Commentary

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The Evolution of Active Shooter Response Training Protocols Since Columbine: Lessons From the Advanced Law Enforcement Rapid Response Training Center

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Abstract

On April 20, 1999, two active shooters attacked Columbine High School. This attack became a catalyst that changed the manner in which law enforcement prepared for similar attacks at schools and other locations. Departments across the United States developed and adopted active shooter response training protocols. To assist law enforcement with this work, training centers were created including the Advanced Law Enforcement Rapid Response Training (ALERRT) Center. ALERRT was formed in 2002 and was named the national standard in active shooter training by the Federal Bureau of Investigation (FBI) in 2013. To date, ALERRT has trained more than 130,000 first responders from over 9,000 agencies in active shooter response. This commentary leverages our extensive expertise as directors of ALERRT. Specifically, we discuss how training protocols have evolved over the last two decades to include active shooter response teams, solo officer response, medical intervention training, integrated response training, and civilian response.

Keywords

active shooter, tactics, policing

A 17-year-old student opened fire at Santa Fe High School in Santa Fe, Texas, on May 18, 2018. The shooter attacked students and teachers in two classrooms nestled within the school's art complex around 7:40 a.m. Using a shotgun and handgun, he killed 10

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people and wounded an additional 13. Witnesses say he taunted victims prior to shooting them, shot through closet doors where students were hiding, and moved between two classrooms and a ceramics lab (Martin, Berman, Achenbach, & Wang, 2018).

Two Santa Fe Independent School District police officers arrived on the scene about 3 min after notification and immediately engaged the shooter (Madhani, 2018). One of the officers was shot in his arm and suffered a life-threatening arterial wound. His fellow officer pulled him aside and applied a tourniquet, saving his life. The swift response by both officers ended the shooting as the shooter barricading himself. During this same time, additional officers arrived and began streaming into the school. One off-duty officer had been dropping off his children at school when he heard the active shooter call broadcast. Wearing only a t-shirt, shorts, and tennis shoes, the officer put on his plate carrier (body armor), loaded his rifle, and ran into the school to respond. While the shooter was barricaded, officers broke into teams and began pulling victims out and conducting searches. Additional officers established a command post to take control of the scene. Although there were 23 total victims from this shooting, the swift law enforcement response likely saved many lives (Martin et al., 2018).

The response to the Santa Fe High School attack highlights the substantial evolution in tactics from what occurred nearly 20 years before at Columbine High School in 1999. Although the shootings at Columbine are well known, a review of the tactics illustrates the vastly different response. There, two shooters attacked Columbine High School at 11:19 a.m. A school resource officer arrived on location at 11:24 a.m. and exchanged gunfire with one of the shooters. The shooter then fled back into the school. The school resource officer and other responding officers then did what they were trained to do, which was to establish a perimeter around the school to contain the attacker and call for the Special Weapons and Tactics (SWAT) team to deal with the shooters inside of the building (Columbine Review Commission, 2001).

The SWAT commander arrived on scene at 11:36 a.m. and asked all available SWAT members on scene to assemble for entry into the school. At 11:51 a.m., the undersheriff arrived on scene and authorized the SWAT team to make an immediate entry. At 12:06 p.m., six officers made entry. Several other small teams made entry a short time later and worked through the school for several hours looking for additional shooters, explosive devices, and survivors. At 1:45 p.m., a police sniper stationed on a rooftop across from the school reported a woman in the science wing holding a sign that read, "1 bleeding to death." Approximately an hour later and nearly 3½ hr after the attack started (at 2:40 p.m.), officers entered the science wing where teacher Dave Sanders was exhibiting labored breathing due to a shotgun blast. When paramedics were brought to assist Sanders at around 3:10 p.m., he no longer had a pulse. Sanders died after waiting for medical attention for approximately 3 hr. In total, 13 people were killed and 21 were wounded by gunfire (Columbine Review Commission, 2001). This detailed description of Columbine emphasizes the elements that law enforcement identified as opportunities to change responses and protocols based on reviewing the incident. Changes in training resulted in a more effective interventions to the incidents such as that at Santa Fe High School.

