After a summer marked by numerous deadly mass shootings across the US—in California, Texas, and Ohio—children returned to schools where active shooter drills from preschool through twelfth grade have become the norm. In fact 97 percent of school districts practice regular lockdown drills. Some schools distribute buckets for children to
use the bathroom during a school lockdown, and sharpie pens to teachers—not to grade papers or to make art, but to mark the time a tourniquet is applied to a bleeding limb during a school shooting. Alarmingly, there has been a recent surge in sales of bulletproof backpacks.

From 2009 to 2019, at least 177 schools in the US experienced shootings where one or more people other than the perpetrator was shot. These shootings have occurred across diverse community settings and are on the rise. Although urban schools and black and Hispanic students are more likely to experience school violence, school mass shootings are more likely to occur in predominantly white suburban schools. Between 2009 and 2018, there were 114 deaths and 214 injuries in kindergarten to twelfth grade schools. Many more children, school staff, and caregivers were traumatized by these events; the true impacts of which remain to be seen.

School mass shootings represent a serious threat to our children, teachers, and staff, and to the broader communities in which they are situated. The effects of these attacks are devastating for survivors, families of victims, communities that have lost loved ones, and first responders. Schools are anchor institutions in most communities; school mass shootings, therefore, diminish a community’s sense of security and well-being.

School mass shootings are one type of mass casualty incident (MCI), defined as incidents that can overwhelm local health system resources. Other MCIs have a variety of causes, including the natural disasters that impact many US communities annually. Similar to addressing other MCIs, effectively managing the risk of school mass shootings involves drawing from evidence-based practices along the prevention, preparedness, response, and recovery continuum.

Prevention is the surest way to reduce the likelihood of school mass shootings. However, given the nation’s lack of progress in reducing their frequency, we must develop and implement better ways to identify and disrupt attacks in various stages of planning, and to effectively prepare for, respond to, and recover from attacks that are not prevented. Approaching school shootings along this continuum creates a holistic model to identify and bring critical resources to address this devastating problem.

Fortunately, there are a number of evidence-based strategies and protocols—based on cross-sector literature and reviews of past incidents—that stakeholders can use to better identify threats and prevent incidents before they occur; prepare for and respond to incidents more effectively; and help communities recover from these horrific attacks. For these strategies to be effective, schools, first responders (including law enforcement, fire,
and emergency medical services), mental health and public health agencies, and others must break out of their traditional organizational silos.

This includes better linking the preparedness and response efforts of law enforcement and the pre-hospital sector with organizations engaged in upstream prevention/disruption of attacks, as well as those involved in long-term post-incident recovery. Identifying cross-cutting solutions along this continuum through collaborative efforts by multidisciplinary coalitions is critical to addressing the growing crisis on school campuses across the US (see exhibit 1).

**Exhibit 1: School mass casualty incident emergency management continuum**

![School Mass Casualty Incident Emergency Management Continuum](source: Authors’ analysis)

**Identifying And Disrupting School Shootings**

Research by the National Police Foundation’s Center for Mass Violence Response Studies (CMVRS) shows that the overwhelming majority of school attackers discussed their plans with others (such as peers). According to an analysis of data in the CMVRS
Averted School Violence database, training students, staff, and parents to recognize warning signs and provide timely information can help prevent school mass shootings from occurring. Once identified, individuals demonstrating a threat of violence must be referred to law enforcement, who can take appropriate actions to protect the school community, the threatening individual(s), and others who may be at risk.

One evidence-based approach for identifying at-risk individuals is through behavioral threat assessments. Multidisciplinary assessment teams are staffed with well-trained personnel who can assess and investigate potential threats, educate students and staff to recognize warning signs, and provide guidance on how to report their concerns. These activities were identified as highly important in numerous school shooting after-action reports. Behavioral threat assessments demonstrate how cross-silo integration is key, as such approaches function best when there is open and safe communication of risk factors through multiple channels among school staff, faculty, and students.

Using evidence-based anonymous reporting systems, such as the Averted School Violence database and Safe2Tell, to inform policies and identify successful interventions can be the difference between completed and averted attacks. But even in the best of circumstances, prevention is only part of the answer. Schools must also be equipped to respond and recover if a school shooting occurs.

Harnessing The Power Of Preparedness

Research, including a study conducted by the RAND Corporation on health care system responses to three large MCIs in the US between 2013 and 2015, provides some lessons on the importance of coordination among various responding groups. First, cross-training of medical and nonmedical first responders for MCIs is critical. All first responders should be trained in scene safety, evacuation, bystander management, field triage, and medical techniques such as effective application of tourniquets. In many communities across the US, law enforcement and firefighters are trained in basic lifesaving skills in non-MCI contexts—for example, administering cardiopulmonary resuscitation (CPR), using automated electronic defibrillators, and applying a tourniquet.

