

# Study quantifies dramatic rise in school shootings and related fatalities since 1970

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The incidence of school shootings more than quadrupled over the past 53 years, according to a new study analyzing data from the Center for Homeland Defense and Security (CHDS). To curtail the trend and help

prevent future school shootings, researchers offered five key steps to address the problem through a public health approach.

The study, [published](#) in the *Journal of the American College of Surgeons (JACS)*, analyzed 2,056 school shooting incidents involving 3,083 victims in a period ending in May 2022, including 2,033 children ages 5-17 and 1,050 adults ages 18-74.

### **Key study findings include:**

- The number of [school shootings](#) annually has increased from 20 incidents in 1970 to 251 in 2021. Victims and shooters were predominantly male—77% and 96%, respectively.
- Nearly two-thirds of the shooters were under the age of 17 years.
- Handguns were by far the most common weapon used in school shootings, accounting for 84%, followed by rifles (7%) and shotguns (4%).
- Rifles were the deadliest weapon, with a fatality-to-wounded ratio of 0.45 vs. 0.41 for shooters using multiple weapons, 0.35 for handguns, and 0.30 for shotguns.
- From 1970 to 2021, the rate of children being school shooting victims more than quadrupled, from 0.49 to 2.21 per 1 million population. Deaths increased more than sixfold, from 0.16 to 0.97 per 1 million population.
- California had the most school shootings (214), followed by Texas (176) and Florida (120). However, the District of Columbia had the highest rate of school shootings per 100 schools (5.5), followed by Delaware (5.4) and Louisiana (4.6).

"As [trauma surgeons](#), we're tasked with caring for these shooting victims, and as such, we hoped, through our study we would be able to reveal and acknowledge an ongoing public health epidemic, not just with [firearm](#) violence in general, but school shootings specifically," said lead

study author Louis J. Magnotti, MD, MS, FACS, professor of surgery and a trauma surgeon at the University of Arizona College of Medicine in Tucson. The study raises the issue of how children gain access to firearms.

"This underscores the necessity of responsible ownership and proper education and training for all firearm owners," Dr. Magnotti said.

"Policymakers need to address these issues by focusing on improving knowledge of secure firearm storage among parents, educating the school community about potential risks, and engaging in programs and policy discussions concerning strategies to limit youth access to guns."

The study notes five key steps to a public health approach to prevent school shootings:

- Defining and monitoring school shootings
- Implementing preventative interventions
- Identifying factors that pose risks or offer protection
- Testing the effectiveness of interventions
- Ensuring widespread adoption of the most successful approaches

"Firearm violence is a public health crisis and it needs to be addressed," Dr. Magnotti said. "By applying this approach, we can focus our efforts on minimizing the impact of firearm violence."

The study also suggests that preventative initiatives should incorporate recommendations for safe firearm storage from the American College of Surgeons Committee on Trauma (ACS COT) Firearm Strategy Team (FAST).

"This is an important paper because it documents the significant increase in school shootings over the past five decades. Not only have school shootings increased, but fatalities have increased even more than the

number of shootings," said Ronald M. Stewart, MD, FACS, chair of the department of surgery at University Hospital, San Antonio, Texas, who wasn't involved with the study.

"Although there are limits to the data set used in this study—it doesn't subclassify the events or the type of firearm used—this is important research that reports on data collected in a standardized process over a long period of time."

**More information:** Bellal Joseph et al, Defining the Problem: 53 Years of Firearm Violence Afflicting America's Schools, *Journal of the American College of Surgeons* (2024). [DOI: 10.1097/XCS.0000000000000955](https://doi.org/10.1097/XCS.0000000000000955)

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