Surgeons call for community response to mass casualty incidents

Shooting incidents are occurring throughout the US with increasing and alarming frequency. Among those in late 2013: the Washington, DC, Navy Yard on September 16—12 dead, 3 injured before the gunman took his own life; the Sparks, Nevada middle school on October 21—1 dead, 2 wounded before the student wielding the gun killed himself; the Los Angeles International Airport on November 1—1 dead, 3 wounded before police disabled the shooter; and the Paramus, New Jersey, shopping mall on November 4—no fatalities except the gunman, who committed suicide.

Two from 2012 also linger in our memory: the July 20 massacre at the Aurora, Colorado, movie theater that claimed 12 lives and injured 70, and the December 14 slaughter at Sandy Hook Elementary School in Newtown, Connecticut, which left 20 children and 7 adults dead, including the perpetrator.

The Sandy Hook incident prompted the American College of Surgeons (ACS) and the Federal Bureau of Investigation (FBI) in April 2013 to bring together members of the medical community, law enforcement, fire and rescue, and emergency medical services (EMS) for the Hartford Consensus Conference.

The result was a concept paper, “Improving Survival from Active Shooter Events,” and an acronym for incident response: THREAT (Threat suppression, Hemorrhage control, Rapid Extraction to safety, Assessment by medical providers, and Transport to definitive care).

Hartford Consensus participants concluded that the leading cause of preventable death in mass casualty incidents is uncontrolled bleeding or hemorrhage. In July 2013 a second Hartford Consensus Conference was held to develop ways to achieve the goals established during the first conference. Findings were presented in October at the 2013 ACS Clinical Congress in Washington, DC, by panelists Lenworth M. Jacobs, MD, MPH, FACS; David S. Wade, MD, FACS; Norman E. McSwain, Jr, MD, FACS; Michael F. Rotondo, MD, FACS; and Alexander L. Eastman, MD, MPH, FACS.

Call to action

Their purpose was to launch a call to action for cities to develop an integrated response system, customized to the needs of each community, with an emphasis on controlling hemorrhage as quickly as possible.

“With the recent incidents at the Navy Yard (Washington, DC) and Westgate Mall (Nairobi, Kenya), this topic is very much top of mind,” said Dr Jacobs, vice president, academic affairs, and chief academic officer and director, Trauma Institute at Hartford Hospital in Hartford, Connecticut. “In one case, emergency responders were delayed 40 minutes because law enforcement didn’t want to put them in danger. Most of these shooting events are over in 15 minutes, and people can bleed to death within 5 minutes from these severe injuries. Responses to save victims have to be immediate, fully orchestrated, and ready to go, day or night, in any city in the US.”

A shooting incident, Dr Jacobs explained, is broken down into 3 zones: the “hot zone,” where an active shooter is involved; the “warm zone,” which is less dangerous than the hot zone but is not secure; and the “cold zone,” which is a safe area where patients can be triaged and assessed.

“The Hartford Consensus is designed to blend the 3 phases—law enforcement
phase, where officers isolate or terminate the shooter; the rescue/triage/transport phase; and the recovery phase—into a more seamless care system when a mass casualty incident occurs,” said Dr Eastman, assistant professor of surgery at the University of Texas Southwestern Medical Center and a lieutenant with the Dallas police department’s SWAT team. “The key to improving survival from these types of incidents is to expand the role of first responders. Hemorrhage control has to follow right behind terminating or containing the active shooter. Hemorrhage control involves the use of a pressure bandage, the application of a commercially available tourniquet, and the use of hemostatic agent impregnated gauze material. Those can take care of probably 95% of the wounds that can be treated in the field,” he explained.

“Tourniquets do not belong on an ambulance; they belong on every police officer and every first responder,” declared Dr McSwain, medical director of Prehospital Trauma Life Support in New Orleans. “If you put a tourniquet on to control hemorrhage after the patient goes into shock, the survival rate is about 4%. If you put it on before the patient goes into shock, the survival rate is 80%—a significant difference.” In Louisiana, he said, plans are in place to equip every police officer within 3 years with a tourniquet and to teach them proper use.