Responders need opportunities to practice working together under conditions that simulate the complexity and stress of real events, which can help each group understand how their actions contribute to an integrated, multidisciplinary response. Schools should conduct districtwide interdisciplinary active shooter drills that include school staff, students, emergency medical services (EMS), fire, and police, as well as area hospitals. Where possible, this should include adding no-notice components to simulate the sudden onset of school shooting events. Including students and school staff in these
First responder communication systems are essential to an effective response to school mass shootings, as they are with all MCIs. Emergency call takers and 911 dispatchers play important roles in providing immediate life-saving instructions to victims (for example, CPR, control of bleeding), facilitating the deployment of first responders to the scene of the incident, providing situational awareness, and relaying valuable information. All first-responder agencies share responsibility for ensuring that there are communication systems that support the collective response during incidents that require multidisciplinary collaboration, such as school mass shootings. Also, responders can be trained to rely on text messaging, which worked when voice communication did not (for example, due to system overload) during the events studied by RAND.

Finally, one of the most critical components of an effective multidisciplinary response is having established strong relationships and trust prior to an event. As noted above, regular school mass shooting drills can help, but they must be supported by leaders and organizational cultures. Moreover, given the frequent role of bystanders in MCIs, including school shootings, professional responders should reach out to community emergency response teams and other relevant organizations. This can help increase student and school staff awareness of basic lifesaving techniques. For example, the National Center for Disaster Medicine and Public Health has been funded by the Department of Homeland Security to train students on how to tend to traumatic injuries and stop severe bleeding until first responders arrive on the scene.

Implementing these and other best practices in preparedness increases the likelihood of a timely and effective response that can save more lives.

Responding To The Scene Of A School Mass Shooting

According to an FBI study of active shooter incidents in the US, 69.8 percent of 63 incidents ended in five minutes or less, leaving little time to implement even the best response plans and often requiring quick thinking and improvisation. Thus, teachers, staff, and students, as well as first responders, must become familiar with the initial signs of a school mass shooting so they can immediately react. This involves quickly gathering and processing information, under conditions of great stress and high uncertainty, to properly identify alternative courses of action and assess which actions are best suited for the situation. Prior to the arrival of law enforcement, school officials must act swiftly to initiate active shooter response protocols that have been developed and exercised in advance. These protocols are usually outside the skillsets of school
personnel and students, highlighting the importance of collaboration and advance drills with first responders.

Emergency notification and alert systems should be activated so all individuals on the campus understand the incident is real and take appropriate actions to protect themselves and others. Advances in technology will continue to make possible more unified digital responses, such as school-based apps that provide notifications and situation updates. For example, Titan HST, a two-way emergency mass communication platform, offers users mesh networking that creates an ad hoc network when cell service or WiFi is down or overloaded; it also offers augmented reality to help people navigate locations with limited visibility and SOS buttons that can precisely locate individuals.

School mass shootings often pose challenges that lie outside the routine skillset not only of school personnel but also of many law enforcement officers. While significant emphasis has been placed on training tactical units to respond to mass shootings, patrol and other non-tactical officers are often first on scene, and their actions greatly impact the outcome of the event. In San Bernardino, California; Orlando, Florida; and Dayton, Ohio; the first officers to arrive on scene immediately took decisive action to “stop the killing and stop the dying.” Therefore, patrol personnel must be properly trained and equipped (for example, with ballistic helmets and vests, rifles, and trauma kits) to respond.

It should also be noted that there are significant differences among emergency response protocols as they pertain to school emergencies, which, if not carefully delineated and practiced, create opportunities for confusion among students, teachers, and staff. For example, fire drills call for teachers and staff to gather their students and proceed out of the building in an organized manner with no one left behind. On the other hand, active shooter drills call for immediate lockdown of classrooms, which are not to be opened, once secured, until law enforcement arrives and escorts teachers and students to safety. To this point, it is recommended that plain language, not codes, be used to communicate the nature of the emergency so that teachers and students take the appropriate actions.

As soon as possible, responding agencies should establish unified incident command, bringing all agencies together to coordinate and manage the response as well as the aftermath. Appropriate school administrators should be included in the unified command to assist first responders with family reunification, community messaging, and crime scene investigation.

