

POLICY BRIEF

Lockdown Drills

*A Widely Used Yet Often
Misunderstood Practice*

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SYNOPSIS

Despite the widespread use of lockdown drills in US schools, the conversation about their efficacy remains contentious and often is not guided by empirical evidence. This brief provides an overview of the scholarly evidence surrounding lockdown drills, as well as considerations of best practices, an important foundation for policymakers tasked with keeping students and staff safe and for the public to better understand their utility in schools.

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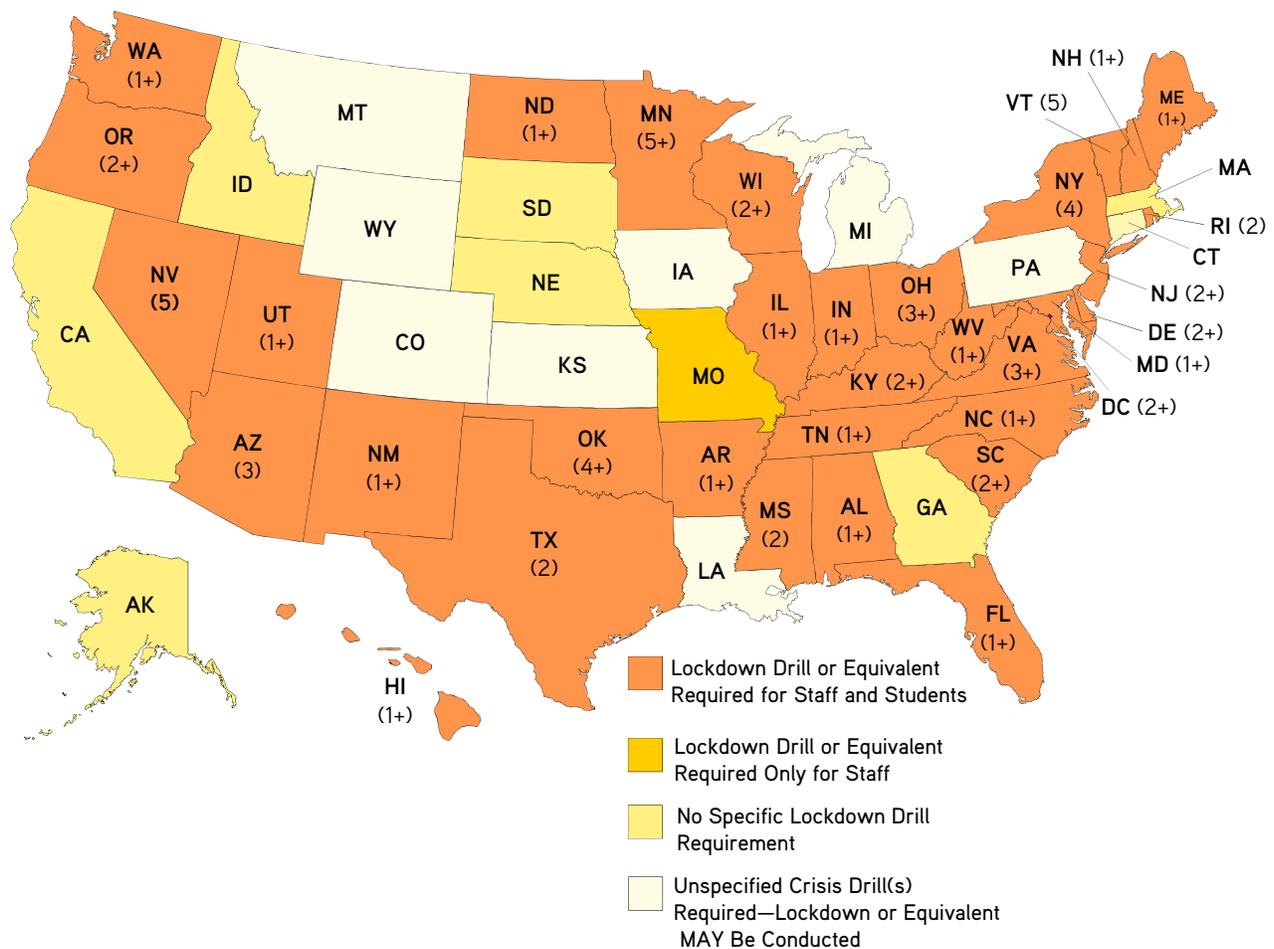
LOCKDOWN DRILLS

A Widely Used Yet Often Misunderstood Practice

The May 24, 2022, mass shooting at Robb Elementary School in Uvalde, TX, where 19 fourth grade students and two of their teachers were killed and 17 others were injured,¹ reignited a national discourse about preparing school communities for similar tragedies. Proposals ranging from armed teachers² to clear backpacks³ were circulated, despite the lack of empirical evidence to support their efficacy in situations like Uvalde. This leaves an important question for stakeholders charged with keeping school communities safe: what is the best way to reduce the harm caused by these events that is evidence-based?

