

Product-Oriented Approaches to Reducing Youth Gun Violence

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SUMMARY

Injury prevention experts have suggested that gun manufacturers could reduce youth violence by changing the design of guns. Product safety features could make guns more difficult for children to fire unintentionally and more difficult to use if stolen or obtained illegally.

This article gives a brief history of efforts to make safer, smarter guns and assesses the potential of the product safety approach for reducing youth gun violence. Among the article's key findings:

- ▶ Research from the injury prevention field suggests that changing product design may be more effective in preventing injuries than trying to change personal behaviors;
- ▶ Existing product safety technologies for guns could reduce unintentional gun injuries, especially to young children. In addition, emerging technologies will enable gun manufacturers to “personalize” guns, which

could prevent unauthorized users of any age from firing the weapons. Personalization could decrease access to guns by adolescents;

- ▶ Gun manufacturers have been slow to incorporate safety features into their products; but legislative, regulatory, and litigation efforts are under way to mandate safer guns.

The authors envision a future when the law requires product safety features—including personalization—on all new firearms. These product safety features have the potential to reduce both intentional and unintentional firearm injury and death.

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Injury prevention experts often suggest two key strategies for reducing youth firearm injury and death. One option is to focus on behavior modification, changing how young people and their families behave regarding guns. Another is to focus on product modification, changing the design of guns so that they are more difficult to fire unintentionally or more difficult to use if stolen or obtained illegally. These two strategies do not present an either/or choice; one does not preclude the other. However, one approach may hold out greater likelihood for success than the other. Although little research directly compares the effectiveness of reducing gun violence by changes in product design as opposed to changes in behavior, behavioral interventions have shown only limited promise for reducing youth gun violence. (See the article by Hardy in this journal issue.)

Unfortunately, studies that measure the effects of changing the design of guns to reduce injuries to children and youth are lacking. Few such changes have been made, and because no national data collection system on gun-related injuries exists, studying the effects of those changes that have been made is difficult.

Nonetheless, research from the injury prevention field indicates that changing products to make them safer is frequently more effective at reducing injury and death than trying to change personal behaviors. Relatively inexpensive product modifications could make guns more difficult for children to fire and could reduce unintentional firearm injuries caused when children do not realize that a gun is loaded. More sophisticated devices that allow only the rightful owners of guns to fire them could prove even more useful in reducing youth firearm injury and death, because they could keep youth from being able to intentionally fire guns obtained wrongfully from family, friends, illegal gun markets, or through theft.

This article reviews historical and current efforts to design safer handguns and to prevent their unauthorized use by children and youth. It begins with case studies from the injury prevention field which suggest that product modification is more effective than behavior modification in reducing injuries. The article then describes efforts by gun manufacturers to build in safety features during production, as well as emerging technologies to produce “smart” guns that could be fired only by authorized

users. Finally, legislative, regulatory, and litigation efforts currently under way to require safer guns are discussed.

Rationale behind the Product Safety Approach

Gun violence prevention can be considered a subset of injury prevention, a discipline that for several decades has studied the most effective methods for reducing the incidence of injuries. A basic tenet of injury prevention, supported by these studies, is that attempts to modify the behaviors of individuals so that they act more safely have not in themselves proven adequate to address most injury problems. Changing the design of products has been more effective in reducing risks of injury. Two examples of the differences in effects between product modification and behavior modification are childhood poisoning prevention and motor vehicle safety.