**Role of hospitals**

“What standards do we need to meet in order to effectively respond to these patients?” asked Dr Rotondo, chair of the ACS Committee on Trauma. He advised the audience to take note of 6 basic concepts:

- **Review.** Hospitals need to review what processes are already in place to be able to handle a large influx of patients. The ACS Committee on Trauma has produced a document, the Operative Resource Guide for Care of the Injured Patient, that contains structures and standards designed to achieve the best outcomes, he explained. Future work will focus on a way to measure those outcomes, he noted.
- **Citizenship.** Think about how you work with colleagues at other hospitals in your community. He noted that after the mass shooting in Blacksburg, Virginia, everyone transported to the trauma centers survived.
- **Educate.** For those not accustomed to handling injuries on a regular basis, he recommended several ACS resources, notably the Advanced Trauma Life Support program and the disaster management and preparedness course.
- **Imagine.** “Imagine the unimaginable. That’s what we need to do to prepare for these circumstances,” he said. “Could any of us have imagined that the Twin Towers would have fallen as they did? No. Could anyone imagine that 2 students would come to the Boston Marathon and create such disruption? Well, Boston did think of it, and that’s why they responded so incredibly effectively.”
- **Plan.** “Failure to prepare is preparing to fail,” he said. Citing the constant state of preparedness of Israeli hospitals, he said all hospitals must be engaged in planning.
- **Drill.** “You’ve got to practice. And practice. And practice,” he said. “There’s no substitute for drilling and practicing as if it were happening.”

Ken Maddox, MD, FACS, an audience member, asked the panel to “drill down” the recommendations regarding the active shooter. “What assistance can you give us when the active shooter is indeed in our hospital? Several such events have happened this past year, including a patient unit in a hospital in my own city. How do we change?”

Dr Eastman said a hospital is no different from a community; a plan must be in place. At Parkland Hospital in Dallas, he said, there is a very urban population, and the hospital has a police force available to respond and provide emergent hemorrhage control.
Have at least 5 tourniquets in multiple areas of the hospital, including the OR, Dr McSwain advised. Dr Eastman echoed that recommendation, noting that the University of Texas is being asked to provide a hemorrhage control kit in every location where there’s an automated external defibrillator in the building.

Better communication
During a press conference preceding the presentation, Dr Jacobs responded to a question about what’s being done to improve communications. “Using common language and terminology that mean the same thing to law enforcement, EMS, and hospital staff is important,” he noted. It’s also essential to have discrete radio bands so that people can hear what’s being said, and there must be a method to link those systems, he said.

“In most local jurisdictions, you need to have a coordinating center, both from a patient standpoint and a communications standpoint,” Dr Eastman said. He explained that Dallas has an EMS communication center at Parkland Hospital that integrates information from 15 jurisdictions and parses it out to the different hospitals. During his tenure with the Dallas police department, a notable improvement has been to give every police officer a radio. “When I started working for the city of Dallas in 2004, only my partner and I had radios that were capable of speaking with the police and the fire department. Now, all 3,700 of us have a portable radio.”

It’s important to educate the public about what they can do, Dr Jacobs noted. The Boston Marathon bombing in April 2013 resulted in many more injuries than deaths, he said, largely because of the response from the people who were there. “The public is a responder; they want to be helpful, and it’s our job to teach them how to be helpful. That will actually increase survival from these events.”

Dr Wade, chief medical officer of the FBI, noted the paradigm shift that must occur among other first responders as well: “Fire and EMS people may need to engage sooner than they’ve been customarily comfortable in doing. That’s a big sea change for those communities. Most EMS first responders that are part of the fire/rescue crew are very comfortable fighting a fire but not in a situation with an active shooter.” However, he noted, “Once you get to the hospital, you have a pretty good chance of survival. It’s what happens in the time between being wounded and getting to the hospital that has the biggest impact on whether or not you survive that wound.”

Dr Wade encouraged audience members to work with their hospitals as well as local city and county governments and fire and rescue officials. He also mentioned the Federal Emergency Management Agency’s Planning Guide for Active Shooting and Mass Casualty Events as a good resource (usfa.fema.gov/downloads/pdf/publications/active_shooter_guide.pdf).

“Having a well-trained, well-equipped group that’s capable of implementing the ideas of the Hartford Consensus will make your community safer and stronger, and will improve your law enforcement response and your response to all disasters. The Hartford Consensus is designed to make groups that previously may not have worked well together become more integrated than ever,” Dr Eastman concluded. ❖

References
http://www.naemt.org/Libraries/Trauma%20Resources/Hartford%20Consensus%20Document%20Final%204-8-13.sflb

—Elizabeth Wood