One strategy that has received considerable attention in the aftermath of these tragedies are lockdown drills, which are currently used in more than 95 percent of public K-12 schools in the US each year (see [Figure 1](#) for state requirements).⁴ These practices became commonplace after the April 20, 1999, shooting at Columbine High School in Jefferson County, CO. Even without a formal intruder protocol, hundreds of students and teachers engaged in the act of locking down during the shooting, an action that the Columbine Review Commission credited with saving countless lives.⁵ Although the perpetrators had an unprecedented 50 minutes that they were in control of the school and were armed with four firearms and nearly 100 improvised explosive devices, they never attempted to breach a locked door.⁶

FIGURE 1. Drill Requirements by State



NOTE: Number of drills required by state listed in parentheses for each state. Those states with “+” indicate that these are the minimum number of lockdown drills or equivalent that must be conducted. FL does not set a required number, noting only that one lockdown drill must be conducted for every fire drill conducted; NV requires monthly emergency drills, of which half must be lockdowns. Several states also have added requirements, including when the drill(s) specifically must take place (AL, IL, KY, LA, MI, MS, NM, NY, OK, PA, RI, SC, TX, VA), the inclusion of law enforcement (AR, NJ, TN), or carrying out the drill in conjunction with other scenarios and/or trainings (e.g., students in/not in the building, panic buttons; AR, AZ, OH, WV).

Despite the widespread use of lockdown drills in US schools, the conversation about their efficacy remains contentious and often is not guided by empirical evidence. This brief provides an overview of the scholarly evidence surrounding lockdown drills, as well as considerations of best practices, an important foundation for policymakers tasked with keeping students and staff safe and for the public to better understand their utility in schools.

What is a Lockdown (Drill)?

A lockdown is a response procedure that can be used to build distance (both physically and in terms of time) between a threat and its intended target(s) when that danger is *inside* of a building.⁷ It involves specific steps to achieve this end: (1) lock the door; (2) turn the lights off to provide an added layer of concealment; (3) move out of sight of any interior windows; and (4) maintain silence so as not to call any attention to the individuals' location. Room occupants also are discouraged from responding to any knocks at the door or attempts to gain entry by individuals outside of the secured space, as anyone who would need to gain access (e.g., administrators, law enforcement) would have access to the appropriate keys.

While each step of the lockdown procedure serves an important function, the first step—locking the door—has been identified as the most important as this serves as the barrier between individuals within a school building and a threat determined to harm them. In fact, the first recommendation offered by the Sandy Hook Advisory Commission—the entity responsible for reviewing the December 14, 2012, shooting at the Newtown, CT elementary school and making recommendations out of the lessons learned—in their 2015 report was ensuring that all classrooms and safe areas have doors with locks that can be secured from the interior of the room.⁸ Underlying this recommendation was evidence provided to the committee that in no prior school shooting had a perpetrator breached a locked door.

Drills are a type of exercise that allow schools to test a single operation, such as a procedure for lockdowns or fires, while also creating the opportunity for individuals to practice responding to that scenario.⁹ The goal of any drill, these included, is to build muscle memory so that in times of crisis where one's thinking may be impaired by stress, that person's body will perform the actions it was trained to.¹⁰ Importantly, drills are one method along a continuum in which schools or other locations can test their procedures; they also may use low-stakes options, such as discussion-based or tabletop exercises, or the more complex and time-consuming full-scale exercises to test multiagency cooperation.¹¹

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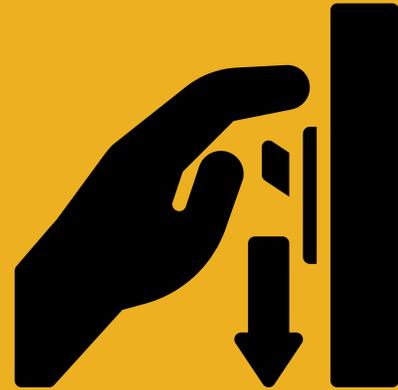
The goal of any drill... is to build muscle memory so that in times of crisis where one's thinking may be impaired by stress, that person's body will perform the actions it was trained to.

