

MEDICINE AND SOCIETY

Debra Malina, Ph.D., *Editor***Active-Shooter Response at a Health Care Facility**Kenji Inaba, M.D., Alexander L. Eastman, M.D., Lenworth M. Jacobs, M.D., M.P.H.,
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On February 8, 1993, Damacio Ybarra Torres, a 40-year-old disgruntled patient, entered the Los Angeles County and University of Southern California (LAC+USC) Medical Center with three concealed firearms. At approximately 12:20 p.m., he opened fire, striking three male physicians. Leaving them critically injured, he moved through the hospital and ended up in the radiology suite, where he took a female receptionist and a female physician hostage. After several tense hours of negotiation, at 5:08 p.m., he released the hostages and was taken into custody.

Since that time, active-shooter incidents have been on the rise throughout the United States.¹⁻⁵ Defining such incidents as situations in which “an individual [is] actively engaged in killing or attempting to kill people in a confined and populated area,” the Federal Bureau of Investigation (FBI) has identified 160 discrete incidents that occurred between 2000 and 2013, in which 486 people were killed and an additional 557 were wounded.⁶ In the first half of that period, there were an average of 6.4 active-shooter incidents per year; the number more than doubled, to 16.4, in the latter half of the period. The most recently released FBI data reveal that the rate increased to 20 incidents per year in 2014 and 2015.⁷

Hospitals and particularly trauma centers have always been an integral part of the response to these catastrophes, providing lifesaving care to the injured. The grim reality, however, is that while being prepared to care for incoming victims of an active-shooter incident remains critical, it is no longer sufficient. Health care facilities are themselves high-risk targets and must also be prepared as potential sites of attack.^{8,9} To quantify the risk, Kelen et al. examined all U.S. hospital shootings between 2000 and 2011 in which there was at least one injured victim. They

identified 154 incidents in 40 states causing death or injury to a staggering 235 people.¹⁰

To mitigate the impact of an active-shooter incident, the Department of Homeland Security (DHS) has created a response directive designed for the lay public.¹¹ In concert with the Department of Health and Human Services, the Department of Justice, the FBI, and the Federal Emergency Management Agency, DHS has also developed a planning guide specifically for health care facilities.¹² These plans focus on training participants to respond by running to safety if possible, hiding if running is not an option, and as a last resort, fighting off the shooter (“run, hide, fight”). Although many variables, such as the location of the armed assailant and the immediate physical geography, will ultimately dictate which of the responses should be selected, the first recommendation has been to run.

Whereas this response is appropriate for a school or business where the majority of occupants can theoretically comply with all three directives, health care facilities house vulnerable patients who, for medical reasons, cannot be moved. At the time of an active-shooter incident, many patients will be physically or mentally incapacitated, undergoing an operation, in active labor, or dependent on immobile life-sustaining machinery. Moreover, many of these critically ill patients undergoing lifesaving treatments will die if abandoned by their caregivers. Even patients being treated for relatively minor medical problems may not be able to effectively run. In addition, most hospitals are designed vertically, with heavy reliance on elevators for transportation, leaving only small, narrow stairwells as alternative escape routes, and these can become crowded, dangerous, target-rich chokepoints for a shooter. Matters are further complicated by the fact that

health care professionals have a moral and ethical duty not to abandon their patients, which directly conflicts with the primary directive to run.^{2,13}

Hiding, the second recommended option, is also problematic in the hospital setting. In general, unlike schools or office buildings, the treatment areas of hospitals have open designs, with large common areas containing very little furniture, intersecting walls, or equipment to hide behind. Even areas with “private” rooms such as intensive care units are designed to maximize the visibility of patients from a central nursing station. Attempting to run with or hide a patient who is confined to a hospital bed and attached to monitors and catheters is a suboptimal response.

AN ALTERNATIVE STRATEGY

Nevertheless, we believe that the “run, hide, fight” directive should be followed by any health care professionals, hospital workers, patients, and visitors who are able to comply with it. That category may include the vast majority of occupants of both outpatient and inpatient facilities. But for professionals providing essential medical care to patients who cannot run, hide, or fight owing to their medical condition or ongoing life-sustaining therapy, a different set of responses should be considered — secure the location immediately, preserve the life of the patient and oneself, and fight only if necessary (“secure, preserve, fight”). The elements of this response can be further elucidated in the context of the widely accepted principles of emergency management: mitigation, preparation, response, and recovery.

There is wide variation in the mitigation strategies in place at U.S. health care facilities, with no universally accepted minimum standard of security. For example, after the active-shooter incident at the LAC+USC Medical Center, all entrances to the hospital were sealed. To get in, hospital personnel must now use individually issued electronic key cards, and all visitors pass through a metal detector, with x-ray screening for baggage — a process similar to that used at airports. Once inside the hospital, personnel must prominently display a photo ID card, and visitors are issued a visible wrist band, color coded to indicate which areas they are allowed to enter. In contrast, a short walk across campus

from the county hospital is the private university hospital, where visitors are allowed free access, with no metal detectors or bag checks. Enhanced security measures such as metal detectors and bag screening may be disconcerting to the public and will reduce the efficiency of incoming traffic, but as part of the emergency planning process, health care administrators will have to evaluate the potential benefits of these safeguards.