Childhood Poisoning Prevention

Childhood poisoning by medications such as aspirin has long been recognized as a serious injury problem. One way to address the problem is to teach parents and caregivers that medications should be stored in a manner that is inaccessible by young children. The youngsters themselves also could be taught that certain products are poisonous and must be avoided. This was the point of the “Mr. Yuk” campaign, in which a logo was designed with the hope that young children would recognize it and, through training, learn not to touch products bearing it. When this approach to protecting young children by modifying their behavior was tested, however, it proved flawed. In one study, young children who had been instructed not to play with items bearing the colorful Mr. Yuk label preferentially played with those items, compared to children in a control group who had not received the educational intervention.¹

In contrast, research has shown that changing the design and packaging of medications can effectively prevent childhood injury. The use of child-resistant caps for medications and poisons, along with limits on the number of pills in a single vial for many over-the-counter medications, saved the lives of an estimated 460 children under age five between 1974 and 1992.²

Programs designed to teach adults to alter their behaviors for the protection of their children, such as by locking



away poisons³ or even guns,^{4,5} have also shown less than satisfying results. (See the article by Hardy.) Sometimes, even when adults do change their behaviors to protect their children, it is not enough to prevent tragedy. For example, one of the recent school shootings demonstrated the limitations of adult behavior-oriented safety interventions. In March 2001, a 15-year-old student at Santana High School in Santee, California, used a handgun to shoot and kill 2 of his classmates and wound 13 more. The boy's father reported that the handgun came from his own locked gun cabinet.⁶ Apparently, his son could still gain access to the firearms.

Motor Vehicle Safety

The field of motor vehicle safety provides other examples of the relative benefits conferred by modifying a product rather than promoting behavioral change. In the mid-1960s, the U.S. public and Congress realized that continued efforts to enhance the skills of drivers were inadequate for reducing the toll of highway fatalities. Attention was therefore turned to the vehicle, with the assumption that crashes would still occur and that modifying the design of the car could alter human consequences of these crashes. The forces of legislation,

regulation, and litigation were thus used to mandate collapsible steering columns, seatbelts, energy-absorbing vehicle frames, and other physical modifications to cars. These changes have been credited with saving hundreds of thousands of lives.⁷ Although efforts to enhance the safety skills of drivers were not (and should not be) abandoned, product modification proved effective in reducing highway fatalities.

Lessons Learned

As the childhood poisoning prevention and motor vehicle safety cases illustrate, behavioral interventions alone are not enough to reduce injuries and death; product safety modifications also play a key role. Unfortunately, this lesson has yet to penetrate many gun violence prevention efforts. For example, some advocates for gun safety have recently argued that a "code of responsibility" for gun owners is needed, whereby owners would voluntarily pledge to keep their guns stored safely.⁸ The plan for achieving this change in adult behavior is through a public education program similar to one in which vehicle occupants were implored to "buckle up" decades ago in the field of motor vehicle safety. Education campaigns like these have fallen far short of their mark, leaving occu-

pants unprotected and subject to severe injuries or deaths in crashes. Not until legislation in the United States mandated seatbelt use did the rate of use increase materially and the death rate fall.

Gun Manufacturers' Efforts to Make Safer Handguns

The technology already exists to make safer guns. Grip safeties, loaded chamber indicators, and magazine disconnect devices all show promise for reducing unintentional injuries, especially among children and youth. Emerging technologies to create "personalized" guns, which would make guns operable only by authorized users, may be able to reduce intentional injuries as well. Table 1 lists several safety-related product modifications currently being used or developed for guns.

The value of changing product design to avoid injuries to consumers is not wholly unknown to gun manufacturers. Clearly, guns are made principally to have the capacity to injure, but from the manufacturer's perspective the gun owner and the owner's family members are not the planned, intended victims of these injuries. From the point of view of the gun maker, the gun should not injure

the owner/user or that person's children through inadvertent firing or through firing by unauthorized users. As the story of Smith & Wesson's "childproof" gun illustrates, gun manufacturers over the past 100 years have paid some attention to protecting the gun owner and user from unintended injury—but clearly not enough.

Smith & Wesson's "Childproof" Gun

One of the oldest gun safety devices is the grip safety, which has existed for more than 100 years. The gun manufacturer Smith & Wesson intended the grip safety to serve as a child safety device. Although the device is no longer used on Smith & Wesson guns, the development of the grip safety makes it clear that the company recognized and was concerned from early in its history about the danger handguns present to young children.