Columbine High School thrust the phrase *active shooter* into our nation's lexicon. Although the previous two examples occurred in schools, the years since Columbine have demonstrated that active shooter events can occur at any location. Law enforcement agencies across the nation reviewed the attack at Columbine and treated it as a teachable moment to improve law enforcement response. Law enforcement command staff confronted the dual issue of what to train their officers to do in an active shooter events and how to go about that training. Some agencies initially developed their own training programs, while others turned to outside organizations. To our knowledge, the largest outside training organization in the county is the Advanced Law Enforcement Rapid Response Training (ALERRT) Center at Texas State University. As two of the Directors of ALERRT, we can provide a unique perspective of our organization, its training, and the development of this training in the years since Columbine. Although Columbine was a catalyst for change, other active shooter events have occurred since 1999. ALERRT uses each event as an opportunity to gather additional data and to hone the training that we offer to law enforcement personnel. This commentary describes the ALERRT Center as well as the training that we conduct.

ALERRT

The ALERRT Center was developed as a partnership between the San Marcos Police Department, Hays County Sherriff's Office, and Texas State University. The Center grew out of the change in response tactics prompted by the Columbine High School shooting. The founders of ALERRT were tactical (also known as SWAT) officers from a joint multi-agency SWAT team who started conducting active shooter training for their agencies in the wake of the Columbine shooting. These officers, though, saw a limit in the training they were able to provide as they realized that officers from across a region could respond to an active shooter event. As such, they saw a need to conduct training not just for their departments but also on a regional basis. To seek funding for this effort, San Marcos Police Department and the Hays County Sherriff's Office partnered with Texas State University to form ALERRT.

ALERRT received funding from the Texas Criminal Justice Division in 2002 and began training across the State of Texas. In 2003, ALERRT received federal funding and began to train officers across the country. Since that time, ALERRT has trained more than 130,000 law enforcement officers from more than 9,000 law enforcement agencies across the nation. Officers in approximately half of U.S. law enforcement agencies have received training from ALERRT. In addition to training officers in all 50 states and Washington, D.C., ALERRT has trained officers in U.S. territories including Saipan and Guam as well as internationally for officers from countries such as Brussels and Australia. In 2013, the Federal Bureau of Investigation (FBI) designated ALERRT as the National Standard in Active Shooter Response Training. This designation signifies that the ALERRT curriculum is used both to train all FBI Special Agents and as part of the FBI's training for state and local law enforcement officers across the nation. ALERRT also received a Congressional Achievement Award in 2016 in recognition of "ALERRT's training model as the national standard

in preparing, protecting, and saving the lives of our nation's citizens and first responders" (Congressional Achievement Award, 2016).

In addition to its training, ALERRT has an active research division that works with the FBI to produce the national active shooter data. In addition to the active shooter data, the research division conducts original research on law enforcement active shooter response tactics. For example, ALERRT has examined law enforcement performance regarding police reaction time (Blair et al., 2011), techniques to improve law enforcement survivability when addressing a shooter (Blair & Martaindale, 2014, 2017; Blair, Nichols, Burns, & Curnutt, 2016), and detailed examinations of active shooter events in a variety of locations (Martaindale, Sandel, & Blair, 2017).

In short, ALERRT has been at the forefront of active shooter training for the past 17 years. Our nationally recognized expertise in active shooter response and training has given us a unique position to speak on the nationwide trends in active shooter response. This commentary reflects our work and the Center's expertise, and we use these experiences to detail the evolution of active shooter training following the attack on Columbine High School. To organize our discussion, we categorize the changes that have occurred at ALERRT into two main groups: training of first responders and training of civilians. The training of first responders includes law enforcement (which initially focused on a team response and later addressed solo officers), medical personnel, and an integrated training to coordinate all first responders who converge on an active shooter incident. The overarching goal of ALERRT's training is designed to promote the safety of the responders as well as to minimize casualties at the scene. The way to best achieve this goal has changed over time. Although the motivations for these changes are in response to lessons learned from active shooting incidents, it is important to emphasize that ALERRT's specific training techniques are not linked to a particular incident. The reason is that we have found that a single event cannot spur change that immediately takes effect across the nation. Specific events can identify needed changes, but time is needed to both develop training and allow mindsets to change to appreciate the need for different tactics. Often additional subsequent incidents occur and this prompts law enforcement to realize the need to engage in new training.

