

A DAY LIKE NO OTHER

A CASE STUDY OF THE LAS VEGAS MASS SHOOTING



Nevada
Hospital
Association

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DISCLAIMER

The purpose of this special report is to provide supplemental hospital emergency management educational material via the case study of one of the worst mass-casualty incidents to occur in our nation's history: the shooting in Las Vegas, Nev., on Oct. 1, 2017. Every effort has been made to accurately capture the incident, actions and impressions of the hospitals and their staffs.

This report was prepared to further hospital, coalition and public health emergency management practices. The focus of the information is to foster discussion that may form the basis of future policy, procedures and exercises. Individual hospitals, agencies and responders are not attributed nor exposed within the text of this report.

The observations and lessons learned, as documented in this report, are in no way an indictment of any kind, nor should they be viewed as regrets about what could have been achieved better at the time of the incident. America has never seen an incident of this type or scale. This situation and subsequent response helped to identify areas where additional planning, exercises and assumptions are necessary based on the changing world and social environment in which we now live.

ACKNOWLEDGMENTS

The healthcare and first-responder community were called to work together in ways that have never been contemplated. Under extreme conditions — which included high stress, imminent danger, extraordinary patient volumes and acuity

— these hospitals and individuals achieved amazing results. Each and every one of them contributed to saving hundreds of lives. They are all heroes.

Many responders and staff members still suffer from the events of that day. The emotional and psychological wounds, horrific memories and difficult humanitarian interactions with the injured and their families may never fully dissipate. Some responders incurred physical and debilitating injuries, and one made the ultimate sacrifice. The community, state, nation and world are indeed better places because of these selfless actions. Thank you to all of those affected.

This report would not be possible without the assistance and support of Nevada's hospital, healthcare, first-responder communities, the Southern Nevada Health District, and emergency management teams. Thank you to the acute care hospitals who received the bulk of the self-transporting patients, including Sunrise Hospital and Medical Center, Desert Springs Hospital Medical Center, University Medical Center, Spring Valley Hospital Medical Center and Dignity Health St. Rose Dominica Siena. Thank you to the rest of the southern Nevada hospitals and systems who all contributed to patient care, received patients or transfers, shared equipment, supplies, pharmaceuticals, personnel, expertise and provided help and support in every imaginable way to support our community. These facilities are Centennial Hills Hospital Medical Center, Dignity Health Hospitals and Neighborhood Hospitals, Henderson Hospital, MountainView Hospital, North Vista Hospital, Southern Hills Hospital and Medical Center, Summerlin



Hospital Medical Center, Valley Hospital Medical Center, AMG Specialty Hospital, Complex Care Hospital, Desert Parkway Behavioral Healthcare, Encompass Health (formerly HealthSouth), Horizon Specialty Hospitals, Infinity Hospice, Kindred Hospitals, Montevista Red Rock Behavioral Hospital, Mountain's Edge Hospital, Nathan Adelson Hospice, Seven Hills Hospital and Spring Mountain. A special thank you and acknowledgment goes out to the VA Southern Nevada Healthcare System, which provided endless hours of counseling and psychological first aid to the area's hospital staff and responders. Your dedication rescued the rescuers and provided much-needed emotional support.

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The exclusion of anyone in this section is purely accidental and in no way lessens the gratitude we feel for contributions received.

FORWARD

This special report is not an after-action document, but instead a consolidated discussion of events, actions taken, lessons learned, observations and hospital experiences that resulted from the Las Vegas mass shooting. The information shared in this report was collected through interviews, facilitated discussions, field trips and the Nevada Healthcare Preparedness Partner's InfoXChange program and is presented in a narrative. Individual patient care is not discussed as the focus of the report is on hospital emergency management. Likewise, family reunification and assistance outside of the hospital environment is not addressed within this report.

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INTRODUCTION

Clark County, Nevada is approximately 83 square miles in size. Often, the term "Las Vegas" is used generically and interchangeably to describe the political subdivision that is Clark County. That holds true in this document as well. The Las Vegas Strip and Las Vegas McCarran International Airport are located within unincorporated Clark County. The county is commonly referred to as a land-locked island, as the next closest metropolitan area is San Bernardino, Calif., approximately 183 miles to the west.

