The purpose of this practice improvement project was to improve ED staff knowledge, confidence, and response to an active shooter situation.

The primary outcome of this practice improvement project was that more than 80% of ED nurses and more than 50% of ancillary staff attended the active shooter training. Ninety-two percent of staff stated that they felt more prepared to respond to an active shooter situation after receiving the training.

Key implications for emergency nursing practice based on this project are:

- Active shooter training programs benefit emergency departments by improving the staff’s preparedness and safety. The simulations help emergency staff learn and practice the concepts necessary to survive an active shooter event.
- The simulation program described in this article may help other emergency departments plan and implement an active shooter training program.

**Abstract**

**Problem:** Active shooter incidents are becoming more common, and although they are still rare compared with other shooting sites, incidents have increased in health care facilities. Agencies such as the Federal Bureau of Investigation, The Joint Commission, and the Emergency Nurses Association have emphasized that an action plan and training are essential for hospital preparedness.

**Methods:** Planning an active shooter simulation for the emergency department was a complex project and involved collaboration between the hospital’s Emergency Management team, simulation staff, security, and ED leadership, which included the educators and clinical nurse specialist. Decisions were made related to appropriate location, equipment, and needs for the functional exercises. Scenarios also were developed with roles for the ED population and actors.

**Results:** A total of 204 staff members participated in the simulations between August and December of 2016. A survey was distributed to staff who attended the simulation. Ninety-two percent of staff felt more prepared to respond to an active shooter event and reported a 70% improvement in knowledge and preparation. Attendees reported their first response would be to flee the scene (66%), protect patients (15%), hide (7%), fight (6%), and call 911 (4%).

**Implications for Practice:** The active shooter education included a didactic portion, a pre- and postsurvey, and the simulation event. The presentation focused on statistics of active shooters, possible threats, and the concepts of RUN, HIDE, and FIGHT. A Critical Incident Stress Management team member was present to ensure the emotional and psychological health of the participants. The debriefing was a crucial part of the simulation experience so staff could talk about their experience and express their concerns.

**Key words:** Active shooter; Simulation; Emergency department; Safety

Active shooter incidents are becoming more common in the United States. Although still rare compared with other shooting sites, occurrences have increased in health care facilities, with the emergency department being the most common site. Because most shootings have concluded before the police arrive, it is imperative that hospital staff be prepared to respond if an active shooter incident occurs. To address the need...
in our emergency department, the Emergency Management (EM) team worked with leaders in the emergency department, security, and simulation laboratory to develop a comprehensive simulation experience for an active shooter event. This article describes how our pediatric facility implemented an active shooter simulation program and how we addressed the staff’s responses and concerns.

**Problem/Background**

The Federal Bureau of Investigation (FBI) and the Department of Homeland Security both define an active shooter as “an individual or others are actively engaged in killing or attempting to kill people in a confined and populated area.”

According to the FBI’s Study of Active Shooter Incidents in the United States, there were a total of 160 shooting incidents with 486 fatalities and 557 wounded between 2000 and 2013. During the time of the study the number of annual episodes more than doubled from 6.4 to 16.4 occurrences per year. Data from the U.S. Bureau of Labor Statistics showed that the health care industry had a total of 19 homicides in 2015, 16 of which were due to gun violence. This number is a 46% increase from 2014, when there were 7 deaths by gun violence.

Health care institutions present unique challenges for an active shooter event. Some challenges are large populations of vulnerable patients, 24-hour-per-day operations with reduced staff during off hours, locked units, patients or staff who are unable to evacuate because of age, illness, or an ongoing medical procedure, and staff who may believe that they cannot leave patients or that they should respond to the injured. Authors of a study in the *Annals of Emergency Medicine* reported that the emergency department was the most common site for shootings at 29%, with the parking lot and patient rooms being second and third. Shootings were more common in larger hospitals with more than 400 beds, and most of the shooting events in hospitals were by a shooter with a specific target. Hospital employees made up 20% of the victims, and the most common victim was the perpetrator, at 45%.