Law Enforcement Response

One lesson learned from the Columbine response was the way SWAT teams were used. SWAT teams deployed with officers from their specific agency, which at Columbine included a Lakewood team, a Denver team, and a Jefferson County team. At the time, this protocol made sense tactically. The individual teams trained together, used team-specific tactics, and were comfortable working together. In addition, agency protocols preferred for patrol officers to wait to have their SWAT team enter a hostile scene due to the team's additional tactical and team training. Patrol officers were trained to set a perimeter to ensure a shooter was contained and not to leave until a SWAT team was able to interdict. In the aftermath of Columbine, this response protocol dramatically changed; specifically, the primary goal of

responding patrol officers was no longer setting a perimeter. Following Columbine, responding officers now were expected to stop the killing of innocent people, which required officers to quickly get to the attack scene and confront the shooter. Response protocols had to be established to teach patrol officers the tactics, techniques, and procedures needed to stop the killing as quickly as possible, while still maintaining officers' safety. These responses first focused on a team response and then evolved to develop appropriate solo responses procedures.

Team Response

Initially, SWAT team members were responsible for developing most of the techniques, tactics, and procedures that formed active shooter response protocols in the aftermath of Columbine as they are recognized as the experts in a police department for dealing with violent threats. They also have extensive training in the close quarters battle techniques that are used when dealing with attackers inside of a building. Therefore, SWAT team members served as subject matter experts. In many ways, the active shooter training that immediately followed Columbine was a mini-SWAT school (Blair et al., 2016).

The basic team response concept requires the first four or five officers on scene to form an ad hoc active shooter response team and enter the scene to stop the killing as quickly as possible. This training concept evolved as law enforcement trainers realized that responding officers might be from different departments and, therefore, may have never worked together. ALERRT has been able to address this need and provide consistent training to officers across agencies. At ALERRT, this basic response class is known as Level I. Officers are taught movement formations that allow them to operate together, cover potential threat areas, and communicate while they move toward the sounds of gunfire. Moving in a team provides officers with protection and other tactical advantages. The team's priority is to stop the shooter from killing more people. Officers are trained to move past victims to isolate, distract, and/or neutralize a shooter. The specific tactics used to stop the shooter have been the subject of some empirical research, and this research has influenced the training programs (see, for example, Blair & Martaindale, 2014, 2017; Blair et al., 2011). After stopping the shooter, the teams are trained to establish security in their area, create an immediate action plan in the event that there is another shooter, and then provide aid to the wounded (ALERRT, 2005). As it is common to see law enforcement officers from across an entire region responding to active shooter events, the training ALERRT provides is important to coordinate this interagency response (e.g., FBI, Bureau of Alcohol, Tobacco, Firearms and Explosives [ATF]; Blair et al., 2016). One illustration occurred in 2017, where it was estimated that as many as 2,600 law enforcement officers from across southern Florida responded to the Fort Lauderdale-Hollywood International Airport active shooter (Broward County, 2017). Despite not having specifically trained together, the adoption of some common protocols allows officers from different departments to work together.

The Move Toward Solo Response

The training offered by ALERRT and other training organizations that occurred immediately after Columbine focused on a coordinated team response. In an ideal situation, four or five first responders arrive at the scene of an ongoing active shooter at about the same time. The four or five officers quickly form an active shooter response team and make entry to the structure. The officers move to the sound of gunfire and apply the appropriate level of force to stop the shooter. Although this scenario is ideal, actual active shooter incidents suggest this pattern is not always the case and several officers rarely arrive on scene at the same time. As a recent example, in 2015, a workplace in San Bernardino, California, was attacked during a combination employee training event and holiday party. The first responding officer arrived on scene after about 3 min. The second officer arrived about 40 s later. The third and fourth officers arrived about 6½ min after the initial 911 call (Braziel, Straub, Watson, & Hoops, 2016).

This incident illustrates questions that needed to be addressed in responses to active shooter situations. For example, what happens if one or two officers arrive on scene but backup is several minutes away? Should the first officer(s) on scene wait until four or five officers are on scene and let the shooting continue, or should the officer(s) assume more risk and try to intervene more quickly? Evaluating these questions resulted in the next shift in active shooter response protocols—reducing the number of officers on the response team.