In his book entitled *History of Smith & Wesson*,⁹ Roy G. Jinks, the company's official historian, tells the following story:

Legend has it that D.B. Wesson (one of the founders of the gun manufacturing corporation) developed the Safety Hammerless model in a night-long session after hearing that a child

Table 1

Gun Product Safety Features and Their Potential to Reduce Youth Firearm Injuries

Product Safety Feature	Does the Technology Exist?	Potential for Reducing Unintentional Injury			Potential for Reducing Intentional Injury		
		Child	Adolescent	Adult	Child	Adolescent	Adult
Grip safety	Yes	▲	▲	▲	▲		
Loaded chamber indicator	Yes		▲	▲			
Magazine disconnect device	Yes	▲	▲	▲			
Personalization	Prototypes only	▲	▲	▲	▲	▲	▲

had accidentally been hurt by cocking and pulling the trigger on one of the Smith & Wesson Double Action Revolvers. This legend cannot be substantiated, since factory records show a methodical development of the revolver. D.B. Wesson was a sensitive person and perhaps after hearing of this accident was inspired to work very closely with his son Joe to develop a revolver with a safety on the handle and a strong trigger that would require a long pull, making it impractical for a child to pull through and fire.

By 1886, Smith & Wesson's .38-caliber Safety Hammerless was in production, and the .32-caliber model followed in 1888. These handguns were designed with a squeezable grip safety. On the rearmost portion of the gun (the part of the handle that rests below the user's thumb as the gun is gripped) was a metal lever that the shooter had to depress by squeezing the gun for the trigger to operate. Thus the user had to perform two tasks simultaneously with one hand for the gun to fire: depress the lever with the base of the thumb and pull the trigger with the forefinger. The premise of the technology was that young children lacked the hand size and strength to successfully do both at the same time.

According to Jinks, Smith & Wesson manufactured more than 500,000 guns with grip safeties between 1886 and 1940. These guns were known as the company's "New Departure" models. No epidemiologic or biomechanical data exist on the effectiveness of the New Departure grip safety in preventing young children from operating a handgun, but Smith & Wesson felt strongly about its effectiveness. The catalog description of the New Departure for many years included the following claim: "One very important feature of this arrangement is the safety of the arm in the hands of children, *as no ordinary child under eight years of age can possibly discharge it.*"¹⁰ (emphasis added)

When Smith & Wesson encountered financial trouble in the late 1930s, the company moved away from making guns for the consumer market, focusing instead on providing British soldiers with guns for World War II. The grip safety was not used on those guns. Today, however, Smith & Wesson has returned to the business of supplying handguns to the American public. For example, the company has manufactured the LadySmith[®], a small

handgun marketed to women. Notwithstanding the likelihood that a woman's gun might be in the same environment as a young child, Smith & Wesson no longer makes use of the child safety technology it developed more than 100 years ago. The LadySmith[®] has no grip safety or other device to make it inoperable by a young child.

Even so, the grip safety does maintain a presence today. Many handguns produced by manufacturers other than Smith & Wesson are outfitted with a modern-day version of the device—a lever on the back or the front of the grip that must be depressed for the trigger to be engaged. These grip safeties are neither advertised nor utilized for the purpose of child protection, however. Their function is to ensure that the user has better hand positioning and control of the firearm, and their effectiveness as a child-resistant safety device remains untested.

In recent times, Smith & Wesson has pledged to take new measures to prevent young children and other unauthorized users from firing the guns that they manufacture. At least in part, the company's desire to settle lawsuits brought against it has stimulated this pledge. In March 2000, Smith & Wesson reached an agreement that freed the company from ongoing legal action brought against several gun manufacturers by the U.S. Department of Housing and Urban Development and several counties and cities throughout the country. In this agreement, Smith & Wesson consented to design changes that incorporate certain built-in safety features, including electronic locking devices. The company also agreed to monitor the distribution of its guns more closely so that scofflaw gun dealers would be identified and would not receive any Smith & Wesson products.

