence offenders prevent intimate partner homicide? *Eval Rev.* 2006;30:313-46. [PMID: 16679499]
17. **Diez C, Kurland RP, Rothman EF, Bair-Merritt M, Fleegler E, Xuan Z, et al.** State intimate partner violence-related firearm laws and intimate partner homicide rates in the United States, 1991 to 2015. *Ann Intern Med.* 2017;167:536-43. [PMID: 28975202] doi:10.7326/M16-2849
18. **Everytown for Gun Safety Support Fund.** Mass Shootings in the United States: 2009-2016. 2017. Accessed at <https://everytownresearch.org/reports/mass-shootings-analysis> on 2 May 2018.
19. **Cooper A, Smith EL.** Homicide Trends in the United States, 1980-2008. Annual Rates for 2009 and 2010. Washington, DC: Bureau of Justice Statistics; 2011. Accessed at www.bjs.gov/content/pub/pdf/htus8008.pdf on 26 March 2014.
20. **Campbell JC, Webster D, Koziol-McLain J, Block C, Campbell D, Curry MA, et al.** Risk factors for femicide in abusive relationships: results from a multisite case control study. *Am J Public Health.* 2003;93:1089-97. [PMID: 12835191]
21. **Zeoli AM, McCourt A, Buggs S, Frattaroli S, Lilley D, Webster DW.** Analysis of the strength of legal firearms restrictions for perpetrators of domestic violence and their associations with intimate partner homicide. *Am J Epidemiol.* 2018;187:1449-55. [PMID: 29194475] doi:10.1093/aje/kwx362
22. 18 U.S.C. § 921(a)(33).
23. The Brady Handgun Violence Prevention Act of 1993, 18 U.S.C. § 922 (1993).
24. **U.S. Government Accountability Office.** Gun Control: Sharing Promising Practices and Assessing Incentives Could Better Position Justice to Assist States in Providing Records for Background Checks. GAO-12-684. Washington, DC: U.S. Government Accountability Office; 2012. Accessed at www.gao.gov/assets/600/592504.txt on 26 March 2014.
25. **Everytown for Gun Safety Support Fund.** Fatal Gaps: How Missing Records in the Federal Background Check System Put Guns in the Hands of Killers. Everytown for Gun Safety Support Fund; 2018. Accessed at <https://everytownresearch.org/reports/fatal-gaps> on 21 September 2018.
26. The NICS Improvement Amendments Act of 2007, Pub. L. No. 110-180 (2008).
27. **Cook PJ, Ludwig J.** Reducing Gun Violence in America: Informing Policy with Evidence and Analysis. Baltimore: Johns Hopkins Univ Pr; 2013.
28. **Donohue JJ, Aneja A, Weber KD.** Right-to-Carry Laws and Violent Crime: A Comprehensive Assessment Using Panel Data, the LASSO, and a State-Level Synthetic Controls Analysis. Working Paper no. 23510. Cambridge, MA: National Bureau of Economic Research; 2017.
29. **Durlauf SN, Navarro S, Rivers DA.** Model uncertainty and the effect of shall-issue right-to-carry laws on crime. *Eur Econ Rev.* 2016;81:32-67.
30. **Rudolph KE, Stuart EA, Vernick JS, Webster DW.** Association between Connecticut's permit-to-purchase handgun law and homicides. *Am J Public Health.* 2015;105:e49-54. [PMID: 26066959] doi:10.2105/AJPH.2015.302703
31. The Undetectable Firearms Act of 1988, Pub. L. No. 100-649 (2013).
32. **Greenberg A.** Meet "The Liberator": test-firing the world's first fully 3D-printed gun. *Forbes.* 5 May 2013. Accessed at www.forbes.com/sites/andygreenberg/2013/05/05/meet-the-liberator-test-firing-the-worlds-first-fully-3d-printed-gun on 26 March 2014.