On The Road To Recovery
The impacts of school mass shootings continue long after the lights and sirens are gone and the survivors have been discharged from the hospital. Sadly, this was demonstrated recently by the suicides of two students from Marjory Stoneman Douglas High School in Florida within days of the one-year anniversary of the attack. Other survivors (not just individuals on scene but caregivers, friends, family, and community members affected by the event) may suffer from post-traumatic stress disorder (PTSD), anxiety, depression, and survivor’s guilt. These “invisible wounds” often persist or emerge long after the physical signs of trauma have subsided, as they do with soldiers returning from war; they require coordinated and sustained action over a longer period of time.

There are evidence-based approaches to identifying and treating PTSD and other mental health consequences of school mass shootings. Identifying individuals in need and providing treatment requires close partnerships among health care providers, teachers, employers, caregivers, clergy, and others in the community who interact with affected individuals regularly. Students must be informed of ways in which their peers may exhibit signs or symptoms of these invisible wounds and how to get help if needed.

These approaches require sustained resources and commitment from institutional leaders and the cultivation of “community champions” to foster and maintain connections across key community partners. Schools are often logical “hubs” for such services but can rarely provide needed services without a wide range of partners and external resources. Indeed, researchers at RAND found that recovery from traumatic events requires coordinated action by all sectors and levels of a community, including individuals, nonprofit or nongovernmental organizations, government, businesses, and other private entities.

National and local policy makers and the media can provide support in this stage by highlighting the long-term nature of post-incident recovery. Furthermore, policy makers can provide funding and support for research and dissemination of best practices, which can empower communities impacted by school mass shootings to not only recover but to heal.

A Path Forward

Past incidents suggest that the effects of school mass shootings can last for years. While evidence-based preventive practices exist for identifying and stopping potential shooters, these cannot deter all shootings. Therefore, communities need robust systems for all stages of the incident cycle, including identifying and disrupting, preparing for, responding to, and recovering from school mass shootings. Doing this effectively,
however, requires strategies to integrate the efforts across disciplinary silos and across stages of the incident cycle.

There is a tendency to assume that mental health “owns” prevention and that law enforcement and medical first responders “own” response. However, schools, social services, and community groups also have valuable insights that can help support emergency planners in preparing for the worst-case scenario (for example, helping develop protocols for communicating with parents, teachers, and the larger community). This is especially valuable in communities where there are trust issues with law enforcement.

In addition, partnerships among schools, law enforcement, EMS, and fire can help familiarize first responders with the layout of schools and provide opportunities to train school personnel in crisis decision making during the critical initial moments of an attack. Bringing private-sector and technology partners together with schools, law enforcement, and community members is also critical to help provide a more unified digital platform to support communication, response, and recovery efforts. Similarly, coordination among educators, mental health providers, social services, and first responders can ease the transition from response into recovery by ensuring that the affected community is aware of the signs that someone needs help and that appropriate supports are available to those that need them (for example, students, families, first responders)—not just immediately but for years after the event.

Spreading these practices across the nation will require concerted efforts from policy makers and researchers. First, researchers and policy makers should support learning from experience in a systematic way. Learning from school mass shootings can harvest valuable lessons for future response and help focus public attention on upstream prevention activities. Similarly, the recovery stage can provide impetus for efforts to prevent future attacks by addressing community resilience, public-/private-sector collaboration, mental health, firearms access, and other relevant issues.

Near-miss or averted incidents are rarely studied but present golden learning opportunities, allowing communities to intervene in the future before it’s too late. In turn, early intervention encourages less reactive approaches to improving school safety. The CMVRS’s Averted School Violence project provides an invaluable source of data to inform research, policy, and practice on effectively addressing school mass shootings. Such efforts to create data sets with uniformly defined variables around school mass shootings are instrumental for identifying and benchmarking best practices for prevention, preparedness, response, and recovery.
Second, policy makers must address the funding- and governance-related barriers to cross-disciplinary collaboration. Funding often “comes down” from the federal government through silos but should be accompanied by stronger incentives for cross-disciplinary collaboration at the community level.

Third, a national-level coalition of federal agencies, non-governmental organization funders, and researchers could help explore ways to facilitate cross-sector coordination and sponsor research aimed at informing policy and practice across the school mass shooting continuum. Locally, health care coalitions—which serve as vehicles for cross-sector emergency preparedness and response among public health agencies, first responders, and the medical community—can be leveraged and supported to address prevention and recovery by partnering with schools and other key community stakeholders.

Prevention is ultimately the most effective way to reduce the toll that school mass shootings take on our communities. For those shootings that are not prevented, communities need to take an evidence-based, multidisciplinary approach to detection/disruption, preparation, response, and recovery. This requires strong and sustained collaboration among community partners that too often work in separate silos.
Law enforcement knew there were issues with each one of the shooters before they went on their killing spree but failed to act on the information they had. That is where the problem is.