Roughly three quarters of Nevada's population lives within Clark County. Las Vegas is the 30th largest city in the United States and is home to the world's 26th busiest airport (8th busiest in the USA). A world-renown tourist destination, Clark County receives more than 43 million visitors every year.

No stranger to holding large events, Las Vegas is home to three of the world's 10 largest convention

¹ Nevada Healthcare Preparedness Partner's InfoXChange program was conducted Jan. 31-Feb. 2, 2018. Subject-matter experts from New York (organized through the Greater New York Hospital Association) traveled to Las Vegas and took a tour of the event site and met with the hospital staff at most of the receiving facilities. The NY-SMEs could ask any questions of their Las Vegas peers related to how and why certain procedures or practices were applied. Physicians challenged physicians; coroners challenged coroners, etc. This discourse led to many of the lessons learned and highlighted within this report. SMEs included physicians, coroners, law enforcement, fire, EMS, nursing, public health officials, hospital CEOs and other hospital staff members.



centers and represents the largest hotel market in the USA. Large events include an annual New Year's Eve celebration (attendance of 250,000+), "Super Bowl" parties (attendance 350,000+), the International Consumer Electronics Show (attendance 184,000+), the Electric Daisy Carnival (attendance 400,000+) and various concerts, NASCAR, Golden Knights and NCAA events.

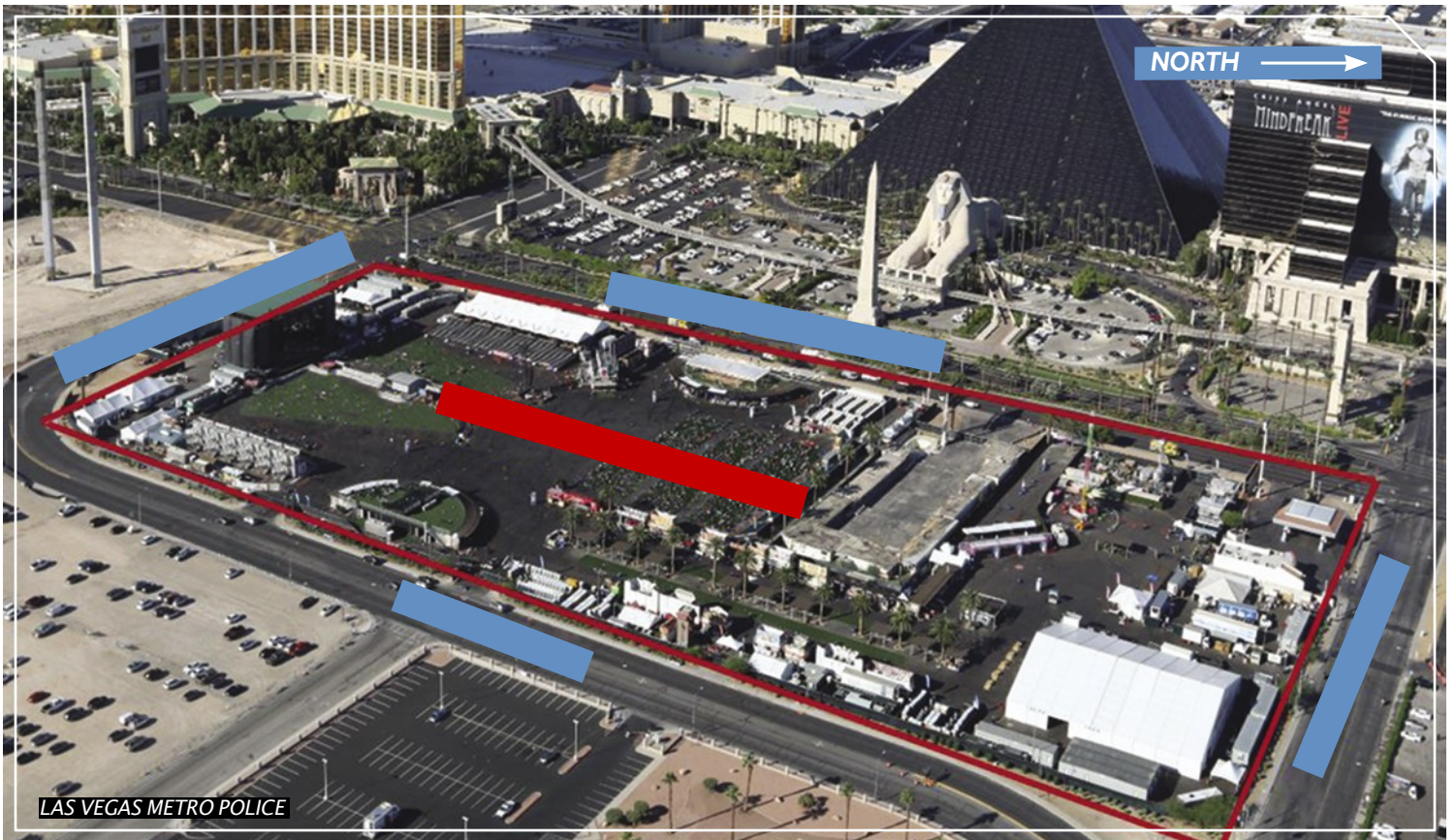
The Route 91 Harvest Festival was a three-day country music concert event. The venue was an outdoor, flat lot approximating 15 acres in size with festival seating. The concert had 22,000 attendees. It was not considered a large-scale event by Las Vegas standards.