No other gun manufacturer signed this agreement, leaving Smith & Wesson to bear the brunt of what became a devastating economic backlash. Gun dealers and gun buyers boycotted Smith & Wesson guns, bringing the company to the brink of bankruptcy. Smith & Wesson was put up for sale and purchased by an Arizona company, Saf-T-Hammer, which makes trigger locks and other safety devices designed to prevent unauthorized access to firearms. Saf-T-Hammer intends to use its newly acquired Smith & Wesson division in the development of technologically advanced firearm security systems.¹¹ A partnership between Smith & Wesson and the New Jer-

Some technology to produce smart guns already exists; other technology seems feasible in the near future.

sey Institute of Technology, for example, will test the feasibility of the biometric identification systems for personalizing guns mentioned later in this article.¹²

Safety Devices Currently in Use

In comparison to many other products, guns have changed relatively little in their design over the past century. Major design changes have included a move from revolvers to pistols, an increase in caliber, and an increase in ammunition capacity.¹³ (See the article by Wintemute in this journal issue.) Most of these changes have resulted in the increased lethality of guns. With more bullets able to be discharged in a given period of time, and with higher-caliber bullets transferring greater amounts of kinetic energy to what they strike, the amount of human damage resulting from a shooting has increased. Studies of shooting victims seen in emergency departments, for example, demonstrate that the number of bullet wounds per person is increasing.¹⁴

Devices can be placed on guns to decrease the chances of unintended firings, however, thereby making the gun a safer consumer product. Although patents for these devices were granted in the early twentieth century, the devices are found on only a small percentage of guns in the marketplace today.¹⁵ Two of these devices are loaded chamber indicators and magazine disconnect safeties.

Loaded Chamber Indicators

Much like a camera informs its user that there is film in the camera, a gun can inform the user that there is a bullet in the gun. Principally for use in pistols (as opposed to in revolvers), a loaded chamber indicator alerts the possessor of the gun that the gun is loaded and can be discharged. The device is most often a small, cylindrical piece of metal that protrudes from the body of the gun if a round is in the chamber.

It is not intuitive to the person holding a gun, however, that the protrusion of the loaded chamber indicator indicates the loaded status of the gun. Nor is the position, size, coloring, or any other aspect of the loaded chamber indicator standard across makes and models of pistols.

The low prevalence of loaded chamber indicators on pistols, their lack of imparting a clear message to the

person holding the gun, and their lack of uniformity all likely contribute to deaths that occur when the person later claims, “I didn’t know the gun was loaded.”¹⁵ More meaningful loaded chamber indicators could be designed and their inclusion on guns mandated through regulation.

Magazine Disconnect Devices

Another safety device that could reduce the likelihood of unintentional firearm deaths, the magazine disconnect device, is also used in pistols. These guns contain their ammunition in a magazine, or a clip, that fits into the pistol’s handle. Even if the magazine or clip containing the ammunition is removed from the gun, however, the pistol may still have a “round in the chamber,” or a bullet that remains in the gun ready to be fired. This danger is not well understood by the public. In a poll conducted for The Johns Hopkins Center for Gun Policy and Research, a representative sample of the U.S. population was asked if a pistol could be fired when the magazine was removed; 35% either didn’t know that the gun could be fired or thought that it could not be fired.¹⁵ A magazine disconnect device physically prevents a gun from being discharged if the magazine has been taken out, even if the chamber still has a round in it.

