SOUNDING BOARD

Public Health Approach to the Prevention of Gun Violence

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Scientists, policymakers, and advocates are increasingly advised to use "the public health approach" to address myriad social issues, from alcoholism and arthritis to vision care and war. However, it is rarely clear what exactly is meant by "the public health approach."

Policymakers at the Centers for Disease Control and Prevention (CDC) describe the public health approach as a four-step model: Define the problem, identify risk and protective factors, develop and test prevention strategies, and ensure widespread adoption of effective programs.[1] Yet the public health approach is more than this model, for these steps are little more than a scientific approach to any problem.

We believe that the public health approach has five key components. First, the approach is population-based and rarely involves identifiable individuals. Second, it focuses on prevention — usually as far upstream as possible. It is often more effective to change the agent and the environment in which the problem occurs than it is to focus on trying to change the individual with the last clear chance to prevent the problem (e.g., victim or perpetrator). Third, borrowing from human-factors engineering, public health uses a systems approach — trying to create a system in which it is difficult (rather than easy) to make mistakes or behave inappropriately and in which mistakes and inappropriate behavior do not lead to serious injury. Fourth, the approach is broad and inclusive — it examines all possible interventions, including changing social norms and passing new laws, and it tries to engage as many people and institutions as possible in a multifaceted way. Finally, the approach tends to emphasize shared responsibility over blame. Prevention works best when everyone is trying to help. By contrast, assessing blame can sometimes be counterproductive to the goal,[2] which is to prevent the problem from occurring.

A great success of the 20th century — the reduction in motor vehicle deaths[3] — helps illustrate the public health approach. Almost all motor vehicle crashes and deaths can be ascribed to driver error or deliberate misbehavior (e.g., speeding and running red lights). Drivers, especially when tired, drunk, or angry, sometimes make mistakes or behave inappropriately. At first blush, it would appear that if drivers are at fault for almost all collisions, the focus of prevention should be on drivers. Indeed, in the 1950s, the safety focus was on driver education and enforcement of the traffic laws. At the same time, public health physicians began asking a different question — not "Who caused the accident?" but "What caused the injury?"[4] They found that drivers' vital organs were ruptured when the spearlike steering column punctured the chest; faces and major arteries were ripped apart by windshield glass; occupants were thrown from the car; and many motorists died when their car left the road and hit the unyielding signs, lights, and trees that lined highways. These physicians asked, Why can't cars have collapsible, energy-absorbing steering columns, safety glass, seat belts, and air bags? Why can't we make the roads safer? After all, we were not placing unyielding impediments along the sides of airport runways.

Over the past 60 years, cars and roads have become much safer, and the emergency medical system has improved. Traffic-safety experts do not think that drivers today are much better than they were in the 1950s (although alcohol use while driving is down, cell-phone use, texting, and road rage are all up), but fatalities per mile driven have fallen by more than 80%.[5] The modern traffic-safety approach does not neglect the driver, but it also emphasizes the importance of upstream prevention.

The success in reducing motor vehicle fatali-

ties illustrates a systems approach — first, create a system in which mistakes are unlikely or quickly corrected (e.g., by Botts' dots, which alert drivers when they are veering outside the lane) and unlawful behavior is discouraged (e.g., by speed bumps, which reduce the desire to drive at high speeds); and second, ensure that even if motorists still make mistakes or deliberately break traffic rules, the likelihood of serious injury resulting from a crash is greatly reduced (e.g., through the use of air bags).

The motor vehicle success also illustrates the importance of a multifaceted approach. For example, key to the success in reducing drunk-driving deaths was a combination of stronger laws and enforcement, changes in social norms about the acceptability of drinking and driving, more "crashworthy" cars, better roads, and an improved emergency medical system. Keys to the seat-belt success story were the requirement that manufacturers install seat belts, the enactment of laws governing seat-belt use, and the new social norm that seat-belt use is both expected and desirable.

Guns kill an average of 85 Americans per day. Compared with all other First-World countries, we have average rates of assault, burglary, and robbery,[6] but we have the most guns, the weakest gun laws, and by far the highest rates of gun homicide, gun suicide, and accidental gun death.[7]

A public health approach to the prevention of firearm violence recognizes that just as we have many motor vehicles in the United States, we also have many guns. And just as there are many types of public health problems caused by motor vehicles (e.g., injuries to pedestrians and bicyclists, side-impact collisions, rollovers, head-on crashes, and car fires) that require diverse policies in order to have a substantial effect, there are also many public health problems caused by guns (e.g., accidents, suicides, intimate-partner violence, mass shootings, gang killings, and assassinations) that require diverse policies to reduce the problem.