The event was well staffed with both security and first-aid personnel. Las Vegas Metropolitan Police Department (Metro) had 50 officers on duty at the concert, and Community Ambulance (a private ambulance service) had several paramedics, EMTs

and a medical tent within the concert venue to provide first aid.

All attendees were issued Radio Frequency Identification Device (RFID) armbands that contained their concert ticket and credit card information. Because this was a three-day event, attendees required the ability to leave and re-enter the concert. RFID technology armbands afford concert-goers this flexibility. Additionally, this technology gives patrons the convenience of not needing to carry cash or credit cards with them, as they can wave their armband over a sensor at a vendor or food booth and automatically charge the credit card on file for whatever products they ordered. The unintended consequence of this technology is that by day three of the event, few people felt it necessary to carry their wallets — and hence their driver's licenses or other forms of identification.

The hospital system in Clark County is predominantly private, with a mix of both for-profit and non-profit facilities. HCA Healthcare Inc. (HCA) operates three acute-care hospitals, including one trauma center. Universal Health Services (UHS) operates six acute-care hospitals. Dignity Health (non-profit) operates three acute-care facilities, including one trauma center, and partners with Emerus for the provision of four micro-hospitals. University Medical Center is a county-operated hospital and is the only Level I Trauma Center and burn center in the state of Nevada. Prime Healthcare operates one for-profit, acute-care hospital.



