

# States Take a Public Health Approach to Curb Gun Violence

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**P**ublic outcry over the mass shootings in Connecticut, Colorado, and other parts of the country in the past year has reignited legislative efforts to curb firearm violence, which results in more than 30 000 US deaths annually.

In April, the US Senate failed to pass legislation that would have closed loopholes in background checks for firearm buyers. But some state legislatures, including Colorado, Connecticut, New York, California, and Maryland, are still pursuing or have passed tough new restrictions on firearms.

Garen Wintemute, MD, MPH, director of the Violence Prevention Research Program at the University of California, Davis, and an emergency department physician, discussed with *JAMA* the public health approach that many of these legislative efforts are taking and how they may affect firearm violence. Wintemute is a nationally recognized expert on firearm violence whose work has exposed how loopholes in background check laws can facilitate the purchase of weapons by prohibited individuals at gun shows and elsewhere (Cole TB. *JAMA*. 2008; 300[6]:640-641).

**JAMA:** What does the public health approach to firearm violence entail?

**DR WINTEMUTE:** The public health approach is based in epidemiology. It can be applied to firearm violence just the way it has been applied to reducing motor vehicle injuries and chronic and infectious diseases. It requires taking a broad, systematic look at potential causes or risk factors and taking a multipronged approach to solutions.

**JAMA:** After the Senate's failed attempt, what do you think are the prospects for federal gun regulations?

**DR WINTEMUTE:** This year, I think they are slim to none. There is still compromise legislation pending that would implement background checks at gun shows and over the Internet. That's quite narrow in scope—perhaps too narrow to make a detectable difference.

Another thing that is on the table is federal funding for research. The president has ordered the US Centers for Disease Control and Prevention to recommence research on firearm violence. The Institute of Medicine

70% for self-described NRA members. We are seeing Congress being unwilling to do what its constituents are asking it to do.

**JAMA:** Why are federal regulations important?

**DR WINTEMUTE:** For a couple of reasons. Stricter regulations at the state level can always be undermined by looser regulations in other states. The best example of this is that there are well-documented pathways by which firearms move into states that have strict controls on firearms from states that have relatively lax controls. In the Northeast, for example, firearms come in from the Southeast via the Iron Pipeline. There also are some problems, like international trafficking, that can really only be dealt with at the federal level.

**JAMA:** Has inaction at the federal legislative level prompted state legislatures to move forward with gun legislation?

**DR WINTEMUTE:** State legislators have certainly moved forward. I don't think they did it because of inaction at the federal level. Some states enacted firearm legislation before they knew the outcome in Congress, because they were aware of the need to protect the health and welfare of their residents and took action. Colorado and Connecticut, specifically, have been the sites of mass shootings. Colorado had Aurora and Columbine, and Connecticut had Sandy Hook. They are reacting to the threat that firearms pose to their own citizens.

**JAMA:** What do we know about the effects of state proposals on gun violence and deaths?

**DR WINTEMUTE:** We know that comprehensiveness is important. If there are gaps in coverage, they will be identified and exploited. One of the best examples is in federal legislation. The Brady Handgun Violence Prevention Act requires a background check and record-keeping for sales by licensed firearm retailers, but it doesn't extend to transfers by private parties. We know that approximately 40% of all firearms transfers and 80% of firearms transfers with criminal intent occur outside of Brady's regulatory framework. Another example is efforts to ban assault weapons focusing narrowly on the design features of the weapons, which were easy to circumvent.



Garen Wintemute, MD, MPH, director of the violence prevention research program at University of California, Davis, said a public health approach may help states curb gun violence.

has established priorities for such research, but no funding has been made available. Again, I think the prospects are slim to none that Congress will make that funding available this year.

**JAMA:** Do you think the federal stalemate is a reflection of the public's ambivalence about gun regulations?

**DR WINTEMUTE:** Not at all. Quite the contrary, I think it flies in the face of the public's very clear expression of support for such measures.

"Gun control" is a very ambiguous term, and I don't use it any more. When people are asked, "Do you support gun control?" they tend to say no, because they don't like the idea of control. I say no, too, because I don't know what "gun control" means. But if you ask about a specific measure, such as comprehensive background checks, public opinion polling and scientific survey research both have documented that support among the general public approaches or exceeds 90%. Support for comprehensive background checks is greater than 80% for firearm owners and greater than

**JAMA:** Why is research about firearm violence needed? What do we need to know?

**DR WINTEMUTE:** We need to know pretty much everything. There has been a systematic and largely successful effort to prevent research on firearm violence dating back to the 1990s. As a result, there are only a few people working on the problem in this country. The list of things we don't know is very much longer than the list of things we do know.

The basic descriptive epidemiology characterizing those at high risk of firearm violence is 20 years old. We need to know much better how the supply of firearms works. We need to know what drives demand for firearms, especially for criminal use. We need to know more about risk factors for suicide or criminal use of firearms, like alcohol and controlled substance use. Most important is the need to know the effects of interventions. States and local jurisdictions are trying things, but with a few exceptions, nobody is looking to see if what is tried is having a beneficial effect.

