

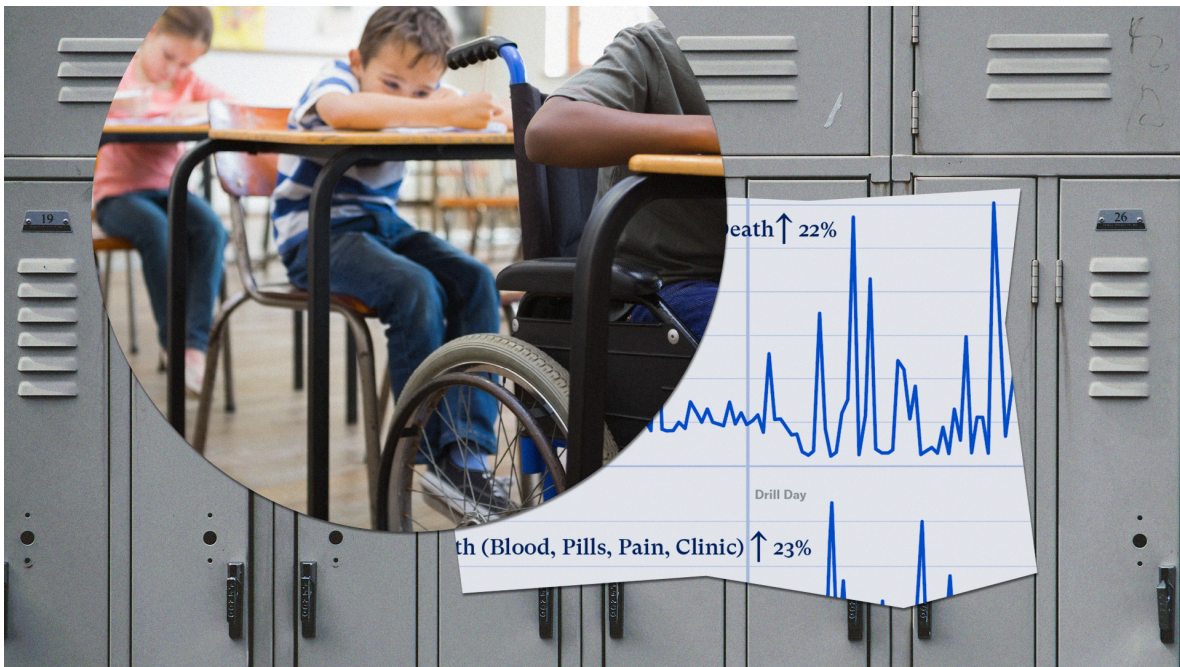


REPORT

# The Impact of Active Shooter Drills in Schools

## Time to Rethink Reactive School Safety Strategies

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# Executive Summary

Active shooter drills are implemented in over 95 percent of American K–12 schools today.<sup>1</sup> While school shootings are relatively rare—accounting for less than 1 percent of the more than 40,000 annual US gun deaths<sup>2</sup>—they instill a deep sense of fear in communities, propelling school systems to “do something” fast.<sup>3</sup> In a series of recent reports,<sup>4</sup> Everytown for Gun Safety Support Fund (Everytown), in partnership with the American Federation of Teachers (AFT) and the National Education Association (NEA), highlighted the importance of proactive school safety planning to intervene before school violence occurs, and outlined a set of concrete recommendations to respond to active shooter incidents. This research concluded that there is almost no research affirming the value of active shooter drills for preventing school shootings or protecting the school community when shootings do occur.<sup>5</sup>

While there is limited proof of the effectiveness of these drills, anecdotal evidence, including many online conversations, increasingly suggests that active shooter drills may be harmful to mental health. In order to examine these concerns using scientific methods, Everytown partnered with Georgia Institute of Technology’s Social Dynamics and Wellbeing Lab (Georgia Tech) to study the immediate and long-term impacts of active shooter drills on the health and wellbeing of students, teachers, and parents.<sup>6</sup>

A large and growing body of research demonstrates that advanced analysis of social media data can unobtrusively inform causal conclusions about the impacts of crises and traumatic events (e.g., wars, community violence, terrorism, and mass shootings) on mental health. In this study, researchers applied these same rigorous big data and psycholinguistic analytic approaches to millions of community conversations occurring over Twitter and Reddit to assess the impacts of active shooter drills in schools. Social media conversations were analyzed for a total of 114 K–12 schools with a focus on activity in the 90 days before and 90 days after school drills occurred.