Because the round in the chamber was recognized early on as an inherent safety problem, this device has existed on a small number of guns for many years. In 1911, a patent was issued for a magazine disconnect device.¹⁶ More recently, a patent application by an inventor named Frank S. Thomas stated,

It is well known to those familiar with conventional semi-automatic firearms that a live round left in the chamber after the magazine has been removed from its receiver poses a great danger to those who may handle or be exposed to the seemingly unloaded weapon. In the hands of the young, the inexperienced, the careless, a pull of the trigger may fire the “unhappy bullet” in whatever direction the weapon happens to be pointing.¹⁷

Notwithstanding the recognized need for this safety device and its clear technological feasibility, magazine disconnect devices are present on only about 14% of pistol models.¹⁵

The Promise of Personalized Guns

Some researchers believe that the most important change that could be made in the design of handguns to reduce the incidence of gun-related injuries, especially to children, would be to personalize guns.¹⁸ A “smart” gun would rely upon a personal identification number (PIN), a magnetic ring worn by the user, a radio-frequency device on the user’s clothing or person, or fingerprint recognition technology to ensure that only an authorized user could actually fire the gun. Some technology to produce smart guns already exists; other technology seems feasible in the near future.

Theoretically, handgun personalization would prevent unauthorized persons of any age—not just young children—from operating a firearm. Until these types of guns are widely available for use, however, their effectiveness remains unmeasured. It is not known how many firearm injuries personalization of guns may prevent. However, personalization technology could prevent the use of stolen handguns, thus shrinking the illegal gun market, and it could decrease access to firearms by adolescents and protect young children.

An Emerging Technology

In 1992, faculty at The Johns Hopkins School of Public Health commissioned three undergraduate engineering students to devise a personalized gun. With an investment of \$2,000, and use of existing technology, the students converted a revolver so that only its authorized user could operate it. The gun’s firing mechanism was blocked unless it was touched by an electronic “touch-memory” device. Only the handgun’s authorized user had possession of the device.

Today, the technology to make personalized guns is far more sophisticated. In the near future, personalized guns that identify the authorized user by a PIN programmed into a gun may be available for sale. This development would make possible an early version of a personalized gun. Another future version of a personal-

ized gun could employ biometrics, such as fingerprint recognition, for identification of the authorized user.¹⁹ Computer chips already on the market for use in other products immediately scan fingerprints. Soon these chips will be made durable enough to withstand the trauma of gunfire and will be incorporated into guns. A personalized holster already on the market keeps a gun locked in its holster unless a device reads the fingerprint of an authorized user.²⁰

Potential Advantages and Drawbacks of Personalized Guns

Personalization has the potential to make guns less accessible to young people and therefore holds promise for reducing firearm injury and death. Personalized guns are not a panacea, however. The increased cost of the guns, the immense stock of nonpersonalized guns in this country, and the potential for an increase in gun sales once personalized guns enter the market make uncertain the precise impact of smart guns on the safety of children and youth.

Personalized firearms would cost more than firearms sold today, although how much more is unknown. A national poll on gun ownership and safety found that 80% of people who would buy a personalized gun would buy one even if the personalization device added \$100 to \$300 to the price.²¹ Even so, it is unlikely that all, or even a significant proportion, of the nearly 200 million existing firearms in the United States would be retrofitted for personalization. The majority of these older weapons would remain available for use and purchase. Also unknown is how many people who do not currently own firearms would purchase personalized guns because they would seem safer than other guns. Would the rate of concealed-weapon carrying increase? How many mothers would buy a handgun for self-protection if the handgun were “childproof”?

Although firearms would remain hazardous for children even with personalization, safer gun design could contribute to the broader strategy to prevent firearm injuries among children and adolescents. At the very least, young children could be protected from adult inattention to safe firearm storage. In a more complex set of circumstances, adolescents would have decreased access to operable firearms.

Adolescents, proscribed by law from owning firearms, nevertheless have four types of access to guns: (1) unauthorized access to firearms in homes; (2) authorized access to firearms transferred from family, friends, and acquaintances; (3) illegal purchase of firearms off the street or through retailers, either directly or through an intermediary; and (4) theft. The hope for personalization technology is that the firearm operating system would be individualized to the gun owner so that the illegal transfer of weapons, the utilization of stolen weapons, and other unauthorized weapon use could not occur or would occur only with great effort. Personalization could decrease the pool of readily usable firearms.