Once law enforcement officials realized that it could often take several minutes after the first officer arrived for three or four additional officers to make the scene, departments began to authorize smaller teams to enter. The challenge was one of balancing officer safety with the urgency of the active shooter situation. Initially, department policies allowed teams of two or three officers to form an active shooter response team and enter the scene. Although having fewer officers on the team increased risk of harm to the officers, they were able to enter the structure more quickly. Agencies soon began to see that even waiting for two or three officers to form a team could take several minutes, and during this time, many people could be killed. Therefore, many agencies began to authorize a single officer to enter an active shooter location. This decision was informed by the analyses of hundreds of active shooter events and agencies' assessments of their own staffing and response times. These analyses indicated that large numbers of people can be injured quickly and that the attackers are usually alone and focused on finding and killing unarmed civilians (Blair & Schweit, 2014; FBI, 2016, 2018). Many agencies weighed the increased risk to the responding officers against the potential increase in victims if officers were required to wait for a complete four- or five-person team and decided to authorize solo officers to enter active shooter locations.

Although many departments authorize solo officer entry, this does not mean that officers should always enter a scene by themselves. Protocols needed to be established and officers trained. The initial officer on scene must assess the situation and determine whether intervention is warranted. First, there should be a clear driving force

indicating that rapid entry is needed. Most commonly, this driving force is the sound of active gunfire, but it may also include injured people or other victims indicating that there is a shooter inside. Second, the officer must assess how quickly other officers will arrive. If the next officer will arrive in a few seconds, it may make sense to wait for that officer. Finally, the officer must assess what tactics are likely to work if the officer attempts to intervene. This assessment must be updated as the officer enters and encounters new information. Based on all these factors, ALERRT and other organizations have developed training to prepare officers to make solo entries.

This change in protocol and training has resulted in active shooter events being been successfully ended by a solo officer. For example, on February 25, 2016, a shooter attacked Excel Industries in Hesston, Kansas. The shooter killed three people and wounded an additional 12 at the location where there were approximately 150 people at the time of the shooting. Police Chief Doug Schroeder was the first officer on scene. He assessed the situation and decided to enter the location by himself. Chief Schroeder exchanged gunfire with the shooter. Chief Schroeder shot and killed the shooter and was not injured. His solo entry was credited with saving many lives (Stavola, 2018).

Medical Response

Although the focus of active shooter response training and protocols tends to be directed at law enforcement tactics, a holistic view of active shooter incidents highlights the need to train medical personnel who also respond to these incident as well as include medical interventions for nonmedical first responders. Although no specific incident prompted this change in focus, the need for medical training was becoming recognized around the nation around 2009. ALERRT responded to this need by developing a new curriculum, which was based on analysis of attacks. The data indicate that the active attack portion of an event is typically over in less than 5 min (Blair & Schweit, 2014; FBI, 2016, 2018). This first phase of the response is what ALERRT refers to as the *Stop the Killing* portion of the event. This phase is where most of the initial active shooter training following Columbine was focused as discussed with the Team and Solo Response for law enforcement. After the shooter has been dealt with, urgent responses are still needed for people who have been shot and need immediate medical assistance. Because of the confusion surrounding the event and on-going security concerns, though, it is often difficult to get the injured the aid they need. ALERRT calls this phase of response *Stop the Dying* and focuses on both training law enforcement to provide emergency medical care and developing protocols to safeguard medical first responders.

In an ideal world, emergency medical service (EMS)/fire personnel would provide care to the injured as soon as the shooter is stopped, but EMS/fire personnel traditionally are trained to not enter scenes that are not secure. In a situation not involving an active shooter, this protocol makes sense to avoid unnecessary injury to EMS/fire personnel and compounding the problem. In an active shooter situation, though, the reality is that it is often hours before the scene can be declared secure. This delay could

result in hours before EMS/fire personnel can enter to help the wounded, and people can die during that time such as was the case in Columbine.

One way to address this situation is for law enforcement agencies to ensure officers receive medical training that is appropriate for an active shooter situation. ALERRT provides this training in what is known as First Responder Medical (FRM), which was previously known as Level II (ALERRT, 2010). This training is based on Tactical Emergency Casualty Care (TECC), which consists of skills and interventions that were tried and tested on the battlefields of Iraq and Afghanistan and then modified for use in a civilian environment (Committee for Tactical Emergency Casualty Care, 2018). Skills taught include hemorrhage control, basic airway maintenance, identification and prevention of tension pneumothorax, and hypothermia prevention and control (ALERRT, 2010).