The results were sobering: Active shooter drills in schools are associated with increases in depression (39%), stress and anxiety (42%), and physiological health problems (23%) overall, including children from as young as five years old up to high schoolers, their parents, and teachers. Concerns over death increased by 22 percent, with words like blood, pain, clinics, and pills becoming a consistent feature of social media posts in school communities in the 90 days after a school drill. These findings

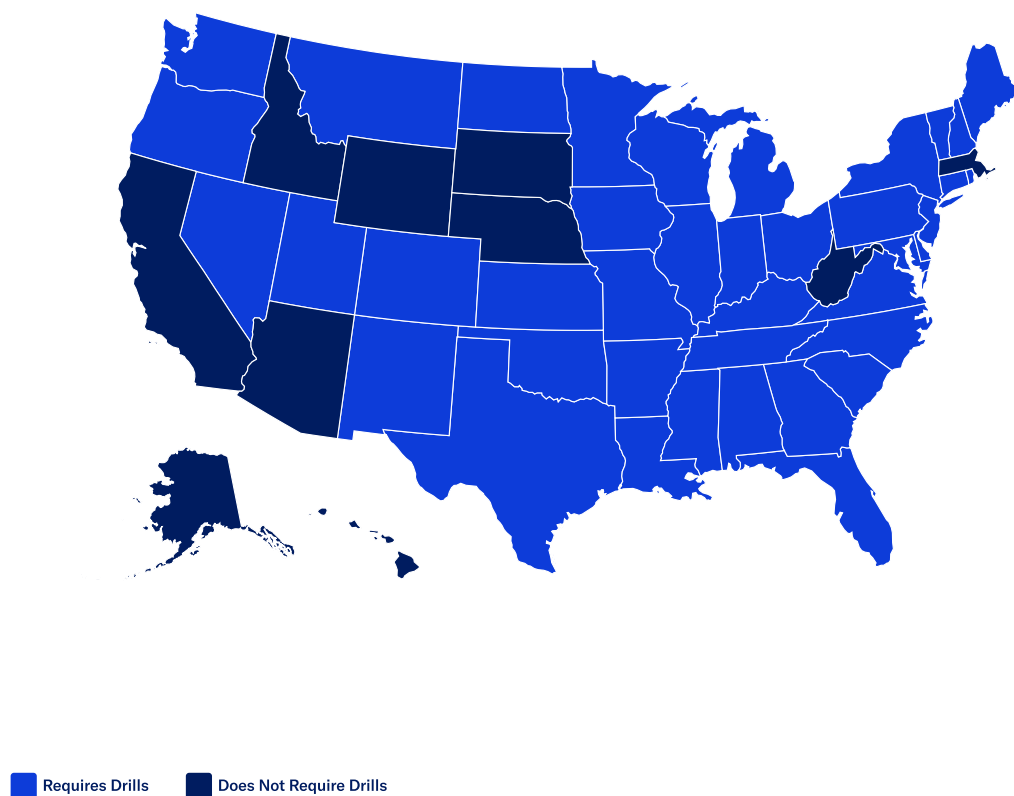
unveil even more reason to pause before rushing toward active shooter drills as a potential solution to school violence, as evidence suggests that they are causing lasting emotional and physical harm to students, teachers, and the larger community.

## Introduction

The United States experiences more school shootings than nearly all other nations.<sup>7</sup> While deaths from school shootings pale in comparison to the overall toll of more than 110 daily gun deaths in the United States,<sup>8</sup> each school incident is tragic and traumatizing for both the local community and the nation as a whole—particularly because schools are intended to be safe spaces for children to grow and learn. So while youth gun homicides and injuries are far more likely to occur in a home,<sup>9</sup> active shooter incidents in schools compel action and advocacy around gun violence prevention.<sup>10</sup> At Everytown, we share this sense of outrage and devastation in response to school shootings, and are committed to leveraging evidence on what works to keep school communities safe.

One prominent school safety strategy is active shooter drills. These drills typically require students and school staff to remain on lockdown in a designated area and practice specific emergency procedures, which often include staying quiet, locking the door, and turning off lights, but can also feature tactics such as fighting back, distracting the shooter, and evacuating.<sup>11</sup> In some instances the drills are unannounced and simulate an actual active shooter event. Since the 1999 Columbine shooting, active shooter drills have proliferated in America's school systems at an exponential rate, with at least 40 states requiring these drills today.<sup>12</sup>

## States that Require School Safety Drills



But for all of their good intentions, active shooter drills are not without controversy. Everytown, AFT, NEA, and other leading researchers and experts have raised questions about these drills' overreliance on preparing for rare events; the feasibility of children retaining the information; increased risk of harm associated with fighting back; risk of counterproductive information-sharing given that many mass school shooters are current or former students of that school; and risk of inducing trauma.<sup>13</sup> These challenges are further compounded by a lack of consistency in drills, with some schools providing advanced parental notification and developmentally

appropriate exercises, and others employing “masked gunmen” actors, simulated gunfire, and failing to inform participants when the drills are over.<sup>14</sup> With for-profit companies charging school districts thousands of dollars for trainings, the active shooter drill industry is part of a school safety industry worth an estimated \$2.7 billion—all in pursuit of a practice that, to date, is not evidence-based.<sup>15</sup>