LOCKDOWN IN 5 STEPS

1 Lock the door



2 Turn off lights



3 Move away from the door



4 Maintain silence



5 Do not answer the door



It is important to distinguish lockdowns from options-based protocols such as A.L.I.C.E.¹² or Run Hide Fight.¹³ Whereas lockdowns can be used for *any* threat inside of a building, options-based protocols are designed for a single situation—active attackers. Specifically, these options-based protocols teach people to (1) move as far away from the threat as possible by leaving the affected location, (2) conceal themselves by hiding from the danger, or (3) defend oneself if face-to-face with the attacker and it is the only option available. A misconception of lockdown drills is that they teach students and staff to be vulnerable without providing them with options if securing behind a door lock is not possible. In reality, many schools do teach alternate strategies, such as self-evacuation (i.e., exiting the building and getting to a safe location), for such instances.

The Research on Lockdown Drills

Despite their widespread use, there is a considerable lack of systematic research on the practice of lockdown drills, although this body of scholarship has been growing in recent years. Additionally, among the available studies, a smaller proportion were conducted in conjunction with participation in actual drills. Still, of what is available, the research shows promising results.

Procedural Integrity of Drills

As noted, one of the main goals of conducting drills of any type is to build muscle memory. To assess whether this has been accomplished, researchers can evaluate the procedural integrity of the drills. Procedural integrity refers to the number of steps that are correctly completed, which serves as a proxy for skill mastery.

In one of the earliest studies, researchers evaluated the procedural integrity of a lockdown drill conducted with fourth, fifth, and sixth grade students.¹⁴ After receiving training on the procedure, which included both verbal instruction and modeling of the steps and an opportunity to practice with feedback, the students participated in a drill that was observed by the research team. Although all students successfully moved to the safe location in the room, they were not successful in maintaining silence for the duration of the drill, though their volume level did decrease during the practice.

Similarly, in a separate study of kindergarten students who were taught their lockdown procedure using behavioral skills training, a process similar to the previous study, researchers found that participants were able to achieve skill mastery (correctly completing six out of seven of the steps) within seven training sessions.¹⁵ Like the previous study, maintaining silence during the drill proved to be an area in need of attention, though they similarly found decreases in volume over the course of the project.

While both of these studies provide important insight into how skill mastery is achieved through the evaluation of lockdown drills, a limitation of each is that they observed the practices over very short time periods (e.g., single days, over a few weeks). In other words, while students were able to achieve skill mastery, it is unclear whether they were able to maintain it over time.

Our ongoing research, however, helps to offer clarification about the maintenance of skill mastery. This project began the fall after the February 14, 2018, shooting at Marjory Stoneman Douglas High School in Parkland, FL and remains in progress as of the time of this report. Conducted in New York’s fifth largest school district, the project was designed to deliver standardized training to more than 21,000 students and 4,300 administrators, faculty, staff, and embedded community partners over 30 schools. In an analysis of 288 lockdown drills conducted over the project’s first four years,¹⁶ we found that not only was procedural integrity achieved following the introduction of training on the lockdown protocol, but it also was maintained for practices carried out over three additional school years.¹⁷

In our study, drills are conducted in a coordinated manner using a procedure that is standardized across all buildings and practices to ensure consistency.¹⁸ The drills are initiated by the school principal over the building’s intercom system using a prescribed call, which also is repeated over the campus radios as a form of redundancy and to ensure anyone who may be in a location that does not have a PA speaker still receives the call. The research team, partnered with the district’s school security officers, checks each room in the school for compliance on the steps of the practice (locks, lights, out of sight, maintaining silence, not responding to door knocks) and records the outcomes and any notes on drill observation forms.¹⁹ Once all rooms have been checked, the principal is notified and a debrief period is initiated. This allows participants to discuss the drill and ask questions before resuming their regular activities. Feedback is provided to each school based on the data collected, and the school is reassessed in subsequent drills to check that any issues identified have been resolved.

[Figure 2](#) illustrates the procedural integrity for each step of the practice across each of the drills conducted. As indicated, the proportion of doors locked was particularly high prior to training (Drill 1.1) and remained so over the course of the project. The other steps of the procedure—turning off the lights, remaining out of sight and silent, and not answering door knocks—improved significantly after training (Drill 1.2) and remained high over the following three years. Moreover, as highlighted in [Figure 3](#), perfect checks—or the correct completion of all steps of the drill—nearly doubled immediately after training and continued to improve in the years following.