Thus, for an adolescent, operating a firearm and obtaining an operable firearm would be more difficult and complicated. For adolescents, who frequently behave

impulsively (see the article by Hardy), the time it would take to find a usable firearm or to make a firearm usable might result in a change of mind and a loss of interest. Personalization could thereby work to prevent many homicides, suicides, and unintentional injuries among children and adolescents.

Legislation and Litigation Efforts to Require Safer Guns

Even before personalized guns became a plausible option, legislators at the local, state, and federal levels were exploring ways to make handguns safer, especially for children and youth. Efforts to establish federal product safety regulations for guns have not been successful to date, but model legislation has been written that would

allow a city, state, or the federal government to require all newly manufactured handguns to be personalized after a given date.²² Bills that follow this model law have been introduced in several states and cities²³ and in Congress.²⁴ In addition, state and local governments have brought litigation that may force gun manufacturers to add safety devices to their products.

Attempts to Regulate Safer Guns: The Consumer Product Safety Commission

Despite legislative efforts that date back almost 40 years, the federal Consumer Product Safety Commission (CPSC) does not regulate handguns as it does other consumer products. In the 1960s, the federal government established the National Commission on Product Safety to study the incidence of injury from consumer products and to recommend methods of protecting the public from these injuries. That commission led directly to Congress's creation in 1972 of the CPSC, the agency designed to protect the public from the hazards of dangerous products. Guns, however, were excluded from the range of products that the CPSC could regulate.²⁵ A proposed amendment to the bill that created the CPSC, which would have included firearms within the bill's coverage, was defeated following argument that giving the CPSC jurisdiction over guns "could result in taking guns away from our sportsmen and law abiding citizens. If the Consumer Commission saw fit it could impair the personal security of all of our citizens by limiting the right they now enjoy to possess firearms to make them secure in their homes."²⁶

In 1974, the Committee for Hand Gun Control, Inc. petitioned the CPSC to ban the sale, distribution, and manufacture of handgun ammunition under the Federal Hazardous Substances Act,²⁷ which is administered by the CPSC. The CPSC found that ammunition fell within the definition of hazardous substances under the law, but nevertheless denied the petition based on the commissioners' assertion that a ban on ammunition would effectively be a ban on handguns, and therefore was outside the scope of CPSC's authority. The petitioner appealed the decision, and the court, finding that the CPSC had jurisdiction over ammunition, ordered the CPSC to consider the petition on its merits.²⁸

In response, Congress in 1976 enacted the Consumer Product Safety Act, which contained the following provi-

sion: "The Consumer Product Safety Commission shall make no ruling or order that restricts the manufacture or sale of firearms, firearms ammunition, or components of firearms ammunition, including black powder or gun powder for firearms."²⁹

In recent years, several members of Congress have introduced bills to amend the Consumer Product Safety Act and allow the CPSC to exercise jurisdiction over firearms. None of these bills have passed.³⁰ Over the years, Congress has thus kept the CPSC from overseeing the safe design of firearms.

Other Congressional Efforts

Other attempts to regulate gun manufacture at the federal level also have been unsuccessful. In 1993, Representative Major Owens of New York introduced the Firearms Safety and Violence Prevention Act, which would have directed the Bureau of Alcohol, Tobacco and Firearms (ATF) in the Department of the Treasury to regulate the manufacture, distribution, and sale of firearms and ammunition.³¹ As the regulatory agency with jurisdiction over the firearms industry, ATF was the most logical choice after the CPSC to define and enforce firearm safety standards.