Officers trained in this way have the skills to save lives during actual active shooter events. During the Santa Fe High School shooting described at the beginning of this commentary, one of the two initial responding officers was struck by a shotgun blast to his right arm above his elbow. The wound severed the main artery in his arm. The department had trained their officers in TECC-type interventions via the ALERRT Center. The second officer pulled the wounded officer out of the line of fire and applied a tourniquet to his upper arm (Martin et al., 2018). The officer was taken to a nearby hospital and underwent surgery to repair the artery. The application of the tourniquet saved the officer's life.

While giving police officers the tools to address medical emergencies in an active shooter situation, it is preferable to have EMS/fire medical professionals available to provide care. The reasons are obvious as EMS/fire medical professionals have a larger skill set and practice these skills more often. Medical professionals are also better equipped to triage and transport patients. High profile cases such as the Aurora, Colorado, movie theater shooting in 2012 emphasized the need for a change in protocols and prompted change. In Aurora, for example, many patients were transported to hospitals in the back of patrol cars instead of ambulances. Fire and EMS services began to look for a way to safely provide care more quickly. Currently, three basic models allow medical professionals to operate in areas that have not been fully secured or cleared. Given the relatively new focus on extending active shooter training to include medical professionals, work is still ongoing to establish a single recommended training standard. The three models currently used are the protected island, the secure corridor, and a rescue task force. Each of these systems involves police providing security for medical professionals in an area that is not a "hot zone" with active gunfire, but could still potentially contain a threat. An area that does not contain active gunfire would be designated a "warm zone." The protected island creates a secure location inside of an attack site where casualties are collected and treatment is provided. A secure corridor has police officers providing security at key points along a route (such as intersections in a hallway) and allows EMS/fire personnel to move freely along that route to provide care and transport patients. A rescue task force involves police providing security for EMS/fire personnel as they move freely throughout the attack site. The police officers essentially operate as

bodyguards while the medical personnel provide treatment and transport patients. These systems can also be combined as circumstances and resources allow. Currently, more departments favor the rescue task force model, but all of the models have strengths and weaknesses (National Fire Protection Association, 2018). We are likely to see further refinements to these models as departments gain more experience in using them during actual events.

Integrated Command and Response

An active shooter situation by its nature can result of an overconvergence of first responders and an uncoordinated deployment of these resources (see, for example, Braziel et al., 2016; Broward County, 2017; Cedeno & Furman, 2017). Addressing this problem is the latest concern for training organizations such as ALERRT. An active shooter situation requires coordination not only among the many law enforcement agencies that respond to an attack but also among other first responders such as fire and EMS. The need for coordination was recognized by the Columbine Review Commission and has been reinforced in the after-action reports provided following other attacks since 1999. This need is highlighted by the example we discussed previously in the Fort Lauderdale-Hollywood International Airport shooting. Here, 2,600 first responders from numerous jurisdictions converged on the scene (Broward County, 2017). We identified this incident above when discussing the importance of training to respond with many different agencies. Although the law enforcement efforts were coordinated by common training protocols, the overarching response was not integrated. As seen during this event, this overconvergence can block access to key areas of the attack site, prevent ambulances from transporting victims, and produce mass confusion as different agencies fail to coordinate their responses. It is imperative that all first responders are integrated to alleviate issues and streamline the response. For example, ambulances need a clear path to approach the scene and remove victims to definitive medical care. This process is impeded when law enforcement vehicles are blocking the street.

The rapid establishment of an integrated incident command can help control many of these issues. Integrated command places leaders from responding agencies in a single location and establishes a clear chain of command (Anderson, Compton, & Mason, 2004; Walsh, Christen, Lord, & Miller, 2011). Incident command is an area of response where fire personnel are ahead of law enforcement personnel. This is because firefighters are trained to operate in an incident command system starting in their academy, and they use this system for all of their calls. Firefighters leave the fire station as a set package with command already in place. Law enforcement officers, on the contrary, tend to operate independently. They often patrol an area by themselves, and when an active shooter call goes out on the radio, officers often arrive separately to the attack site. For this reason, law enforcement must build incident command from the ground up when responding to a large-scale event such as an active shooter. Most of law enforcement officers' calls are small-scale events such as traffic stops and do not require incident command to be established.