Taken together, these different assessments of the procedural integrity of lockdown drills highlight several important takeaways. First, skill mastery related to the steps of the procedure can be achieved, particularly when paired with instructional training. Second, continued practice of these steps through ongoing drills can serve to maintain the skills that are developed during training.

FIGURE 2. Procedural Integrity of Lockdown Drills by Individual Steps Across Time

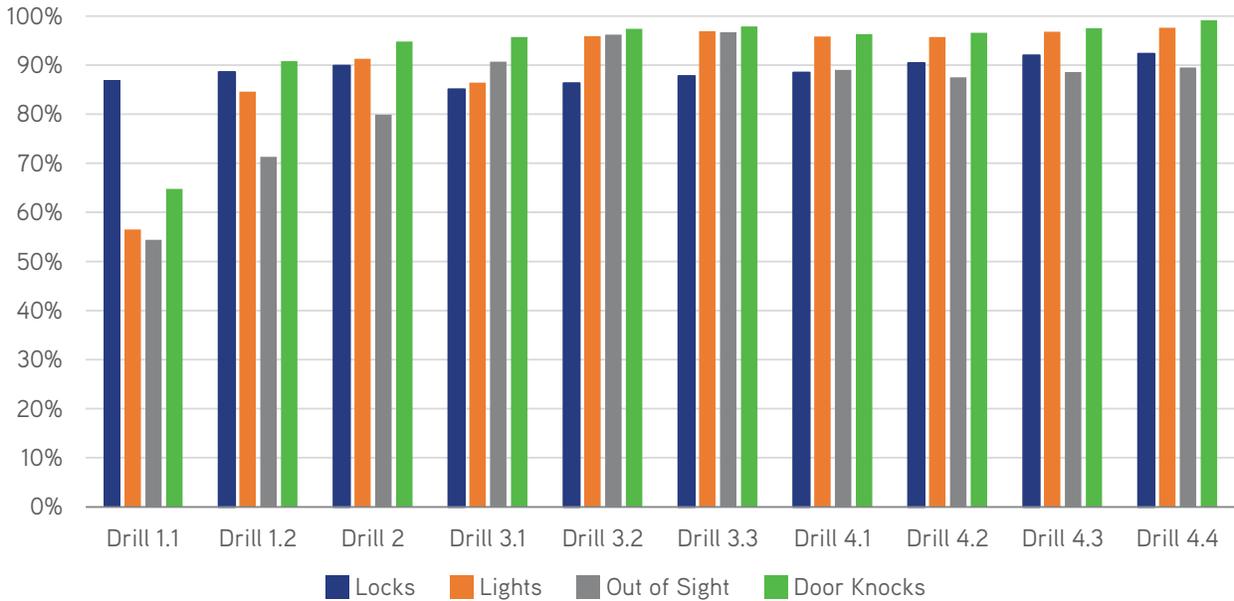
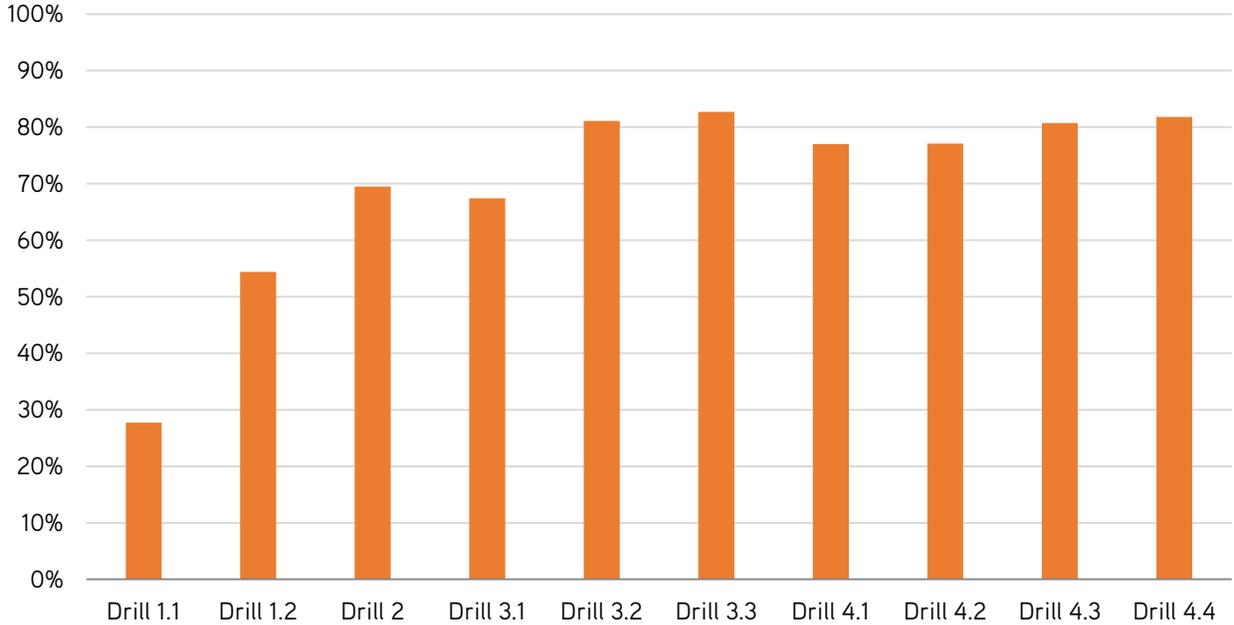