Historically, ATF has limited its powers to enforcement of federal firearms laws; excise tax collection; inspection of firearms manufacturers, wholesalers, and dealers; and permit issuance for manufacturers, importers, exporters, and dealers. Because of vigorous opposition from the gun lobby and subsequent congressional opposition, ATF has been reluctant to venture into the control of gun design and performance and safety standards or product recall. The Firearms Safety and Violence Prevention Act would have directed the agency to incorporate these areas of firearms regulation into its jurisdiction. The bill did not receive action either in 1993 or when it was reintroduced in 1995, however. The Firearms Safety and Consumer Protection Act of 1999 would have directed the Secretary of the Treasury (who oversees ATF) to regulate firearms safety, but it also failed to pass. It was reintroduced in 2001.³²

Congress has the ability to control gun design and distribution directly even if it does not vest regulatory authority in an agency such as the CPSC or ATF. Congressional passage of gun legislation has been slow, however, and for

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some gun issues, nonexistent. Although the public strongly favors legislation that would treat guns as consumer products³³ (see the article by Smith in this journal issue), Congress remains stalemated on this topic.

State and Local Efforts

In the absence of federal legislation or regulation concerning the design of guns, a few states have become interested in taking on this role. To date, at least four states have enacted legislation or regulations designed to require product safety features on guns.

In 1997, then-Attorney General Scott Harshbarger of the Commonwealth of Massachusetts promulgated regulations, under his consumer protection authority, for the design and distribution of handguns.³⁴ The regulations required, among other things, that commercially sold handguns contain childproofing features to prevent an average five-year-old from discharging the firearms. In 1999, California enacted a law that requires all firearms sold in the state to be accompanied by a state-approved safety device. The intent of that law is to decrease childhood firearm injuries.

Legislation in New Jersey and Maryland goes a step further. New Jersey law requires an assessment of whether childproof handguns are technologically feasible, and when such feasibility exists, requires that new handguns sold in that state must be childproof. In 2000, Maryland enacted legislation addressing handgun design. That state's law provides that, beginning on January 1, 2003, a gun dealer in Maryland may not sell any handgun manufactured after December 31, 2002, unless the handgun has an integrated mechanical safety device that disables or locks the gun and is designed to prevent the handgun from being discharged unless the device has been deactivated. A Maryland state government agency will be responsible for reviewing the status of personalized gun technology and will report its findings annually to the governor and the legislature. Other states and cities are considering similar legislation.

Litigation Efforts

Passing legislation designed to protect the public's health is sometimes difficult or impossible because of

powerful political forces that oppose such legislation. These forces may be motivated by a desire to safeguard financial profits, by general distaste for government regulation in its broadest sense, or by a commitment to preserve what are perceived as important individual rights. With guns, all of these motivations come into play, but the strongest appears to be the view that every citizen retains the right to possess any weapon he or she chooses and that government cannot in any way abridge that right. This view derives from an interpretation of the Second Amendment to the U.S. Constitution that the federal courts have rejected. The Second Amendment states, "A well regulated militia, being necessary to the security of a free state, the right of the people to keep and bear arms, shall not be infringed." The great weight of judicial authority, including the U.S. Supreme Court, interprets the Second Amendment as providing a collective right to bear arms that relates to militias, not an individual right.³⁵ Even though the Second Amendment does not legally block federal or state legislation addressing the design of firearms, political opposition to such legislation has been fierce. As has happened in other areas of public health, such as motor vehicle safety and tobacco policy, advocates can turn to the courts for relief if protective legislation becomes infeasible.³⁶ Litigation against gun manufacturers, seeking to hold them liable for safety-related defects in their products, is another way to bring pressure to install safety features on guns.

Litigation Brought by Cities, Counties, and States

Beginning with New Orleans and Chicago, many cities and counties, as well as New York state, have sued firearms manufacturers, alleging that they have designed and distributed their products in a manner that has resulted in high firearm-related death rates. These lawsuits are still in their early stages, with some having been dismissed and others having survived the defendants' motions to dismiss. (See Box 1.) Collectively, the lawsuits have put considerable financial pressure on the firearms-manufacturing industry to design safer products, as exemplified by the Smith & Wesson story mentioned earlier.

