TRACIE
HEALTHCARE EMERGENCY PREPAREDNESS INFORMATION GATEWAY

TRAUMA HOSPITALS AND MASS SHOOTINGS

Effective trauma care is a direct result of all parts of a system working well together (on scene, during transport, in facility, and--if necessary--during transfer and beyond). In the U.S., major trauma centers are able to provide comprehensive total care for every aspect of injury. ASPR TRACIE interviewed two physicians who shared their experiences providing patient care after mass shooting incidents, with a focus on the importance of conducting initial and follow-up triage. Dr. Michael Cheatham (Orlando Regional Medical Center [ORMC], Level 1, approximately 800 beds) spoke about the June 2016 Pulse Nightclub mass shooting. Dr. Comilla Sasson (who at the time worked for the University of Colorado Hospital, Level 2, nearly 450 beds) discussed the response to the July 2012 Aurora movie theatre mass shooting.

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John Hick (JH)

Can both of you summarize your roles during these incidents?

Michael Cheatham (MC)

I ended up taking on three different roles that night. I was one of the first trauma surgeons that got called in to assist because I live so close to the hospital. As more of my partners reported to the hospital, I switched hats and worked as the medical director of the Incident Command Center. As the morning progressed, the hospital's president asked me to serve as the hospital's media spokesperson.

Comilla Sasson (CS)

I was one of the two attending emergency department (ED) physicians the night of the Aurora shooting. I wasn't supposed to be working, but I agreed to cover for a sick colleague. I currently work for the VA hospital in Denver, Colorado and maintain an appointment within the University of Colorado School of Medicine and Colorado School of Public Health.

JH

Dr. Cheatham, is your facility the only Level 1 trauma center in your area?

MC

Yes, and emergency medical services (EMS) providers will typically take patients with penetrating trauma injuries such as gunshot wounds (GSW)

to our Level 1 or Level 2 trauma centers. There are two Level 2s in the area (one north and one south of us). EMS frequently chooses to bring GSW patients to ORMC, the Level 1 trauma center. ORMC is also located 2,100 feet from the front door of Pulse Nightclub; the Level 2 facilities are about 25 minutes away.

JH

Tell us about patient arrival and triage status after the nightclub shooting.

MC

The initial wave of 36 patients came to ORMC about 10 minutes after the incident began. We received one patient a minute during the initial wave. The second wave of patients (9-10 total), which left the scene after the SWAT team breached the nightclub and neutralized the gunman, were taken to ORMC. There were another 10 victims that were taken to other hospitals with minor injuries. This was a decision made by EMS; they knew we had received so many patients earlier. About half of the first wave were transported by bystanders and law enforcement. No field triage was done. EMS did set up an area on scene and were able to triage subsequent victims, but many patients from the first wave were driven to or carried to the hospital by bystanders, or driven there by police.

JH

Does ORMC use a specific tagging or triage process, and who leads this initial assessment?

MC

The initial assessment is done by the medical director for the ED. The on-call trauma surgeon assumes the role of trauma director. For this incident, he was primarily focused on resuscitating the red patients in the trauma bay and identifying patients to be sent to the operating room (OR). We have triage tags available as part of our plan, but we did not use them that day. The volume of patients made that impossible. The first 36 patients arrived in 36 minutes.

JH

Dr. Sasson, how did patients arrive to your hospital after the theatre shooting?

> *None of these things ever happen in the middle of the day when you have a full OR staff.*
>
> ***Comilla Sasson, MD***

For more information on lessons learned from the Pulse Nightclub shooting by Dr. Cheatham and his colleagues, access Issue 3 of The Exchange.

ORMC also published a free, online book with chapters that detail how each department responded to the Pulse shooting. Registration is required to access this document.

CS

We received two or three patients by ambulance, and the rest (of 23 patients) came by foot, private vehicle, or in the back of police cars. One patient actually ran three miles to get to us. It was a unique situation-no triage was done at the scene. They didn't allow ambulances in until they were able to clear the scene and ensure there wasn't an active threat. For the first 20 minutes or so, the only people allowed on the scene were law enforcement.

JH

Once they arrived, what was the triage process like?

CS

I was one of the two attending ED physicians and we had two residents. We stayed in the ambulance bay (next to the resuscitation bay) and performed spot triage. We'd send patients to either the resuscitation bay, a "hall spot" (we were already full when the incident occurred), or, if they needed immediate OR activation, we had them transported right away to the OR. There was no time for triage tags. We had to activate the OR teams because it was late at night. The trauma surgery attending basically called up the other surgeons—it was essentially an "all hands on deck" situation.

JH

Dr. Cheatham, was there a need for prioritization, or secondary triage after the nightclub shooting?

MC

That is the rule the trauma director followed. In fact, the very first patient who arrived with a GSW to the abdomen was actually one of the last patients to go to the OR. He was hemodynamically stable and alert, and more critically ill patients arrived and "bumped" him. On a daily basis, we have two ORs that run around the clock. As we brought in more teams over the next two hours, we were able to run eight ORs and we were able to get people to the ORs as quickly as we needed to.

JH

Did either of your teams perform "damage control" surgeries that night?