FIGURE 3. Distribution of Rooms with Perfect Checks Across Time



Psychological Impacts of Drills

Concern has been raised that lockdown drills produce a range of negative outcomes, particularly among students, including anxiety, depression, and posttraumatic stress disorder (PTSD).²⁰ The potential for drills to lead to impaired academic performance as well as social, emotional, and/or behavioral problems also has been a cause for concern.²¹

Yet such considerations are not necessarily supported by the scholarly research. Researchers have found, for example, that participating in lockdown drills has led to no change in student anxiety²² or even lower anxiety²³ after the practice as compared to before it. Importantly, one study found that students' perceived well-being (i.e., feeling calm, content, and relaxed) was higher immediately after the drill as compared to a week before it was conducted.²⁴

Other positive outcomes also have been recorded. One study found that students' perceptions of their fear of harm was lower after receiving instructional training and participating in a lockdown drill as compared to baseline (no training or drill) or the practice alone (no training).²⁵ This study also found that perceived risk of a school shooting happening also was lower after the training and drill than time points prior.²⁶

Participating in both instructional training and drills also can help both students²⁷ and staff²⁸ feel more prepared to respond in emergency situations, including those for which lockdowns may be employed. Importantly, when examining outcomes for staff specifically based on their role in the school, the training component has been found to be especially important in building knowledge and skill acquisition among nonteaching staff, who often may not participate in drills.²⁹ For faculty, the training was beneficial in teaching procedures for the situations not regularly practiced for (e.g., lockout, shelter-in-place, and hold-in-place) but did not yield significant differences in the perceptions of preparedness relative to those emergencies for which drills are regularly conducted (e.g., lockdown, evacuation/fire).³⁰ For students, their perceived preparedness improved across all five emergency situations regardless of whether or not they specifically practiced for them.³¹

Research examining perceived school safety related to lockdown drills, however, has provided some mixed results. One study, for example, found that among elementary school students, there was no significant difference in their perceived safety after participating in a lockdown drill as compared to before it.³² Another found that perceived school safety was lower at the end of the academic year after participating in two lockdown drills (one each before and after receiving instructional training) as compared to the start of the year.³³ Given, however, that the same study simultaneously found reported increases in perceived preparedness, the authors concluded that this outcome may be due to protection motivation theory—in order for people to engage in protective behaviors, such as engaging in lockdown drills, and to take the practice

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seriously, they must perceive some type of a risk or threat that the action will work to offset.³⁴

Importantly, the findings of these studies can only be extrapolated to drills that are conducted in accordance with best practices. Such guidance is offered to specifically counteract the potentially negative harmful effects of lockdown drills and includes the following recommendations:³⁵

- Ensure that all practices are announced as a drill so that participants do not think they are in a real-world situation.
- Have teachers and staff model calm behavior for students.
- Avoid the use of any sensorial techniques, such as mock perpetrators, sounds of simulated gunfire, crisis actors, or other props (e.g., fake blood or wounds).
- Include debrief periods at the end of the drill to allow for a review of the practice and an opportunity for students to ask questions and discuss their ideas about how to improve.