33. **Sperry T.** U.S. requires group to remove 3-D gun instructions from its website. *CNN.* Updated 13 May 2013. Accessed at www.cnn.com/2013/05/09/politics/3-d-guns/index.html on 26 March 2014.
34. **U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives.** 3-D printing technology of firearms. 13 November 2013. Accessed at www.atf.gov/sites/default/files/assets/pdf-files/111313-hq-3-d-printing-technology-of-firearms.pdf on 26 March 2014.
35. **Pérez E.** ATF tests show 3-D guns lethal as metal detection law expires. *CNN.* Updated 15 November 2013. Accessed at www.cnn.com/2013/11/14/politics/3d-guns on 26 March 2014.
36. **Koper CS.** Crime Gun Risk Factors: Buyer, Seller, Firearm, and Transaction Characteristics Associated with Gun Trafficking and Criminal Gun Use. U.S. Department of Justice. 2007. Accessed at www.ncjrs.gov/pdffiles1/nij/grants/221074.pdf on 26 March 2014.
37. **U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives.** Following the Gun: Enforcing Federal Laws Against Firearms Traffickers. Washington, DC: U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives; 2000. Accessed at http://everytown.org/wp-content/uploads/2014/08/Following-the-Gun_Enforcing-Federal-Laws-Against-Firearms-Traffickers.pdf on 21 September 2018.
38. **Wintemute GJ.** Frequency of and responses to illegal activity related to commerce in firearms: findings from the Firearms License Survey. *Inj Prev.* 2013;19:412-20. [PMID: 23478404] doi:10.1136/injuryprev-2012-040715
39. **U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives.** Don't Lie for the Other Guy. Washington, DC: U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives; 2018. Accessed at www.atf.gov/firearms/dont-lie-other-guy on 21 September 2018.
40. **Supreme Court of the United States.** Syllabus: *Abramski v. United States*. 2014. Accessed at www.supremecourt.gov/opinions/13pdf/12-1493_5468.pdf on 14 September 2018.
41. **Miller M, Azrael D, Hemenway D, Vriniotis M.** Firearm storage practices and rates of unintentional firearm deaths in the United States. *Accid Anal Prev.* 2005;37:661-7. [PMID: 15949457]
42. **Johnson RM, Miller M, Vriniotis M, Azrael D, Hemenway D.** Are household firearms stored less safely in homes with adolescents?: Analysis of a national random sample of parents. *Arch Pediatr Adolesc Med.* 2006;160:788-92. [PMID: 16894076]
43. **Nordstrom DL, Zwerling C, Stromquist AM, Burmeister LF, Merchant JA.** Rural population survey of behavioral and demographic risk factors for loaded firearms. *Inj Prev.* 2001;7:112-6. [PMID: 11428557]
44. **Greene E, Bornstein BH, Dietrich H.** Granny, (don't) get your gun: competency issues in gun ownership by older adults. *Behav Sci Law.* 2007;25:405-23. [PMID: 17559168]
45. **Pinholt EM, Mitchell JD, Butler JH, Kumar H.** "Is there a gun in the home?" Assessing the risks of gun ownership in older adults. *J Am Geriatr Soc.* 2014;62:1142-6. [PMID: 24898055] doi:10.1111/jgs.12836
46. **Nelson DE, Grant-Worley JA, Powell K, Mercy J, Holtzman D.** Population estimates of household firearm storage practices and firearm carrying in Oregon. *JAMA.* 1996;275:1744-8. [PMID: 8637172]
47. **Grossman DC, Mueller BA, Riedy C, Dowd MD, Villaveces A, Prodzinski J, et al.** Gun storage practices and risk of youth suicide

- and unintentional firearm injuries. *JAMA*. 2005;293:707-14. [PMID: 15701912]
48. Cummings P, Grossman DC, Rivara FP, Koepsell TD. State gun safe storage laws and child mortality due to firearms. *JAMA*. 1997; 278:1084-6. [PMID: 9315767]
49. Webster DW, Vernick JS, Zeoli AM, Manganello JA. Association between youth-focused firearm laws and youth suicides. *JAMA*. 2004;292:594-601. [PMID: 15292085]
50. Langton L. Firearms Stolen during Household Burglaries and Other Property Crimes, 2005-2010. Washington, DC: U.S. Department of Justice; 2012. Accessed at www.bjs.gov/content/pub/pdf/fshbopc0510.pdf on 26 March 2014.