The initial steps in the public health approach are to create good data systems that provide consistent and comparable detailed information across sites and over time — and then to ensure that there is adequate funding for analyses of the data collected. Data and research are crucial for highlighting the problem and for targeting and evaluating interventions. For example, from the data system for motor vehicle deaths, we learned that 16-year-old drivers had three times the risk of 19-year-olds. Research showed that these novice drivers were at greatest risk at night and when driving with other teens. State programs for graduated licensure now put limits on such drivers — and have substantially reduced fatalities.[8] The beginning of an excellent data system for gun violence — the National Violent Death Reporting System — is currently available in 18 states. This system should be expanded to the entire nation,[9] with funds made available for analyses and for dissemination of findings, such as through annual reports by the surgeon general.

We believe that many sensible policies could help reduce our gun problem. For example, we should ensure that gun manufacturers do more. To reduce crime, manufacturers can produce guns with unique serial numbers that cannot be easily obliterated. New pistols should allow ballistic fingerprinting; laws requiring microstamp-ready guns have already been passed in California and Washington, D.C. The guns should be personalized so that stealing them will not be profitable and the stolen guns cannot be used by criminals (just as automobile manufacturers make personalized radios that will not work if stolen from the vehicle). Gun manufacturers should also exert strong oversight over their distributors to help ensure that guns do not easily get into the wrong hands.[6]

Manufacturers can reduce gun accidents if they stop making guns that can go off when dropped. Guns should be childproof (as are aspirin bottles). All semiautomatic pistols should have magazine safety locks to ensure that they do not fire when the clip is removed. An all too common — and predictable — accident is when an adolescent finds his or her dad's semiautomatic, removes the magazine, and believes the gun is unloaded. Rather than blame the adolescent or the parents, manufacturers can easily change the gun and prevent the problem.[6]

The gun-distribution system needs improvement. Many firearms are currently obtained without a background check. Universal background checks are the rule in virtually every other developed nation and should be required

in the United States. The Bureau of Alcohol, Tobacco, Firearms, and Explosives needs more authority and support to ensure that scofflaw gun dealers do not readily supply felons. Sting operations have shown that many of the dealers whose guns are disproportionately used in crime will disobey the law,[10] and public health studies show that far too many other dealers show a willingness to sell to individuals who are clearly straw purchasers.[11] Most important, as we have reduced the selling of alcohol and tobacco to minors, we must ensure that all dealers follow the best practices (e.g., employee responsibility training) that reduce the likelihood of selling guns to straw purchasers.

All developed countries require that drivers be licensed; like all other developed nations (and some U.S. states), we should require that gun owners be licensed. Other high-income countries (and some U.S. states) require that gun owners be trained and store their guns safely.[12] We should follow their lead.

The criminal justice system — including police, probation, parole, judges, and corrections — plays a crucial role in helping to prevent interpersonal gun violence. More effective policing may have been one reason for reductions in gun crimes over the past two decades. Public health particularly applauds innovative policing that works with the community to help prevent violence.[13]

A public health approach also involves changing social norms. As the norm about the propriety of social drinking and driving has changed over time, so should norms about guns. For example, the norm should be that all gun owners, not just some, store their guns safely. Hundreds of thousands of guns are stolen every year, and many are subsequently used in violent crimes.

The public health approach tries to enlist many people and institutions in addressing a problem and building coalitions that reinforce one another. In the motor vehicle area, Hollywood was instrumental in helping advance the concept of the designated driver.[14] Hollywood might play a part in changing the pernicious current norm that real men use guns to solve problems and settle disputes. When an inner-city youth feels disrespected by a peer, far too often he thinks he must defend his manhood — with a gun, rather than with his fists or by simply walking away. In some cities, ex–gang members have been hired as violence interrupters to broker treaties and help change norms about violent retaliation.[15]

None of these proposed changes will be easy, but public health has had many successes,[4] even against powerful and intractable private interests (e.g., the tobacco lobby). Given the lack of data and research funding, and given that many of the proposals that are discussed here have not even been tried, no overwhelming scientific evidence proves that any specific initiative will (or will not) reduce firearm violence.[18] Fortunately, a virtue of the public health approach is that it is pragmatic rather than dogmatic. As the CDC emphasizes, public health policymakers believe in evaluating all policies, scrapping the ones that don't work, and promoting the ones that do.

Since the assassinations of Martin Luther King, Jr., and Robert Kennedy, more U.S. civilians have been killed with guns than all U.S. soldiers who have ever been killed in war — from the Revolution to the present day. We are learning to live more safely with our cars; a public health approach may help us begin to learn to live more safely with our guns. Currently, far too many of us are dying. We believe the public health approach provides a blueprint for success.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

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