MC

Because of the magnitude and time involved, we really didn't know how many more patients were coming. After they breached the club's wall, law enforcement told us we had another 40 victims coming. We were expecting a third wave of patients, but unfortunately, this didn't materialize because those patrons were deceased. Not knowing this was the case, we did many damage control operations that day in order to free up the ORs; patients were returned to the OR within 1-2 days for the completion of their procedures.

CS

We had a similar situation. If someone needed a chest tube, the ED doc would handle that, and get the patient stable enough for the OR. We had quite a few patients who had been shot in the head as well. It was a constant process of prioritization. Once the attendings got there, they helped with the triage and re-prioritization. There were some patients who had to return to the OR in the days after the incident.

JH

Were there any challenges from a supply standpoint?

MC

We did run short of chest tubes because of the number of chest GSWs we treated. We brought additional chest tubes over from our pediatric trauma center and restocked the emergency department from our disaster supplies.

CS

We had a similar situation in our ED. We had one of our emergency medical technicians who is also an ED technician run around the OR collecting as many chest tubes as he could find. You're just not usually stocked for that much penetrating trauma in the ED.

JH

How much blood did your hospitals go through after the incidents?

CS

We went through 300 units of packed cells that night. We were able to work with our blood donation site to get what we needed, but the region was definitely depleted for a few weeks after. We made this part of our public information campaign—there were many in the community who wanted to help, so we emphasized that blood was one of the things they could contribute.

MC

We transfused 441 units of blood that night. Our challenge was different from Aurora's. I was asked by a reporter during one of the initial press conferences if people could donate blood. We said yes, and over the next three days, people donated 28,000 units of blood. Our local blood bank was overwhelmed. One of the lessons we learned, however, was the value of a relationship with the blood bank. One of the very first calls Incident Command received was from the blood bank, telling us how many units they had already sent and offering to send us blood until we told them we didn't need anymore. They made eight trips to us that day and brought 600 units of blood. They initiated this on their own after watching the news, and it was extremely helpful. One of the lessons we try to emphasize during our lectures is the importance of getting to know your blood bank in non-emergency times and involving them in your disaster planning.

In this 2012 article, Dr. Sasson shares her experience that night and discusses how the incident affected her and her colleagues.

In the recent ASPR TRACIE webinar Healthcare Response to a No-Notice Incident: Las Vegas, healthcare providers who responded to the mass shooting incident share their experiences and recommendations that can help others prepare for similar incidents. Links to the webinar and the related series of tip sheets on no-notice incidents are available on our Select Mass Violence Resources webpage.

JH

Dr. Cheatham, did you have any issues with plasma?

MC

No, we actually keep plasma thawed so we don't have a delay. The volume we go through between the trauma center and cancer center allows us to keep units thawed and ready to go. Because there was so much blood on scene, many patients were exposed to other patients' blood, so we vaccinated everyone against hepatitis B (reference this article for more information on postexposure interventions to prevent infection in patients after mass casualty incidents).

JH

Were there any issues with other supplies

CS

Having enough clean supplies on hand ready to go in the middle of the night was a bit of a challenge for us.

MC

We keep quite a few instrument trays on hand and chest tube insertion trays, in particular, were scarce. One of our sister hospitals in the area did help us with instrument sterilization after the fact because of the sheer volume of cases and the length of time it takes to process and sterilize the trays.

JH

How did you handle surge and related capacity issues?

CS

Our hospital-wide response allowed us to discharge people to make room for these patients. EMS informally diverted patients for a bit. The incident took place at about 12:30 a.m. and at 5:00 a.m., most of the ED was empty. At 7:00 a.m., some colleagues who hadn't seen the news reports came in to the ED assuming it had been a quiet night. Being able to expedite the discharges from the ED and hospital at large was extremely important.

MC

Our surge plans were adequate, and we were able to move people out pretty quickly. We were also able to triage ICU patients to our step-down units, and patients from our step-down units were sent to the floor. I've never seen an ER quieter than it was the morning after the Pulse incident. We literally had to tell EMS to bring us patients again (they had put us on divert in the electronic status system, assuming we were overwhelmed). That said, it was extremely difficult to get to ORMC that morning because of roadblocks that had been set up to allow for the scene to be investigated, and the media taking up a lot of room. Ambulances would not have been able to take their usual routes to the hospital. This continued for about a week after the incident.

JH

Do you have any closing comments to share with our readers?

MC

You certainly want to do frequent exercises and drills. You want to drill to fail. So many hospitals practice drills to bring people to the ED, and after an hour, they say “We’re done.” We really need to involve all departments of the hospital in these exercises to truly test all parts of the system. It’s better to have too many staff than finding that you have not summoned enough resources and your patients are suffering as a result.

CS

You can’t practice enough for mass casualty incidents. Your plan may or may not go as expected, but as we experience more nonotice incidents, we have more opportunities to test different scenarios. Also, we really need to take care of the employees— from housekeeping staff to first responders and those who became non-traditional healthcare providers during the incident. We need to recognize that healing is a process, and you’re honestly likely to lose people. We did a staff debriefing at my house two weeks after the event. There was a psychiatrist there who discussed the expected response to traumatic events like this and this helped many of us understand the reactions we were having. It is so important to continue to follow up with people to ensure their mental health needs are being identified and met.