

# Firearm use and storage restrictions associated with reduction in firearm deaths

15 June 2020



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Three common types of gun laws are associated with changes in the number of firearm deaths, with the most-restrictive combination of the laws estimated to result in an 11% reduction in firearm deaths, according to a new RAND Corporation study.

Researchers examined three categories of state gun laws—child access prevention laws, right-to-carry laws and stand your ground laws—and estimated their association with changes in state-level [firearm](#) deaths between 1980 and 2016.

The study found that states with the most-restrictive combination of these policies were estimated to have 11% fewer firearm deaths than states with the least-restrictive policy combination. Nationwide, a reduction of this size corresponds to 4,475 fewer firearm deaths per year. The findings are published online by the *Proceedings of the National Academy of Sciences*.

"It appears that state policies restricting how people store, carry and use their weapons are likely to have a small, but meaningful effect on reducing the number of firearm-related suicides

and homicides in a state," said Terry Schell, lead author of the study and a behavioral scientist at RAND, a nonprofit research organization.

Researchers selected the three laws to study because they are some of the most common state regulations on firearms, and belong to the same general class of firearm laws that regulate the legal storage and use of firearms, rather than regulating who may own a firearm or how one may purchase a firearm.

Though many states have passed various forms of these laws, it has been unclear how they affected the number of firearm-related deaths, which number approximately 39,000 per year in the United States.

The RAND study used variation in the adoption of the laws across states and over time to examine their association with firearm suicides and homicides. The analysis assessed the effect of the laws by looking at the year-over-year changes in firearm deaths for the six-years after each law was implemented, comparing these changes to the changes in states that did not implement such laws.

Because the results of studies about the impact of gun regulations often are influenced by the [statistical methods](#) used, the RAND researchers first conducted a study (published in 2018) designed to identify the statistical methods that are most appropriate for assessing the effects of state policy on firearm deaths. The newly published paper is the first time these new, appropriate statistical methods have been used to estimate the effects of gun laws.

The study found that child access prevention laws demonstrated the strongest association with subsequent changes in firearms [death](#) rates. Child access prevention laws mandate legal penalties for storing a handgun in a manner that allows access by a minor, and some require locked storage of

firearms or ammunition. The researchers estimate that such laws are associated with a 6% drop in firearm deaths, and they conclude there is a 97% chance that these laws reduce firearm deaths.

"Changes in firearm mortality following the implementation of state laws regulating firearm access and use," *PNAS* (2020).  
[www.pnas.org/cgi/doi/10.1073/pnas.1921965117](http://www.pnas.org/cgi/doi/10.1073/pnas.1921965117)

The analysis found that right-to-carry laws showed modest evidence of being associated with subsequent increases in firearms death rates. Right-to-carry laws make it easier for citizens within a state to carry concealed weapons outside of their home, either without any permit or with a permit issued to any applicant who meets established requirements. These laws were associated with a 3% increase in firearm deaths following implementation, and the findings suggest there is an 87% chance that they increase firearm deaths.

The study found there is limited evidence that stand-your-ground laws increase firearm deaths. Stand-your-ground laws limit the legal liability of individuals who use deadly force in self-defense outside of their own home. These laws were associated with a 3% increase in firearm deaths after implementation, and the findings suggest there is an 77% chance that they increase firearm deaths.

The study found that the effect of child access prevention and right-to-carry laws were generally similar in size across firearm homicide and firearm suicide, while the effects of stand-your-ground laws were primarily due to effects on firearm homicide.

Eighteen states have the most-permissive combination of these laws: no child access prevention laws, but both right-to-carry and stand-your-ground statutes.

"While there is still uncertainty in our estimates, these findings suggest that moving from the most-permissive to most-restrictive policy regime concerning how individuals store or use firearms is likely to reduce the number of firearm deaths," Schell said.

Other authors of the study are Matthew Cefalu, Beth Ann Griffin, Rosanna Smart and Andrew R. Morral.

**More information:** Terry L. Schell et al.,

APA citation: Firearm use and storage restrictions associated with reduction in firearm deaths (2020, June 15) retrieved 21 July 2022 from <https://medicalxpress.com/news/2020-06-firearm-storage-restrictions-reduction-deaths.html>

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