Training and procedures are being developed to help law enforcement transition into the incident command system as quickly as possible when faced with a large-scale event such as an active shooter. ALERRT trains that the first officer on scene is required to start the incident command process and assumes command. This should be a mobile command that still attempts to stop the killing. As more officers arrive, the command is transferred to an officer on the outside who sets a staging location for arriving units and seeks out leaders from fire and EMS services to create an integrated command. From there, the full incident command structure is developed. This system helps ensure coordination of the response and can help to cut through the initial chaos of the scene for law enforcement. This is an area where much work needs to be done. As fire/EMS personnel arrive on scene, ALERRT trains for the command structure to integrate. The incident command structure for law enforcement personnel and the incident command structure for fire/EMS should work in a coordinated manner to ensure resources are deployed efficiently.

Related to the idea of integrated command is the concept of integrated response training. If agencies are to perform well together during a crisis, it helps if they have trained together beforehand. Law enforcement agencies have conducted integrative training with each other for some time, but cross-disciplinary training that pairs law enforcement with fire or EMS, for example, has been much less common. In the last few years, there has been push for and a dramatic increase in cross-disciplinary training. Specifically, ALERRT developed an integrated training program known as Active Attack Integrated Response (AAIR) that is currently being deployed across the nation. During this course, law enforcement, fire, and EMS train together in a coordinated manner (ALERRT, 2018a). A large part of this training is simply getting personnel from the various first responder agencies to train together. The first responders learn tactics and techniques that allow for them to respond in a coordinated manner. The priority for all first responders is to save lives. This training gives them tools to work more efficiently to reach that goal.

Civilian Response

As first responder active shooter training and protocols have evolved over the last two decades, so has the understanding of civilian response to an active shooter event. About half of all active shooter events end before law enforcement arrives on scene. These events tend to have fewer casualties and end, not because of chance, but because potential victims have taken effective actions to protect themselves (Blair & Schweit, 2014; FBI, 2016, 2018). One in six events ends because of direct intervention by civilians. This intervention stops the shooter from continuing to attack, but it is only part of what civilians can do to improve survivability (Blair & Schweit, 2014; FBI, 2016, 2018).

Based on these revelations, active shooter training programs have developed a component, specifically for civilians, that seeks to educate civilians about their options to improve survivability. ALERRT (2018b) developed a course known as Civilian Response that teaches law enforcement officers how to educate their local

communities on these techniques. The core of the program is known as *Avoid Deny Defend* (ADD). Civilians are taught to first avoid a shooter if possible. This can be accomplished by running from a location. If the civilian is not able to avoid the individual, he or she can deny access to the location. Denying access can mean locking or barricading doors. No known active shooter has breached a locked door (Martaindale et al., 2017). Finally, if the civilians are not able to avoid or deny based on the specific circumstances of the event, they should be prepared to defend themselves. This means civilians should do whatever is necessary to fight off the shooter (Blair et al., 2016).

Other response protocols also exist, such as the popular Run, Hide, Fight (RHF), or the paid program ALICE. RHF was developed by the City of Houston with Department of Homeland Security (DHS) funding. The core of the program is a 6-min video that is supported by various supplemental materials on the DHS website (see https://www.dhs.gov/publication/active-shooter-how-to-respond). ALICE stands for Alert, Lockdown, Inform, Counter, and Evacuate and is taught both in person and online. Although there are some differences in these systems, they all teach an options-based approach. Rather than trying to develop a one-size-fits-all response, they all emphasize that potential victims must assess the situation and choose the course of action that they think will best protect them. The potential victims must also be ready to change their course of action if the situation changes. For example, if they are avoiding, turn a corner, and end up face-to-face with the attacker, victims may need to defend themselves (ALERRT, 2018b).

Conclusion

This article draws upon our experience with the ALERRT Center and sought to discuss ways in which the national active shooter response training and protocols have evolved following the attack on Columbine High School. The following summarizes the changes that have occurred and that ALERRT has been part of as well as identifies directions where training may go in the future.