A topic brief by the Emergency Nurses Association (ENA) emphasizes that an action plan and training are essential for ED preparedness. They suggest the plan should include regular exercises such as video or classroom training and a hands-on component including local law enforcement and EMS. An active shooter event can progress quickly. Kelen et al found that 67% of health-care–related shootings have concluded before the police arrived. The Joint Commission advisory on active shooter situations states that because active shooter circumstances often happen rapidly and before law enforcement can arrive, staff in health care organizations must be prepared for an active shooter situation before it happens. Some of the actions suggested were to create an emergency action plan, train/drill employees in mock active shooter exercises, plan postevent activities such as debriefings, develop a plan to manage fear or anxiety for those involved, and make a safety plan.

Central to any active shooter plan is the maximum protection of human life, with the priority to rapidly remove the greatest number of people from threat of harm and decrease the extent of injuries from the shooting event. During planning and staff education it will be important to discuss and inform staff about the hospital’s policies related to the staff’s potential choice to leave patients in the interest of saving their own life. Time should be taken for discussion and debriefing, and medical staff should be informed if their regulatory bodies/medical boards have made statements related to RUN, HIDE, and FIGHT scenarios.

**Methods**

Our institution is a pediatric academic Magnet designated medical center, with 490 beds and 1.886 million square feet. It is one of the largest and most comprehensive children’s hospitals in the nation and employs 6584 people. It is the only level I pediatric trauma center in the area and is located in a medical district near multiple adult hospitals in a large urban area. The emergency department alone has an average of 121,000 visits per year.

The hospital’s security department provides active shooter education through annual online modules and an active shooter policy. Although this approach provides an introduction to the concept of active shooter preparation, staff were still not able to clearly articulate how they should respond. As a result, it was believed that staff needed a more comprehensive training program. The purpose of the active shooter program for the emergency department was to improve staff knowledge, confidence, and response to an active shooter situation.

In 2015 the hospital’s ICU leadership and EM team identified a need for active shooter instruction for their staff and providers. Education was developed, which included an instructor-led didactic portion and a functional exercise via simulation. After completing the active shooter simulations, the feedback from ICU staff and leadership and the EM team was very positive. Because of the encouraging feedback from ICU staff, EM and ED leadership decided that the emergency department would benefit from a similar active shooter simulation activity.
To plan an active shooter simulation program for our emergency department, the EM team worked in collaboration with the ED leadership, which included the ED senior director, manager, clinical educators, and clinical nurse specialist (CNS). The hospital’s simulation staff helped to determine the appropriate location, equipment, and needs for the functional exercise. The clinical educators and CNS developed unit and population-specific scenarios and scripted roles for the actors and participants. The scenarios were written to include most disciplines that provide care in the emergency department (see Figure 1 for an example of a scenario). EM staff identified and developed education

![Patient #3 Active Shooter Scenario](image)

**Patient #3 Brandy Scenario A**

*Staff Roles: 2 RN’s/PCT/Provider/Social Work/Child Life/PAR/HUC/Security/Mother/Dad*

**Diagnosis:** Patient diagnosed with bipolar disorder at the age of 9. Currently with increased agitation and paranoia.

**History:** Patient has been hospitalized twice this year; once with suicidal ideations and once with violence toward teacher at school. She is on medications but has been increasingly agitated the last two weeks in a manic phase. The patient lives with her mother, who is divorced from the father. The father has a history of bipolar disorder. The patient threatened the mother and sister who lives in the home, and has called father multiple times complaining mother is putting poison in the food.

**Plan:** Patient has been evaluated by social worker and is waiting for the psychiatrist. Showing increased signs of agitation and has medication ordered by ED provider.

**Family:** Mother is at bedside, she is tired and anxious saying that she cannot take patient back home like this. She is also anxious about her ex-husband as he has called the home threatening the mother and because of the calls he has received from the patient. Mother states the reason she divorced her husband is because of violence in the home and she does not want him to come to the hospital. The child has called the father several times and he is aware that she is in the ED. The father has been sending threatening text messages to the mother (who shows them to the nurse). He arrives and can be heard talking loudly in the hall saying the mother is making everything up and she shouldn’t be allowed to care for his daughter.

*Of note, this is one of the four scenarios that are used simultaneously. Staff do not know which of the scenarios will have the active shooter. The active shooter changes from simulation to simulation*
related to the active shooter response, which included how to respond to an active shooter event with the focus on the concepts of RUN, HIDE, and FIGHT. A Critical Incident Stress Management (CISM) team member was present during the simulations to ensure the emotional and psychological health of the participants.