51. Mayors Against Illegal Guns. Reporting Lost and Stolen Guns. Mayors Against Illegal Guns; 2013. Accessed at www.mayorsagainstilllegalguns.org/html/local/lost-stolen.shtml on 26 March 2014.
52. Koper CS. Reducing Gun Violence in America: Informing Policy with Evidence and Analysis. Baltimore: Johns Hopkins Univ Pr; 2013.
53. Roth JA, Koper CS, Adams W, Marcotte JE, Wissoker DA. Impact Evaluation of the Public Safety and Recreational Firearms Use Protection Act of 1994. Washington, DC: Urban Institute; 1997. Accessed at www.urban.org/research/publication/impact-evaluation-public-safety-and-recreational-firearms-use-protection-act-1994 on 21 September 2018.
54. Koper CS, Woods DJ, Roth JA. Updated Assessment of the Federal Assault Weapons Ban: Impact on Gun Markets and Gun Violence, 1994-2003. Report to the National Institute of Justice, U.S. Department of Justice. Philadelphia: Univ Pennsylvania Pr; 2004.
55. Richmond TS, Branas CC, Cheney RA, Schwab CW. The case for enhanced data collection of gun type. *J Trauma*. 2004;57:1356-60. [PMID: 15625479]
56. Nance ML, Stafford PW, Schwab CW. Firearm injury among urban youth during the last decade: an escalation in violence. *J Pediatr Surg*. 1997;32:949-52. [PMID: 9247210]
57. McGonigal MD, Cole J, Schwab CW, Kauder DR, Rotondo MF, Angood PB. Urban firearm deaths: a five-year perspective. *J Trauma*. 1993;35:532-6. [PMID: 8411275]
58. Police Executive Research Forum. Guns and Crime: Breaking New Ground by Focusing on the Local Impact. Washington, DC: Police Executive Research Forum; 2010. Accessed at www.policeforum.org/assets/docs/Critical_Issues_Series/guns%20and%20crime%20-%20breaking%20new%20ground%20by%20focusing%20on%20the%20local%20impact%202010.pdf on 26 March 2014.
59. Giffords Law Center to Prevent Gun Violence. Assault weapons. 2017. Accessed at <http://lawcenter.giffords.org/gun-laws/policy-areas/hardware-ammunition/assault-weapons> on 29 May 2018.
60. Goode E. Even defining 'assault weapons' is complicated. *The New York Times*. 16 January 2013. Accessed at www.nytimes.com/2013/01/17/us/even-defining-assault-weapons-is-complicated.html on 19 May 2018.
61. Daniels J. Definition of what's actually an 'assault weapon' is a highly contentious issue. *CNBC*. 2018. Accessed at www.cnn.com/2018/02/21/definition-of-whats-an-assault-weapon-is-a-very-contentious-issue.html on 19 May 2018.
62. RAND Corporation. The effects of minimum age requirements. 2018. Accessed at www.rand.org/research/gun-policy/analysis/minimum-age.html on 4 May 2018.
63. Everytown for Gun Safety. Concealed carry reciprocity (S.446): overriding state public safety laws. 2018. Accessed at <https://everytownresearch.org/concealed-carry-reciprocity-overriding-state-public-safety-laws-2> on 4 May 2018.
64. Swanson JW, Norko MA, Lin HJ, Alanis-Hirsch K, Frisman LK, Baranoski MV, et al. Implementation and effectiveness of Connecticut's risk-based gun removal law: does it prevent suicides. *Law Con-temp Probl*. 2017;80:179.