Current research on active shooter drills in schools is mixed. Given the nature of active shooter incidents, it is nearly impossible to study the direct impacts of drills on safety during these horrific events. Instead, most researchers opt to observe compliance with emergency procedures during drills and learn from surveys of safety and anxiety levels from those involved following the drills. Some of these studies demonstrate significant improvements in students’ abilities to complete emergency protocols (e.g., success in locking doors and turning off lights), while others do not (e.g., challenges with maintaining silence and staying out of sight).<sup>16</sup> Some find that participants report feeling less anxiety and greater preparation immediately following drills, while others find diminished perceptions of school safety and concerns that could-be shooters now know the schools’ response strategies.<sup>17</sup>

Perhaps more troublesome than the current lack of scientific consensus on active shooter drills is the lack of research on long-term consequences and wider community impacts like trauma and mental and physical health impairments. Given that active shooter incidents are rare—with student homicides happening on average just once every 6,000 years in a given school<sup>18</sup>—any potentially common and far-reaching impacts of drills are particularly important to understand, especially as parents, students, educators, and medical professionals express growing concerns.<sup>19</sup>

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*I can tell you personally, just as an educator, we were not okay [after drills]. We were in bathrooms crying, shaking, not sleeping for months. The consensus from my friends and peers is that we are not okay.”*

K-12 teacher

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*“[After drills, kids] think a villain is coming to school and wonder when it’s happening, not if it’s happening”*

K-12 parent

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## The Study

Everytown partnered with Georgia Tech to study changes in social media conversations related to 114 American schools spanning 33 states, 90 days before active shooter drills compared with 90 days after the drills. This included drills in a mix of elementary, middle, and high schools.<sup>20</sup> As described in the accompanying methodological note, well-validated social science techniques establish the relationship between language choices and individuals’ underlying moods, feelings, attitudes, and cognitive and psychological states.<sup>21</sup> For this reason, social media data is increasingly being used to measure health, community engagement, and academic outcomes, especially following traumatic events. Further, researchers have already used this approach to understand the health and wellness impacts of school shooting incidents.<sup>22</sup> In this study, researchers used natural language processing techniques and advanced statistical analyses to understand changes in these conversations, analyzing 27.9 million tweets and 1,454 Reddit posts related to school drills in these 114 schools.

Moms Demand Action for Gun Sense in America and Students Demand Action for Gun Sense in America volunteers identified the dates of lockdown and active shooter drills in K-12 schools in 2018 and 2019. When the analysis was completed, Everytown and Georgia Tech researchers discussed the results with Moms and Students Demand Action volunteers to ensure that the findings mimicked and were informed by their lived experiences.<sup>23</sup>

**WHY STUDY SOCIAL MEDIA DATA?**

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Many Americans—both young and old—utilize social media platforms as an outlet to express their opinions, share their experiences, and cultivate community. Today, computational and social science researchers alike consider social media data a rich source of information on mental health and human behavior. Using various psycholinguistic lexicons that allow researchers to characterize Twitter and Reddit posts into various attributes and compare language used before and after the drills, researchers were able to quantify hard-to-observe mental health impacts, assess whether they are sustained over long periods of time, and draw conclusions that are observed consistently across different schools, drills, geographic locations, and communities.

## Key Findings

### Mental Health

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## Tweets

my kindergartener was stuck in the bathroom, alone, during a drill and spent a year in therapy for extreme anxiety. in a new school even, she still has to use the bathroom in the nurses office because she has ptsd from that event.

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i hate that my adult children have so much anxiety. i wonder if “active shooter drills” since kindergarten, have something to do with that?

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when people try to tell me i’m stressed due to not smiling. i start thinking damn being on lockdown now that’s stressful. this is nothing!