Box 1

Lawsuits against the Gun Industry

As of November 1, 2001, 32 municipalities and one state attorney general have filed 23 lawsuits against gun manufacturers to recover damages for the creation of a public nuisance, the negligent distribution of their products, and the creation of products with inadequate safety features. Municipalities that have taken the lead in filing suits include Atlanta, Georgia; Boston, Massachusetts; Bridgeport, Connecticut; Camden, New Jersey; Camden County, New Jersey; Chicago, Illinois; Cincinnati, Ohio; Cleveland, Ohio; Detroit, Michigan; the District of Columbia; Gary, Indiana; Los Angeles, California; Los Angeles County, California; Miami-Dade County, Florida; Newark, New Jersey; New Orleans, Louisiana; New York City, New York; Philadelphia, Pennsylvania; San Francisco, California; St. Louis, Missouri; Wayne County, Michigan; and Wilmington, Delaware. The New York State Attorney General also has filed a lawsuit.

These lawsuits are in various phases of litigation. To date, 9 of the 23 lawsuits have proceeded through the initial stages of litigation. Nine more lawsuits have been dismissed. Those municipalities whose lawsuits have been dismissed are appealing their cases to higher courts. The higher courts have dismissed four lawsuits to date.

In addition to these municipalities, hundreds of individuals have filed suit against the gun industry. Because courts do not have reporting requirements for cases filed by individuals against gun manufacturers, the most complete database of these lawsuits is compiled from reports by a network of attorneys and maintained by the Educational Fund to Stop Gun Violence. The database includes about 700 cases. Of these 700 cases, thus far approximately 20% either have been won or settled favorably for the persons bringing the suits.

Sources: Educational Fund to Stop Gun Violence. Downloaded from <http://www.firearmslitigation.org> on August 24, 2001; Morrisette, C. Educational Fund to Stop Gun Violence Advisory. Washington, DC: Educational Fund to Stop Gun Violence, September 30, 2001; Associated Press. Connecticut Supreme Court won't reinstate gun lawsuit filed by Bridgeport. Downloaded from <http://www.sfgate.com> on October 1, 2001; Vicini, J. Supreme Court allows dismissal of gun maker suit. Reuters. Downloaded from <http://dailynews.yahoo.com> on October 9, 2001; and Joshua Horwitz, executive director, Educational Fund to Stop Gun Violence. Personal communication, November 1, 2001.

Litigation Brought by Individuals

Individuals injured by gunfire and their family members also have sued gun manufacturers for alleged failure to design safer guns. Some of these lawsuits have focused on magazine disconnect devices, loaded chamber indicators, and personalized gun technology. Many such lawsuits get settled before trial without court rulings that serve as precedent for future cases. Of the cases in which rulings have occurred, some plaintiffs bringing the suits have won and others have lost; a cohesive, clear body of law on the subject has yet to be developed.³⁷

Conclusion

Changing the design of guns, especially handguns, has the potential to reduce the incidence of gun-related injuries to children and others. In many cases, the

technology to make such changes already exists. Even the most advanced technologies, such as handguns that will read fingerprints to detect whether a person is authorized to use the weapon, seem feasible in the immediate future.

Existence of the technology in itself, however, is insufficient to alter the design of guns. Manufacturers must have the will to make these changes. Demands of the marketplace no doubt will influence decisions to modify design, but clearly the public, including the gun-buying public, wants guns to be safer.³³ Thus, it is the intransigence of the gun makers that must be addressed. This is beginning to take place through legislation, regulation, and litigation. Ultimately, it is likely that safer guns will be mandated by law and, as a result, the incidence of gun-related injuries to children will be reduced.

ENDNOTES

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