When drills are not conducted in accordance with best practices such as these, the opportunity for harm is increased, as evidenced by “drills gone wrong” often highlighted by the media. In Indiana, for example, teachers were physically injured when they were shot with pellet guns during a drill;³⁶ others have developed PTSD as a result of highly sensorial practices.³⁷ Students also have been exposed to many of these sensorial tactics,³⁸ leading to calls to abolish these practices.³⁹

Using Lockdowns in Real-World Events

While debate about the efficacy of lockdown drills abounds, the question then becomes whether these practices translate during real-world events like school mass shootings. While the Sandy Hook Advisory Commission report highlighted that no perpetrator had successfully breached a locked door during their attack, proponents of lockdown drills also point out that in just three school shootings has anyone been killed behind a locked door—and in none of these incidents was it because the door lock had failed.⁴⁰

During the March 20, 2005, attack at Red Lake High School in Red Lake, MN, the perpetrator tried to gain access to one specific classroom.⁴¹ He attempted to breach the door by shooting the lock, but it melted and held. Instead, he was able to make entry by shooting out the window next to the door and entering through the empty frame.

In the September 27, 2006, event at Platte Canyon High School in Bailey, CO, the perpetrator had barricaded in the classroom—behind the locked door—with the students he took hostage.⁴² When the SWAT team breached the classroom door, the perpetrator killed one student before he died in the attack.

And more recently, during the Parkland shooting, six students were killed in three classrooms on the first floor of the impacted building.⁴³ The perpetrator never actually entered a single room, instead shooting through the windows embedded in the classroom doors.^{44, 45}

Despite these losses of life, an untold number of students and staff in each of these schools were physically unharmed during their respective shootings because they were able to successfully engage in a lockdown. In fact, following the November 30, 2021, shooting at Oxford High School in Oxford, MI, students publicly credited lockdowns with saving their lives—even amidst conjecture suggesting such practices were ineffective.⁴⁶

While these case studies do provide important insight into the use of lockdowns during real-world shootings, a more objective empirical assessment is warranted. Our recent research, led by fellow Regional Gun Violence Research Consortium member Emily Greene-Colozzi, examined the use of lockdowns during 498 attempted and completed mass shootings across 561 different sites across the United States, 93 (16 percent) of them schools, between 1966 and 2019.⁴⁷ The results lend further support to the employment of lockdowns during such events: schools that engaged in

locking down experienced 60 percent fewer total casualties and reduced the number of victims pronounced dead at the scene by 79 percent compared with those that did not. Even more encouraging is that the use of lockdowns in noneducational settings, including workplaces, places of worship, malls, entertainment venues, and other public spaces, also saw impact reductions: total casualties and on-scene deaths were reduced by 38 and 37 percent, respectively.

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Translating Research into Policy

While, in the context of offenses known to law enforcement, mass shootings are statistically rare events,⁴⁸ their occurrence both in and out of schools continues to increase in frequency.⁴⁹ This leaves stakeholders, including school administrators, policymakers, and the public, with the arduous task of not only working to prevent such tragedies but also having plans in place to minimize casualties if they do occur. Such a task can only be successfully accomplished by employing solutions based in evidence.

Research shows that the use of lockdowns during real-world shootings can help save lives. The steps of the lockdown help to build both physical distance and time between perpetrators and those they intend to harm, allowing for the crucial minutes and seconds needed for the shooting to be brought to an end.

As with any emergency, having practiced the plan before tragedy strikes increases the likelihood that the steps will be performed correctly, even in very stressful times. As such, it is imperative that schools engage in practicing their plans for all emergencies, which encompasses lockdowns for any threat that may occur within the building—including, but not limited to, mass shootings. It is critical, however, that such drills

be conducted in accordance with best practices. Schools are not set on fire (even by simulation) to practice evacuation drills, so simulating active shooter scenarios is not needed for students and staff to build and maintain their muscle memory. Moreover, research suggests that drills conducted in accordance with best practices may even have positive effects, such as empowering students to feel prepared, which may in turn benefit the overall campus climate.

Based on this up-to-date research, an important next step for policymakers is to ensure that these best practices are incorporated into existing guidance and mandates provided to schools from state education departments. Presently, there is considerable variability in requirements across states, but also within and between districts and even schools within them in respect to how drills are being conducted. Working to standardize procedures further can benefit not only the schools in having a set plan to practice their protocol but also first responders who may assist during a crisis. With school safety continuing to be a priority for all, it is more important than ever to ensure that schools are provided with evidence-based tools to stay safe.



ENDNOTES

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The consortium is part of States for Gun Safety, a multistate coalition that aims to reduce gun violence. Previous analyses include:

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