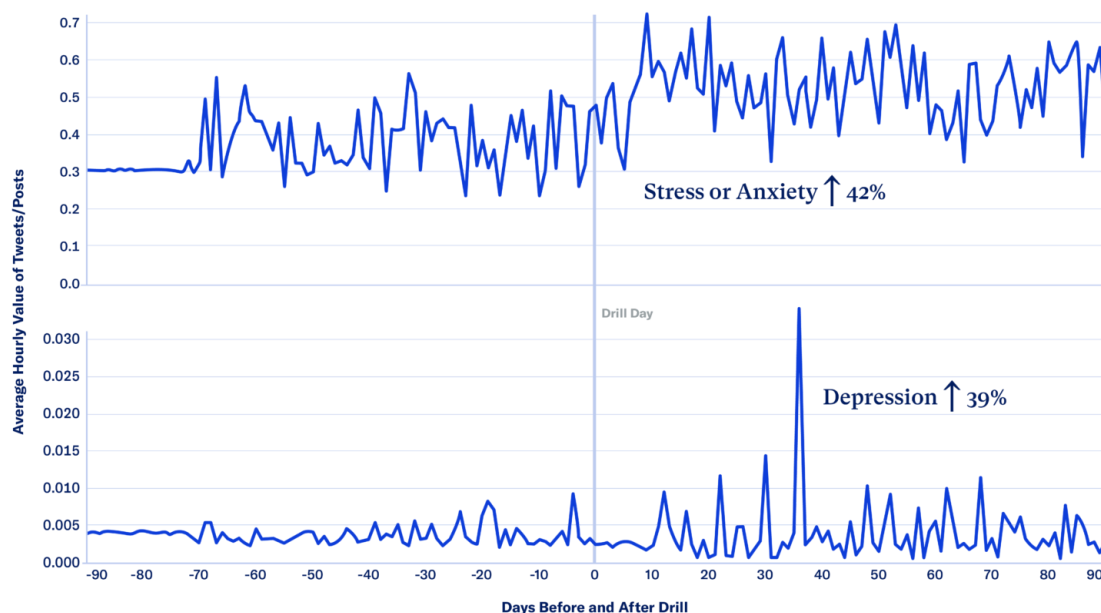
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This research unveiled alarming impacts of active shooter drills on the mental health of the students, teachers, and parents who experience them. In their current state, active shooter drills threaten the wellbeing of entire school communities over prolonged periods of time, leaving those who are affected in need of continued support to process their aftermath.

Using machine-learning psychological affect classifiers informed by prior research, this study aggregated and analyzed the sentiments expressed through millions of tweets and more than 1,000 Reddit posts. Results revealed that social media posts displayed a 42 percent increase in anxiety and stress from pre- to post-drills (as evidenced by an increase in such words as *afraid*, *struggling*, and *nervous*) and a 39 percent increase in depression (evidenced by words such as *therapy*, *cope*, *irritability*,



*suicidal*) following drills. This trend was sustained at least 90 days following drills and spanned diverse school districts and drill tactics. Individuals expressed more social and personal concerns (e.g., there was a 33 percent increase in concerns about friends, a 14 percent increase in concerns about social situations, and a 108 percent increase in concerns about work), fewer positive sentiments, and more requests for help following drills as well.



Everytown and Georgia Tech's study further suggests that active shooter drills significantly impact mental health, regardless of whether they are implemented in elementary, middle, or high schools. However, each school level faces unique challenges. Stress and anxiety are highest among high school communities in the 90 days following drills (52 percent increase), while depression levels remain consistent with this age group. Middle school students, parents, and teachers experience the greatest increase in depression (55 percent), though stress and anxiety levels increase following drills as well (48 percent). Elementary school communities experience significant increases in stress and anxiety (28 percent) and depression (30 percent), though these impacts are less dramatic than those observed in middle and high schools.

These differences may reflect the reality that the majority (74 percent) of gunfire on school grounds occurs on high school or college campuses.<sup>24</sup> For high school communities, drills may induce stress and anxiety over the potential reality of active shooter incidents occurring; for middle school communities, they may induce a sense of hopelessness for what future educational experiences might entail; and for elementary school communities—here, parents and teachers, as students are likely too young to meaningfully participate in social media—drills may be upsetting in their own right, but impact mental health slightly less because active shooter incidents themselves happen less frequently here. Regardless of education level, active shooter drills appear to induce multiple mental health concerns within still-developing children and teens—a pattern that stands to greatly impact the next generation’s psychological wellbeing for years to come.

## Physical Health

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## Tweets

Active Shooter Drill Leaves Teachers Injured. This is crazy. The NRA wants us to live with this reality. They want to knowingly sell guns to killers as it is good for business. This is not ok.