**JAMA:** California has some of the nation's toughest gun regulations. Are there data on how these regulations have affected gun violence there?

**DR WINTEMUTE:** There is evidence. Probably the clearest was published in *JAMA* (Wintemute GJ et al. *JAMA*. 2001;285[8]:1019-1026). It was an assessment of the effect of California's decision to extend its denial criteria for purchasing firearms to individuals with prior convictions for violent misdemeanors. Our analysis looked at 2 populations who had tried to purchase handguns. All had been convicted of a violent misdemeanor like assault and battery. One group tried to purchase under California's new policy and were denied; the other group purchased guns a year or two earlier under the old policy. We found the new policy reduced the risk of arrest in the group denied a firearm by 25% to 30%, specifically for crimes involving firearms and violence, which is what you would expect if the effect was due to the law.

California for more than 20 years has required a background check for all transfers of firearms. We have quantitative evidence that the criminal firearm market in California is much less efficient than in other states. It takes much longer to move a firearm from purchase to use in crime. Finally, California regulates gun shows and has law enforcement present to detect illegal acts. We know from observational research that criminal

activity is less common at gun shows in California than in nearby states where such regulations don't exist.

**JAMA:** California is considering a raft of new legislation. What do these proposed laws aim to accomplish?

**DR WINTEMUTE:** We have actually adopted 1 piece of legislation and are considering nearly 90 others. The piece that has been adopted will implement a statewide program to try to recover firearms from people who have purchased them legally at some time in the past but since then have become prohibited persons. They have been convicted of a violent crime or served with a restraining order or, as a result of mental illness, have recently threatened harm to themselves or someone else.

There are various bills under consideration that would ban possession of high-capacity ammunition magazines and broaden our existing ban on assault weapons, including a ban on commerce in all semi-automatic rifles that accept detachable magazines. We would add repeated convictions for DUI and similar alcohol-related offenses to our criteria for a 10-year firearms prohibition. And we would regulate purchases of ammunition largely the same way we do purchases of firearms.

**JAMA:** Most gun deaths are suicides. Would some of the proposals being considered in California and elsewhere specifically help reduce suicides?

**DR WINTEMUTE:** Yes. It's very important to point out that most gun deaths are suicides. For most of the 20th century and so far in the 21st, firearm suicides outnumbered firearm homicides by at least 50%. Two of the California measures we discussed earlier are not specific to suicide but will have an effect. One is the program to recover firearms. It will recover firearms from people who, as a result of acute serious mental illness, have threatened harm to themselves. It makes perfect sense to recover those firearms, even if that person is going to try another means. Firearms are uniquely likely to convert an attempted suicide into a completed suicide.

Another is our proposed prohibition based on alcohol abuse. About 30% of people who kill themselves have alcohol in their system at the time. Prohibiting alcohol abusers from purchasing firearms and recovering firearms from known alcohol abusers will affect suicide, as it will likely affect interpersonal violence. ■

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### Medical Students' Antiobesity Bias

More than one-third of medical students harbor substantial bias toward obese people but aren't aware of it, according to a recent study.

Researchers administered a validated test to more than 300 medical students to measure biases against obese individuals. One-third of the students self-reported a moderate or strong bias against obese individuals and none reported an anti-thin bias. An even greater proportion (39%) harbored implicit biases toward obese individuals compared with 17% who harbor an implicit anti-thin bias. Two-thirds of the students with an implicit bias were unaware of it.  
<http://jama.md/18wcq8Z>

### Antacids May Reduce Cancer Risk

Antacids may provide more than soothing relief for heartburn. A new study suggests that stomach acid neutralizers decrease the risk of throat or vocal cord cancers in people with frequent heartburn who don't smoke or drink alcohol.

Researchers studied 631 patients and 1234 controls to clarify the relationship between gastric reflux and cancers of the throat and vocal cords. Among those who didn't smoke or drink heavily, a history of frequent heartburn was linked with a 78% increased risk of developing throat or vocal cord cancer. But those who took over-the-counter antacids for heartburn relief had a 41% reduced risk for these cancers.  
<http://jama.md/14qXwfQ>

### Benefit of Treating Mental Stress

Mental stress can trigger myocardial ischemia, which could cause more serious events such as heart attack in patients with coronary heart disease. But new research shows a specific type of antidepressant can reduce mental stress-induced myocardial ischemia.

Researchers randomly assigned 112 patients to receive a placebo or the selective serotonin reuptake inhibitor escitalopram (Lexapro), an antidepressant also used to treat anxiety. After 6 weeks, 34.2% of patients taking escitalopram had no mental stress-induced myocardial ischemia while performing mental stressor tasks compared with 17.5% of patients taking placebo.  
<http://jama.md/18wc7Ln>

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