Implementation

When implementing a simulation, it is best to hold the event in a comparable environment. However, because of a high winter census, only 2 of the active shooter simulations were held in the emergency department; the remaining simulations were scheduled in the simulation laboratory. The simulation staff created an ED setting for each scenario, which included moulaged manikins and emergency equipment.

After leadership approved the dates, times, and location of each simulation, it was necessary to identify the number of staff who would attend each simulation event. The goal was to limit the number of staff that would attend each event to enhance each participant’s experience. Disciplines invited to participate included RNs, patient care technicians, providers (advance practice, physicians), respiratory therapists, social workers, child life specialists, health unit coordinators, patient access representatives, guest services (concierge), and pharmacists. For the simulation event, roles were assigned based on the staff member’s job description. The simulation department provided qualified actors. Specially trained personnel acted in the role of the active shooter (EM or security).

The active shooter education included a didactic portion, a pre- and postsurvey, and the simulation event. The manager of the security department presented the didactic education along with staff from EM. The presentation was about 45 minutes and focused on statistics of active shooters, possible threats, examples of previous shooting events, outcomes, and the concepts of RUN, HIDE, and FIGHT. RUN, HIDE, and FIGHT encourages persons involved to first RUN from the area if possible; if they are unable to escape, they should HIDE in a secure place; and if neither of these options are possible, as a last resort they should FIGHT the shooter.

The prebriefing introduced the CISM role in the simulation and allowed staff members to opt out of the simulation. All participants received the same didactic education and pre- and postsurvey regardless of participation in the simulation exercise. Several staff members chose to opt out of the simulation exercise for various reasons that included previous experiences with gun violence, anxiety, and emotional stressors. The CISM staff were identified during the simulations by their bright orange safety vests. Roles were then assigned to each staff member with scripts for the patient scenarios. They were given instructions on where exits were located, emergency phone numbers, and how to identify that the simulation had ended. Simulations were facilitated by one of the educators, the CNS, or EM team members and lasted on average 5 to 7 minutes. Each scenario given to staff had the potential for an active shooter. Prior to the simulation exercise, EM selected one scenario that would escalate into a shooting event. The specially trained staff acting as the shooter was given prompts such as behaviors, tone, and if any staff would be targeted or shot. During the simulation, staff interacted directly with each other and the actors. This interaction included giving and receiving report, introducing themselves to the family members (actors), using equipment to care for the patients (manikins), and escalating concerns to designated charge nurse. Staff used the skills of de-escalation with agitated family members/visitors (actors) and were encouraged to call security or 911 (simulated calls) applicable to the scenario. When the scenarios escalated or the shooter presented a threat, the staff made decisions to RUN, HIDE, or FIGHT. Staff members reacted differently for each scenario. Simulations ended with staff being shot, escaping, or hiding in a secure location. There were staff who chose to take patients with them or stop and assist the injured, while others left them behind. CISM staff monitored the staff’s interactions and assessed the need for interventions. Interventions included removal from the simulation and one-on-one debriefing in a private location. After the simulation, staff were given a short break and then were taken back to the classroom for a debriefing session. During the debriefing, snacks and water were provided. Staff were given the opportunity to speak about their experience of the simulation and give feedback to the EM team/facilitator. The actors, CISM staff, simulation staff, and team members participated in the debriefing, which lasted 50 to 60 minutes. The debriefing was a crucial part of the simulation experience because staff could express their concerns, speak to their current work environment, ask questions about their safety, and discuss their moral dilemma with leaving others behind. Staff’s input allowed leadership to identify areas of concern within the emergency department. Concerns included multiple entrance and exits points that cannot be easily secured, too many glass doors, patient’s doors cannot be locked, open areas (difficult for hiding), and lack of panic buttons. Staff were encouraged to discuss their
individual scenario, what they heard, what action they chose to do in response to the active shooter, and how they felt about the situation. After the debriefing a postsurvey was completed.