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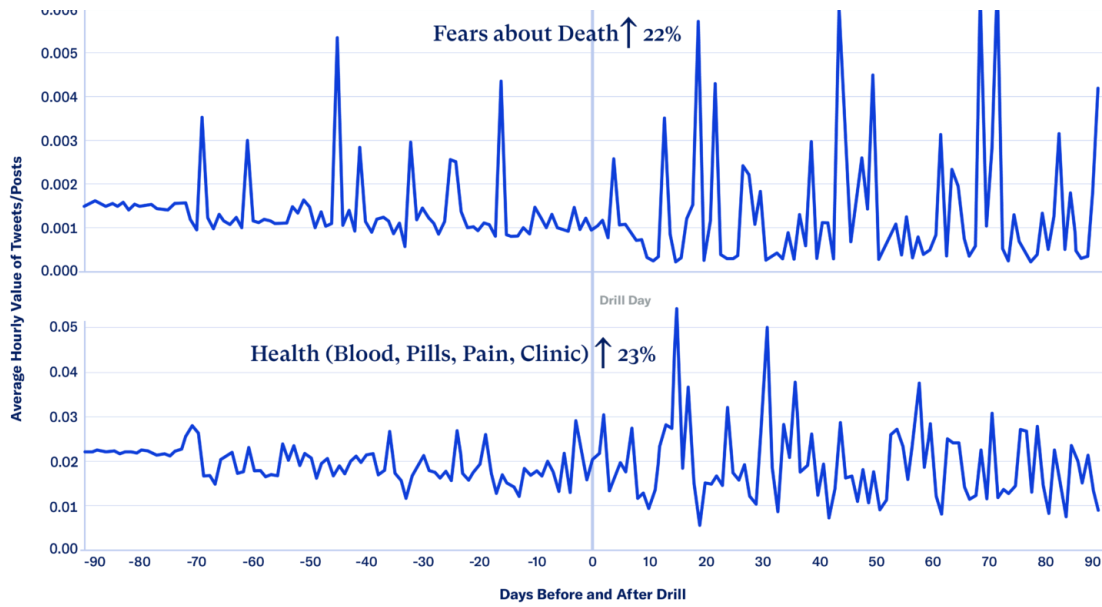
dear hospital, if you ever plan to simulate #nurses in an active shooter drill like these poor teachers, please mark me as non-compliant! teachers injured in active shooter drill after being shot with plastic pellets 'execution style'

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The students didn't know. every day, K-12 kids experience active shooter drills . . . how many minutes of your child fearing imminent death is tolerable to you?

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This study suggests that physical health may be significantly impacted by active shooter drills in schools as well. In the 90 days following a drill, concerns over health increased by 23 percent and concerns over death increased by 22 percent. The analysis revealed words like *blood*, *pain*, *clinics*, and *pills* came up with jarring frequency, suggesting that drills may have a direct impact on participants' physical health or, at the very least, made it a persistent topic of concern. In this way, active shooter drills in schools may be driving yet another troublesome shift within America's youth, whereby children and teens are confronted with their own mortality at a much younger age and much more often than they were in the past, when drills were less commonplace. This reality may ultimately have lifelong impacts on a new generation's health and wellbeing—a reality that we may not grasp fully until years from now.



## Community Outcomes

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## Tweets

have sent these texts in lockdowns with my own family- once 3 days after sandy hook . . . my kids are the #lockdowngeneration and i am done. i want my politicians rated f for fearless or they won't get my vote

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being put on lockdown does nothing if the threat is already in the school. #wewontwait for schools to be threatened before our legislators do something to protect us. why should we worry about our school being next

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Coupled with the above physical and mental health impacts, active shooter drills in schools also appear to spark a period of reflection on guns in schools and planning for the future. In the 90 days following drills, research suggests that online conversations feature significantly more words that show attempts to make sense of why something occurred, references to the past and what will happen in the future, and reflections on the experience itself and what feelings it evoked. This interpretation is derived from social media posts with more complex arguments that are rich with many details and more attributions, temporal references, and perceptions. It also includes a considerable increase in cursing.

Despite, or perhaps in response to, the harmful impacts described above, Everytown and Georgia Tech's study suggests that active shooter drills in schools may fuel collective action and community advocacy. This trend is evidenced through an increased focus on others' wellbeing (i.e., a 10 percent increase in third-person terms such as *they*) and actions taken together as a community (i.e., a 48 percent increase in first-person-plural terms such as *we*) in social media posts following drills. This

finding rings true with the growth and increasing involvement of Moms and Students Demand Action groups in school safety, for example, and the trend whereby school shooting incidents and the fear that surrounds them propels many to join the broader movement of gun violence prevention.

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*[After a drill, my kindergarten son told me,] ‘Mom, I was really worried though, because the [classroom] baby chickens will chirp and tell the bad man that we’re in there . . .’ I started bawling . . . that was one of the reasons I joined Moms Demand Action, because my son shouldn’t be worried about the chickens telling the bad man where he is.”*

K-12 parent

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## Recommendations

This study contributes to the evidence that active shooter drills in schools can deeply harm the mental and physical outcomes of students and the communities that support them. It echoes and adds statistical support to the lived experiences of so many Americans who are outraged by inconsistent, unregulated, and oftentimes traumatizing drills. **In the absence of any conclusive evidence on drills’ effectiveness at ensuring safety during actual active shooter incidents, Everytown urges school decisionmakers to assess whether the potential but unproven benefits of these drills outweigh their known collateral consequences.**

Importantly, there is a strong body of research on the value of proactive school safety measures, such as threat assessment programs, access to mental health professionals and social support, and non-punitive disciplinary processes, coupled with common-sense gun laws and practices like secure storage to ensure that guns are not easily accessible in order to reduce a school’s risk of experiencing gun violence and mass shootings.<sup>25</sup> Everytown’s *Keeping Our Schools Safe* report provides actionable steps that school systems and community members can take to implement these best

practices. **In light of this study's findings, Everytown strongly encourages school systems to prioritize these proven school safety strategies above active shooter drills.**