First, to summarize the evolution of training that we have witnessed at the ALERRT Center. Active shooter response originally mirrored SWAT techniques by requiring four to five officers to form a team and move into the scene. As more active shooter events occurred, this original protocol began evolving to smaller teams for a faster response. Eventually, law enforcement agencies accepted that, under certain circumstances, a solo officer could stop an active shooter and does not need to wait for an active shooter response team before entering the scene. Agencies began training their officers to perform basic lifesaving medical interventions in hopes of keeping victims alive long enough to reach definitive care. With the focus on medical interventions, the warm zone care concept was established as a method to interject fire/EMS personnel. As protocols continue to evolve, agencies have started training patrol officers to establish command at the attack scene, which improves control at the scene and streamlines the response by additional law enforcement officers and medical personnel. The latest training method that is gaining acceptance within the law enforcement community is

integrated response training. Law enforcement and fire/EMS are now training together to improve active shooter response.

Based on our experience at the ALERRT Center, we strongly believe that tactics will continue to evolve as more active shooters occur and lessons are learned. Research has shown that attackers frequently study previous attacks in an attempt to increase the damage that they cause (Silver, Simons, & Craun, 2018). In fact, we have seen some of the most devastating attacks occur in the last few years. The most extreme of these was the attack in Las Vegas where 58 were killed and hundreds more were shot. Large numbers of people were also killed and injured at Pulse Nightclub shooting in 2016 (49 deaths) and Marjory Stoneman Douglas High School shooting in 2018 (17 deaths). Some have argued that these cases show that improvements in training and response have been ineffective. We disagree. The events named above are outliers. All three events are also situations where the initial responding police officers did not quickly engage the attacker, which is contrary to the training that ALERRT provides and that is considered a national standard. Although these extreme events capture the public's attention and remain on our minds for some time, they do not represent the typical active shooter attack. The median number of people shot, which is four, and killed, which is two, during active shooter events has remained remarkably stable since the early 2000s (Blair & Martaindale, 2013; Blair & Schweit, 2014; FBI, 2016, 2018). While we believe would-be attackers do study previous attacks, we believe that the number of victims has remained consistent because the first responder community also studies past events in an attempt to design response systems and training that can limit the damage. The process of potential attackers and first responders studying past events creates something of an arms race where the attackers are constantly trying to increase the damage done and responders are attempting to both learn from previous attacks and anticipate new ones.

Our work at the ALERRT Center suggests that response tactics will continue to evolve as empirical research is conducted that can inform these tactics. Throughout the past few years, we have been examining tactics to improve law enforcement response. Examples of our work include examining different aspects of performing a room entry (Blair & Martaindale, 2014, 2017), decision-making and response time (Blair et al., 2011), and utilizing distraction techniques (Blair & Martaindale, 2017). Colleagues also are examining the efficacy of medical interventions following active attacks (Callaway et al., 2011; de Jager et al., 2018; Sarani et al., 2019). In addition, research is continually being done to catalog active shooter events (Martaindale et al., 2017) and how the media and active shooters intersect (Schildkraut, Elsass, & Meredith, 2018). This work can assist law enforcement to better interact with the media and improve how information is released to the public.

Based on our work at the ALERRT Center, we also see that training programs are in the midst of a philosophical change regarding active shooter events. In recent years, there has been an uptick in the number of events that are similar to active shooter events, but do not involve the use of firearms to inflict casualties. Examples include the knife attack in Japan in 2016 and the vehicle attack in New York on Halloween in 2017. These attacks illustrated that the tactics taught and protocols developed to deal

with active shooter events also apply to these events. Therefore, we now refer to all of these events as active attacks.

Although the Columbine shootings that generated the term *active shooter* and the response to "active attacks" occurred at a school, these incidents are not limited to schools. In fact, places of business are attacked at a higher rate than schools (Blair, Martaindale, & Nichols, 2014; Blair & Schweit, 2014; FBI, 2016, 2018; Martaindale et al., 2017). The training conducted by ALERRT spans locations as the data show that attacks on the public have increased over the last two decades (Blair & Martaindale, 2013; Blair, Martaindale, & Nichols, 2014; Blair & Schweit, 2014; FBI, 2016, 2018). As such, we anticipate training and protocols will continue to adjust to combat the threat and save lives. The ALERRT Center works to provide law enforcement officers with the best training possible as they work to protect the public during these active attacks. Based on the past 20 years, we see this role as one that continues to evolve and grow with law enforcement, other first responders, and civilian needs.

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