In the 21st century, all health care facilities require an active-shooter response plan. As part of such a plan, essential patient care areas where life-sustaining treatment is provided must be identified. Such designations will depend on the facility’s patient demographics and local geography, but they may include the emergency department, operating rooms, interventional radiology suite, intensive care units, and labor and delivery floors. A plan will be needed for securing these areas. If an electronic access system is in place, all entry points can be locked from inside the patient care area. If not, simple mechanical devices can be installed to secure the doors to these critical areas and personnel working in these areas can be familiarized with their use. A wide range of inexpensive, easy-to-use products are available for installation on all types of doors. Once the threat has been neutralized, these devices can be removed and the access points opened. Most shooters will not be equipped with the breaching equipment, such as a battering ram or explosives, that can overcome secured entryways, and they will most likely simply move on from barricaded areas.

Kits containing essential supplies for hemorrhage control, including tourniquets, gauze, and gloves, should be located inside all these areas.¹⁴ Arguably, these kits would also be installed in all public-access areas, just as automated external defibrillators have been. Efforts should be made to train all hospital workers, whatever their area of expertise, in basic bleeding-control techniques. Bleeding is the most common potentially preventable cause of death from the types of injury likely to be encountered in such scenarios, so it’s a high-yield target for educational initiatives. The American College of Surgeons Committee on Trauma Bleeding Control course (www.bleedingcontrol.org) is a short, simple, effective program designed for both medical and nonmedical personnel and is well suited for this purpose.

Facilities also need a notification system that will allow personnel at the point of initial contact to trigger an alert that is immediately disseminated to the entire facility. The alert should be a simple, clear message and should use redundant pathways such as overhead speaker, paging, and texting systems. The message can be prescribed to minimize delays and should be communicated in plain language that is universally understandable. Many hospitals use a color-coded alert system that can easily be forgotten or misinterpreted by people who are under stress and that wouldn't be understood by family members or visitors in the hospital. The clear warning that there is an active shooter in the hospital should trigger implementation of the facility's response plan. A similarly designed communication signal can be used when the threat has been neutralized so that the recovery process can begin. Training for hospital personnel on the active-shooter plan and their expected response should be made a mandatory part of the employee "onboarding" process and can be Web-based or use videos to ensure consistency and efficiency; to refresh the necessary skills, training exercises can also be scheduled regularly as part of the facility's disaster plan.

In addition, a critical part of the planning process is advance communication with the regional law-enforcement agencies that are likely to respond to an active-shooter incident.¹⁵ Contemporary police tactics dictate that the first police officers who arrive on the scene should immediately enter the facility in search of the suspect. Giving police advance access to the facility's response plan and making them aware of the essential patient care areas that will probably have been secured will facilitate expedient building entry and clearance.

PROPOSED RESPONSE PLAN

A "secure, preserve, fight" strategy may include the following actions. The "secure" step would entail immediately securing patient care areas where essential life-sustaining treatment is being provided; deploying electronic or mechanical devices designed to barricade entrances into those areas so as to secure all access points from the inside; dimming or turning off all nonessential lights; and silencing telephones and pagers.

To preserve patient lives, health care personnel

should stay away from windows and doors; move patients into a sheltered area if possible; and provide only the essential medical care required to preserve life. That means abbreviating any operative procedures using damage-control principles and weaning anesthetics; stopping any noninvasive diagnostic imaging procedure and truncating any interventional diagnostic or therapeutic procedure; and terminating any nonemergency infusions or extracorporeal circuits such as dialysis or plasmapheresis and securing vascular access.

As a last resort, and only when one's life or one's patient's life is in immediate danger, occupants should attempt to fight off the shooter.

Once an active-shooter threat has been neutralized, the health care professionals working in the designated essential patient care areas should be notified immediately. Only after the notification is received should the barricades be removed. Unlike their colleagues in the remainder of the hospital, which may have been evacuated, the clinicians in these areas will continue to provide essential medical and surgical care to their patients. Although the tempo of most active-shooter incidents is rapid, clearing the entire hospital can be tedious and time consuming. A transition-of-care plan can be implemented to relieve the personnel who provided care to the patients during the active-shooter event.

Facilities will also need a plan for notifying patients' families of their medical status; a plan for rapid recovery and discharge of patients undergoing outpatient procedures; and a plan for media notification, so that facility administration can ensure the flow of accurate, timely information to the public regarding the incident and the facility's operational status and ability to receive patients. In most cases, these plans will include diversion of all emergency medical service transport and cancellation of all nonessential outpatient and inpatient procedures and clinics.

Finally, often overlooked but critically important is attending to the psychological first aid needs of the patients, family, visitors, and health care workers who were present. Though the clinical impact will vary widely, it's important to have a plan for addressing both short- and long-term psychological effects. Since the vast majority of people will leave the facility immediately, ensuring their recovery from the incident will depend on having a comprehensive follow-up plan for contacting and treating them as necessary.

CONCLUSIONS

As outlined in a recent study by Jacobs and Burns,² an active-shooter plan and drills are critical for all health care facilities. A core component of such planning is the mental and physical preparation of the health care professionals who would, if faced with such an attack, have to make personal choices about how to respond. More than half of respondents to Jacobs and Burns's survey believed that health care workers have a duty to protect their patients, and 39% of laypeople and 27% of health care professionals indicated that physicians and nurses should accept a high or very high degree of personal risk in caring for patients who cannot get out of harm's way. For health care professionals working with a vulnerable patient population for whom they are responsible, adhering to the above framework is our recommended approach.

There is a real risk that an active-shooter incident will occur at your health care facility. Although the majority of occupants may well be able to comply with the "run, hide, fight" directive, a segment of the patient population will be unable to do so. A "secure, preserve, fight" strategy may allow health care providers to fulfill their ethical obligations to their patients while responding in a way that maximizes the odds of survival for both their patients and themselves.

The views expressed in this article are those of the authors and do not necessarily reflect the official policy of the Los Angeles Police Department, the Dallas Police Department, or the U.S. government.

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