As outlined in Everytown's *Impact of School Safety Drills for Active Shootings* report, the organization, along with AFT and NEA, supports trauma-informed trainings for school staff on how to respond to active shooter situations.<sup>26</sup> This research further emphasizes, however, the importance of excluding students from these trainings. Given their unique developmental stage and mounting evidence of the various harms inflicted and sustained following these drills, this is now even more apparent. Everytown, along with AFT and NEA, do not recommend drills for students. If a school does implement active shooter drills for students, Everytown, AFT, and NEA's previous report outlines six still salient recommendations:

- 1 Drills should not include simulations that mimic an actual incident;
- 2 Parents should have advance notice of drills;
- 3 Drills should be announced to students and educators prior to the start;
- 4 Schools should create age and developmentally appropriate drill content with the involvement of school personnel, including school-based mental health professionals;
- 5 Schools should couple drills with trauma-informed approaches to address students' wellbeing both during the drills, and over a sustained period thereafter; and
- 6 Schools should track data about the efficacy and effects of drills.<sup>27</sup>

Comprehensive school safety plans require far more than periodic active shooter drills. In fact, it is becoming increasingly apparent that these drills may not even be an essential part of the equation, as they appear to cause unintended but serious harm to participants and the broader community, whereas alternative, proactive school safety measures risk none of these repercussions and boast a far stronger evidence-base.<sup>28</sup> More important is developing a supportive and nurturing school

environment; being aware of and attentive to warning signs of potential violence; and passing and enforcing policies such as background checks on all gun sales, Extreme Risk laws, and secure gun storage laws, which prevent prospective shooters from getting their hands on a gun. Community conversations that gather the perspectives of parents and other stakeholders offer another best practice for developing specific strategies to achieve these goals in ways that are responsive to local needs and resources. In the absence of more conclusive research on active shooter drills' efficacy, school systems should assess the known risks of these drills, and prioritize proactive school safety measures such as these wherever possible.

## METHODOLOGICAL NOTE

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**ACTIVE SHOOTER DRILLS IN  
SCHOOLS: METHODOLOGICAL  
NOTE**

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**Methodological Note**

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*Everytown Research & Policy is a program of Everytown for Gun Safety Support Fund, an independent, non-partisan organization dedicated to understanding and reducing gun violence. Everytown Research & Policy works to do so by conducting methodologically rigorous research, supporting evidence-based policies, and communicating this knowledge to the American public.*

<sup>1</sup> Lauren Musu-Gillette et al., "Indicators of School Crime and Safety: 2017" (US Department of Education, National Center for Education Statistics, Institute of Education Sciences and US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, March 2018), <https://bit.ly/316yqpS>.



<sup>2</sup> Everytown for Gun Safety Support Fund, “Gunfire on School Grounds in the United States,” accessed January 22, 2021, <https://everytownresearch.org/gunfire-in-school/>; Centers for Disease Control and Prevention, National Center for Health Statistics. WONDER Online Database, Underlying Cause of Death. A yearly average was developed using five years of the most recent available data: 2016 to 2020.

<sup>3</sup> Cheryl Lero Jonson, “Preventing School Shootings: The Effectiveness of Safety Measures,” *Victims & Offenders* 12, no. 6 (2017): 956–73, <https://doi.org/10.1080/15564886.2017.1307293>.

<sup>4</sup> Everytown for Gun Safety Support Fund, American Federation of Teachers, and National Education Association, “Keeping Our Schools Safe: A Plan for Preventing Mass Shootings and Ending All Gun Violence in American Schools,” 2020, <https://everytownresearch.org/school-safety-plan>; Everytown for Gun Safety Support Fund, “The Impact of School Safety Drills for Active Shootings,” February 11, 2020, <https://everytownresearch.org/school-safety-drills/>.

<sup>5</sup> American Federation of Teachers, “AFT Resolution: Opposition to Active Shooter Drills,” (2020), <https://bit.ly/327G7Nr>; American Federation of Teachers, “AFT Delegates Pass a Raft of Bold, Progressive Resolutions,” press release, July 30, 2020, <https://bit.ly/3iOUvB0>.

<sup>6</sup> ElSherief, M., Saha, K., Gupta, P. et al. Impacts of school shooter drills on the psychological well-being of American K-12 school communities: a social media study. *Humanit Soc Sci Commun* 8, 315 (2021). <https://doi.org/10.1057/s41599-021-00993-6>.

<sup>7</sup> Chip Grabow and Lisa Rose, “The US Has Had 57 Times as Many School Shootings as the Other Major Industrialized Nations Combined,” *CNN*, May 21, 2018, <https://cnn.it/2YJVYQI>.

