

## VIEWPOINT

## Beyond Gun Laws—Innovative Interventions to Reduce Gun Violence in the United States

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**In the US**, the gun homicide rate is roughly 25 times higher and the gun suicide rate 8 times higher than in other high-income countries.<sup>1</sup> At times, gun violence may seem like a uniquely US crisis that we cannot remedy, insurmountably tied into the very fabric of the nation—in effect, a public health problem of constitutional significance. But simply knowing that the nation is a gun violence outlier among nations is not sufficient in moving the country closer to solutions.

When we think of how to prevent or reduce gun violence, a first consideration is inevitably laws and law enforcement. In line with this public predilection, much of the scientific research to reduce gun violence in the US has, perhaps unsurprisingly, focused on estimating the outcomes of state and federal laws, such as assault weapons bans, background checks, red flag laws, and licensing requirements. There are good reasons to focus on laws; gun laws in the US are generally more permissive than in similar countries with far lower death rates from firearms,<sup>1</sup> and, if successful, laws could have a populationwide outcome on gun violence.

However, passing firearm-associated legislation, especially at the federal level, has been illusive, and law enforcement has been divisive and often detrimental. For example, although it passed with 240 votes in the House of Representatives a year ago, the Bipartisan Background Checks Act of 2019 has still not been brought to the floor in the US Senate, even though nearly all of the US population supports universal background checks. In the absence of federal legislative action, many states have worked on their own legislation, sometimes strengthening (eg, Massachusetts, California) but mostly relaxing (eg, Missouri, Indiana, Tennessee) their gun laws. Variations in state gun laws create ripe opportunities for research, yet only select studies of state laws have rigorously shown reductions in gun violence, and the methodological quality of gun-law studies, as a body of science, needs to be considerably improved,<sup>2</sup> along with critical investigations of law enforcement practices.

The public health, medical, and scientific research communities can no longer be at the mercy of US state and federal legislators, simply waiting for them to successfully pass or repeal laws as the only source of scientific and policy innovation to prevent gun violence in the US. This is a weak and unidimensional forfeiture in the face of a complex and intransigent problem for which the US public are rightly demanding innovative, effective, and immediate solutions. Recent funding allocations for scientific research from both federal and private sources have opened new doors and legitimized gun violence research at major scientific agencies, such as the National

Institutes of Health and the US Centers for Disease Control and Prevention, which until very recently saw little if any such research as part of their scientific portfolios.<sup>2</sup> The groundswell of scientists and junior investigators who are now emerging to study gun violence must use their newfound prominence to go beyond the pursuit of gun law evaluations to the discovery and testing of their own novel interventions.

Although legislative avenues remain a primary strategy to prevent gun violence, there is a rich emerging scientific literature evaluating the effectiveness of interventions and programs that do not depend on state or federal legislation or law enforcement. A scientific review<sup>3</sup> of programs in 264 cities showed that every 10 additional nonprofit, community-building programs per 100 000 residents were associated with a 9% reduction in homicide and a 6% reduction in violence. These programs include community-led initiatives, such as youth development, career services, and the arts, that also improve the lives of the citizens in important ways beyond simply reducing gun violence. Another recent scientific review<sup>4</sup> evaluated the effectiveness of various neighborhood interventions, such as public transportation and environmental remediation efforts, to reduce violence, including gun violence. Improving housing conditions and green space and generally enhancing neighborhood environments through programs, such as Horticultural Society LandCare Programs, have been associated with successes in reducing gun violence, injury, and death. Moreover, these interventions have co-benefits that go beyond reductions in gun violence. The improvement of vacant land and housing conditions has been experimentally shown to produce community connectedness, feelings of safety, and reduced stress levels among residents.<sup>4</sup> Recent research has also found that home foreclosures are linked to rising suicide rates,<sup>5</sup> and programs such as the Neighborhood Stabilization Program, which was established to provide emergency financial assistance to neighborhoods when rates of foreclosed or abandoned homes begin to rapidly increase, are other neighborhood interventions that may help decrease gun suicides.

Mental health interventions are also especially beneficial in reducing suicides, nearly two-thirds of which involve firearms in the US. The United States Air Force Suicide Prevention Program<sup>6</sup> has resulted in a sustained reduction in suicides, as well as decreased rates of family violence, homicide, and unintentional death.<sup>6</sup> Similarly, receipt of specialty mental health services in conjunction with a targeted suicide prevention program among adult members of a large health maintenance organization was associated with lower suicide rates over an 11-year period.<sup>7</sup> Other sociobehavioral

interventions have also been shown to reduce gun violence. For example, comprehensive early childhood education programs that include home visits, access to health care, caregiver support, or other family-oriented components have demonstrated long-term experimental and quasiexperimental evidence of reductions in violence.<sup>8-10</sup>

A fundamental aspect and benefit of many of these interventions is that, with thoughtful implementation, they may also address the most basic upstream causes of gun violence, such as structural racism, poverty, housing inequity, unemployment, and educational inequality. Additionally, they do not necessitate new state and federal firearm laws and can be locally implemented and sustained with funding from municipal or private sources, including funds redistributed away from law enforcement.

While research on state and federal laws should remain a focus in the study and prevention of gun violence, a variety of other programs that do not involve laws or law enforcement has been shown to produce significant reductions in gun violence at the highest levels of scientific evidence, including randomized clinical trials. As new federal and private investments in the so-called science of gun violence are emerging, it is incumbent on the scientists who receive these funds to attempt and test innovative new strategies emerging from the scientific community as well as from communities affected by gun violence, if we are to turn the corner and make serious progress in broadly reducing gun violence in the US. Science is grounded in discovery, and waiting for legislators to act as the impetus for that discovery will not move the nation forward fast enough in its mission to prevent gun violence.

#### ARTICLE INFORMATION

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