**Results**

A total of 204 staff members participated in the simulations between August and December of 2016. During the debriefings, themes related to the simulations emerged. Staff vocalized the following: they were afraid and worried, they had a hard time leaving their patients and other staff members, they were prepared to fight, they wanted to hide but often were unable to find a place, they considered staying behind to help their peers, and they were frozen and did not know how to respond. Ultimately, many persons identified very closely with each scenario and realized this was an actual possibility in the ED environment. A few staff found the simulation to be very difficult and were offered continued conversation and debriefing with CISM staff. A survey was distributed to staff who attended the simulation. Results are shown in the Table and in Figure 2.

**Implications for Emergency Nursing**

ENA\(^\text{10}\) recommends that emergency departments have an action plan and training exercises related to active shooter incidents. Because of the positive experience of the training and staff feedback, we encourage other emergency departments to consider an active shooter simulation as a project well worth the time and effort. Recommendations from our experience include mandatory attendance, well-trained actors, flexibility with location of the simulation, availability of trained staff for debriefing after the simulation, and ongoing active shooter training for new staff.

**ATTENDANCE**

The active shooter education and simulation offered a new experience for the ED staff. There was a heightened buzz on the unit about this simulation because of the uniqueness and possible impact. Initially the education was not mandatory, resulting in low attendance and not enough staff to fulfill specific roles in the simulation. Because of the low attendance, a decision was made to make the classes mandatory. Staff still had the option to opt out of the simulation exercise.

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>After attending the Code Silver simulation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you feel more prepared to respond to an active shooter event in the emergency department?</td>
<td>Yes</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>7</td>
</tr>
<tr>
<td>If you feel more prepared to respond to an active shooter event, on scale of 0 to 10, how much MORE do you feel prepared to respond to an active shooter event?</td>
<td>7 on a 0 to 10 scale (average)</td>
<td></td>
</tr>
<tr>
<td>My first response in an active shooter event at my hospital is likely to be:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flee the scene (RUN)</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>Protect patients</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Hide out and deny access (HIDE)</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Confront the shooter (FIGHT)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Call 911</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>On a scale of 0 to 10: How likely are you to recommend an active shooter training and simulation to your colleagues?</td>
<td>7 on a 0 to 10 scale (average)</td>
<td></td>
</tr>
</tbody>
</table>
but were required to stay the entire time and attend the didactic portion and postsimulation debriefing. The mandatory attendance increased participation and staff satisfaction with the simulation. Our biggest barrier was the low participation of the providers because of scheduling concerns and some lack of understanding about the simulation. Recommendations to improve the interdisciplinary attendance are to closely work with providers in planning and scheduling the simulations to improve interest and attendance.

ACTORS

It is important to emphasize the need for actors who are experienced in simulation. Employees were initially asked to play the actor roles regardless of simulation training or experience, but it was soon apparent that the actors must be selected based on appropriate simulation training. Inexperienced actors were not prepared for the roles and staff reactions.

Ethical Implications

The idea of leaving behind patients or injured colleagues can be morally or ethically distressing to staff. Feedback from our staff indicated that there was a relatively significant level of distress because the concept of RUN was emphasized and staff were instructed to leave colleagues and patients behind. The didactic portion of the class was then revised to include a more thorough discussion of what it means to RUN from an active shooter, acknowledgement of the difficulty this action may cause, and the possibility of staying to care for colleagues and or patients/families. A thorough knowledge of regulatory and state nursing/medical board requirements or hospital policies about this topic is important. Leaders must be ready to address these concerns with staff.

Future

The active shooter simulation was successful and well received on the unit. ED leadership decided to provide this training quarterly for newly hired employees in the emergency department and staff who were not able to attend previous classes. Classes are now offered at a secondary ED location within our hospital system. The training and simulations continue to evolve based on staff feedback and any new recommendations by experts. Ongoing classes are a definite recommendation.

Conclusions

Because of the increased quantity of active shooter events during the past several years, active shooter training is becoming more prevalent in hospital settings.1-4 This type of training is recommended and supported by organizations.
such as ENA and The Joint Commission. Program development and implementation of our training involved collaboration by our EM with the ED leadership team, security, and simulation laboratory staff. The group worked together to develop a comprehensive active shooter training for all disciplines that care for patients in the emergency department. Debriefings for each event allowed staff to provide feedback after the simulation and to get their perspective on the scenarios. The attendees received the active shooter simulation very well, and it was recommended that the training be offered on a regular schedule for new ED employees.

Acknowledgments

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REFERENCES