<sup>8</sup> Centers for Disease Control and Prevention, National Center for Health Statistics. WONDER Online Database, Underlying Cause of Death. A yearly average was developed using five years of the most recent available data: 2016 to 2020.

<sup>9</sup> Katherine A. Fowler et al., “Childhood Firearm Injuries in the United States,” *Pediatrics* 140, no. 1 (2017), <https://doi.org/10.1542/peds.2016-3486>; Everytown for Gun Safety Support Fund, “The Impact of Gun Violence on Children and Teens,” May 29, 2019, <https://everytownresearch.org/impact-gun-violence-american-children-teens/>.

<sup>10</sup> Jonson, “Preventing School Shootings.”

<sup>11</sup> Musu-Gillette et al., “Indicators of School Crime”; Jonson, “Preventing School Shootings”; Sylvia Varnham O’Regan, “The Company Behind America’s Scariest School Shooter Drills,” *The Trace*, December 13, 2019, <https://bit.ly/2ShyINg>; Lauren Rygg, “School Shooting Simulations: At What Point Does Preparation Become More Harmful than Helpful,” *Children’s Legal Rights Journal* 35 (2015): 215, <https://bit.ly/2EaG77o>.

<sup>12</sup> Everytown survey of state laws. Everytown considered only state statutes and counted only those that explicitly required non-fire or natural disaster drills likely targeted an active shooter emergency. Data suggests that only 40 percent of American public schools implemented lockdown drills in the 2005-2006 school year; this increased to 95 percent by the 2015-2016 school year. Kacey Lee Nolle, Paul Guerino, and Rachel Dinkes, “Crime, Violence, Discipline, and Safety in US Public Schools: Findings from the School Survey on Crime and Safety: 2005-06” (US Department of Education, National Center for Education Statistics, Institute of Education Sciences, September 2007), <https://bit.ly/36J5hSW>; Musu-Gillette et al., “Indicators of School Crime.”

<sup>13</sup> Lulu Garcia-Navarro, Sophia Alvarez Boyd, and James Doubek, “Experts Worry Active Shooter Drills in Schools Could Be Traumatic for Students,” *NPR*, November 10, 2019, <https://n.pr/2GFX3Ag>; Elizabeth Chuck, “Active Shooter Drills Are Scaring Kids and May Not Protect Them. Some Schools Are Taking a New Approach,” *NBC*, April 14, 2019, <https://nbcnews.to/2SHMDWO>; Jillian Peterson and James Densley, “What School Shooters Have in Common,” *Education Week*, October 8, 2019, <https://bit.ly/3iW5fxu>; Everytown for Gun Safety Support Fund, “Impact of School Safety Drills.”

<sup>14</sup> Everytown for Gun Safety Support Fund, “Impact of School Safety Drills.”

<sup>15</sup> O’Regan, “Company Behind Scariest Drills”; Everytown for Gun Safety Support Fund, “Impact of School Safety Drills.”

<sup>16</sup> Misty Jo Dickson and Kristina K. Vargo, “Training Kindergarten Students Lockdown Drill Procedures Using Behavioral Skills Training,” *Journal of Applied Behavior Analysis* 50, no. 2 (April 1, 2017): 407-12, <https://doi.org/10.1002/jaba.369>; Jaclyn Schildkraut and Amanda B. Nickerson, “Ready to Respond: Effects of Lockdown Drills and Training on School Emergency Preparedness,” *Victims & Offenders* 15, no. 5 (2020): 619-638, <https://doi.org/10.1080/15564886.2020.1749199>.

<sup>17</sup> Elizabeth J. Zhe and Amanda B. Nickerson, “Effects of an Intruder Crisis Drill on Children’s Knowledge, Anxiety, and Perceptions of School Safety,” *School Psychology*

Review 36, no. 3 (2007): 501–8, <https://doi.org/10.1080/02796015.2007.12087936>; Jaclyn Schildkraut, Amanda B. Nicerkson, and Thomas Ristoff, “Locks, Lights, Out of Sight: Assessing Students’ Perceptions of Emergency Preparedness across Multiple Lockdown Drills,” *Journal of School Violence* 19, no. 1 (2019): 93–106, <https://doi.org/10.1080/15388220.2019.1703720>; Schildkraut and Nickerson, “Ready to Respond”; Jillian K. Peterson and James A. Densley, “The Violence Project Database of Mass Shootings in the United States, 1966–2019” (The Violence Project, November 2019), <https://www.theviolenceproject.org/>.

<sup>18</sup> Dewey Cornell, “Our Schools Are Safe: Challenging the Misperception That Schools Are Dangerous Places,” *American Journal of Orthopsychiatry* 85, no. 3 (2015): 217–20, <https://doi.org/10.1037/ort0000064>.

<sup>19</sup> Elizabeth Williamson, “When Active-Shooter Drills Scare the Children They Hope to Protect,” *New York Times*, September 4, 2019, <https://nyti.ms/2tS5JB2>.

<sup>20</sup> ElSherief, M., Saha, K., Gupta, P. et al. Impacts of school shooter drills on the psychological well-being of American K-12 school communities: a social media study. *Humanit Soc Sci Commun* 8, 315 (2021). <https://doi.org/10.1057/s41599-021-00993-6>

<sup>21</sup> To learn more about the research methodology and statistical analysis involved in this research project, see “METHODOLOGICAL NOTE: Impacts of Active Shooter Drills in Schools: Time to Rethink Reactive School Safety Strategies.”

<sup>22</sup> Koustuv Saha and Munmun De Choudhury, “Modeling Stress with Social Media Around Incidents of Gun Violence on College Campuses,” *Proceedings of the ACM on Human-Computer Interaction* 1, no. 2 (December 2017): 92:1–92:27, <https://doi.org/10.1145/3134727>; Mark, Gloria, Mossaab Bagdouri, Leysia Palen, James Martin, Ban Al-Ani, and Kenneth Anderson. “Blogs as a Collective War Diary.” In *Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work*, 37–46. CSCW ’12. New York, NY, USA: Association for Computing Machinery, 2012. <https://doi.org/10.1145/2145204.2145215>; De Choudhury, Munmun, Andrés Monroy-Hernández, and Gloria Mark. “‘Narco’ Emotions: Affect and Desensitization in Social Media during the Mexican Drug War.” *Proceedings of the 32nd Annual ACM Conference on Human Factors in Computing Systems*, CHI ’14, 2014, 3563–72. <https://doi.org/10.1145/2556288.2557197>; Saha, Koustuv, and Munmun De Choudhury. “Modeling Stress with Social Media Around Incidents of Gun Violence on College Campuses.” *Proceedings of the ACM on Human-Computer Interaction* 1, no. 2 (December 2017): 92:1–92:27. <https://doi.org/10.1145/3134727>; Hoffman, Yaakov. “Who is afraid of isis? isis anxiety and its correlates.” *Stress and Health*, 34, no. 1 (June

2018): 84– 92. <https://doi.org/10.1002/smi.2764>; Glasgow, Kimberly, Clayton Fink, and Jordan Boyd-Graber. “‘Our Grief Is Unspeakable’: Automatically Measuring the Community Impact of a Tragedy.” *ICWSM*. (2014): 161-169; Jones, Nickolas, Rebecca Thompson, Christine Schetter, and Roxane Silver. “Distress and Rumor Exposure on Social Media during a Campus Lockdown.” *Proceedings of the National Academy of Sciences* 114, no. 44 (2017): 11663–68; Lin, Yu-Ru, and Drew Margolin. “The Ripple of Fear, Sympathy and Solidarity during the Boston Bombings.” *EPJ Data Science* 3, no. 1 (2014): 31. <https://doi.org/10.1140/epjds/s13688-014-0031-z>.

<sup>23</sup> Moms and Students Demand Action volunteers were vital to identifying an initial pool of dates and communities where drills occurred. Data analyzed in this study, however, is not linked to Moms or Students Demand Action. To learn more, please see “METHODODOLOGICAL NOTE”.

<sup>24</sup> Everytown for Gun Safety Support Fund, “Gunfire on School Grounds.”

<sup>25</sup> Everytown for Gun Safety Support Fund, American Federation of Teachers, and National Education Association, “Keeping Our Schools Safe”; Dewey Cornell et al., “Student Threat Assessment as a Standard School Safety Practice: Results from a Statewide Implementation Study,” *School Psychology Quarterly* 33, no. 2 (2018): 213–22, <https://doi.org/10.1037/spq0000220>; David P. Hurford et al., “The Role of School Climate in School Violence: A Validity Study of a Web-Based School Violence Survey,” *Journal of Educational Research & Policy Studies* 10, no. 1 (2010): 51–77, <https://eric.ed.gov/?id=EJ930165>; National Association of School Psychologists, “Preventing Mass Violence Requires Access to Mental Health Services and Reduced Inappropriate Access to Firearms,” *Press Release*, February 15, 2018, <https://bit.ly/2w6VpFX>; United States Government Accountability Office, “K-12 Education Characteristics of School Shootings: Report to Congressional Requesters,” June 2020, <https://bit.ly/2YhJX5z>.

<sup>26</sup> Everytown for Gun Safety Support Fund, American Federation of Teachers, and National Education Association, “Keeping Our Schools Safe.”

<sup>27</sup> Everytown for Gun Safety Support Fund, American Federation of Teachers, and National Education Association, “Keeping Our Schools Safe.”

<sup>28</sup> To learn more about evidence-based proactive school safety measures, see: Everytown for Gun Safety Support Fund, American Federation of Teachers, and National Education Association, “Keeping Our Schools Safe.”