A COMPLEX INCIDENT

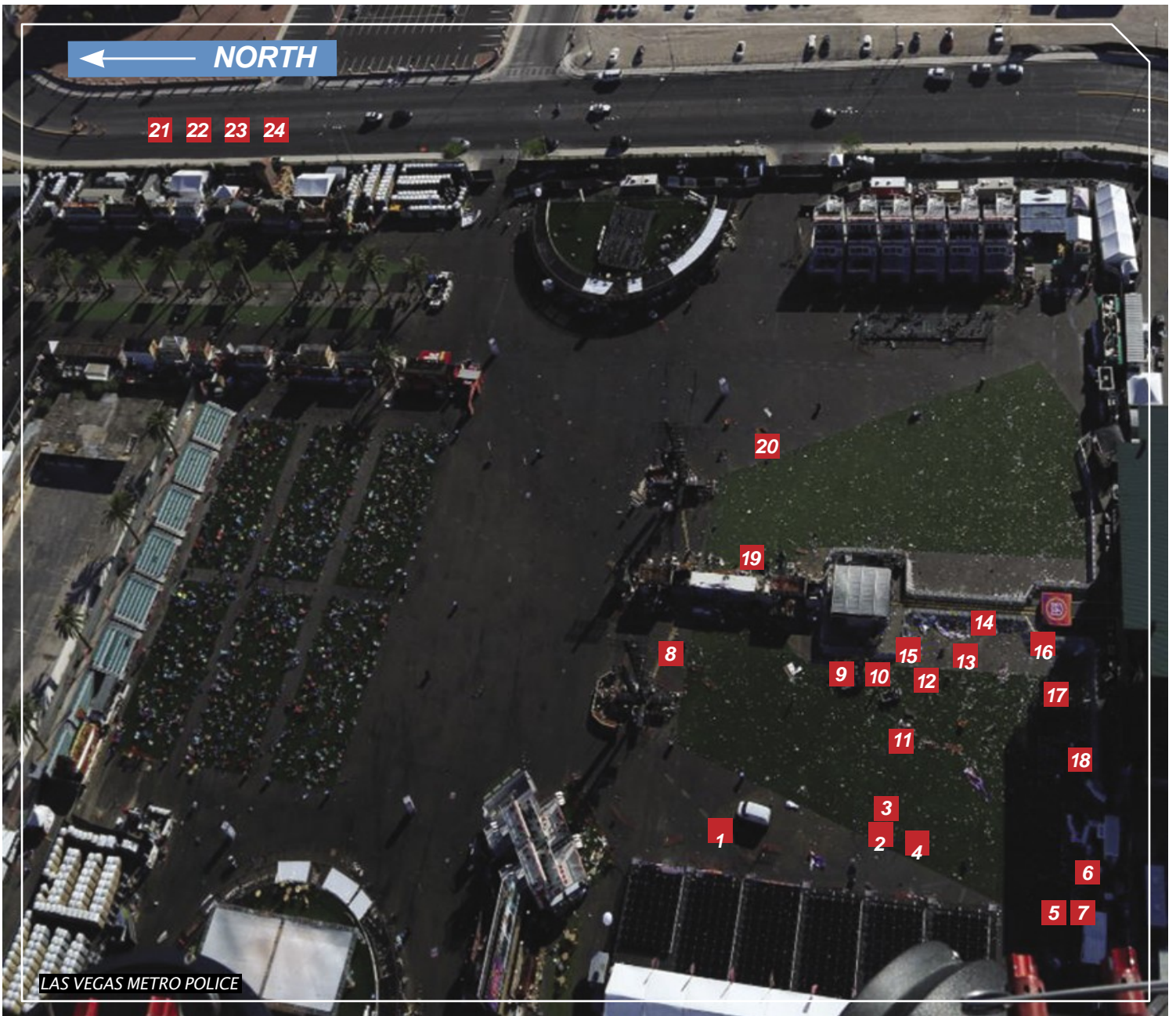
On the night of Oct. 1, 2017 at 10:05 p.m., shots were fired into the crowd of Harvest Festival attendees. More than 1,000 shots were fired over the course of approximately 15 minutes, many into the concert venue.

The shooter was perched in an elevated platform — shooting down from the 32nd floor of the Mandalay Bay Resort, located across the street from the concert venue and more than 350 yards away. Concert-goers initially didn't realize what was happening and believed the noise to be firecrackers or part of the show.

Once it became apparent that people were being shot and killed, the crowd ran for their lives. Every exit, fence or other area of egress was quickly

over-run. Survivors helped the wounded. Shirts, belts and other implements were used by these good Samaritans as make-shift tourniquets and compression bandages. Others picked up and carried the severely wounded away from the venue seeking shelter.

A total of 31 people were killed within the concert venue or died before reaching a hospital. More than 800 were injured, with the extent of these injuries ranging from minor to fatal. As the crowd ran away from the venue, they began taking refuge at area hotels, churches, convenience stores and airport facilities. Many of the injured self-transported or used ride-sharing services to get to the closest hospital. The incident location had spread from the contained 15-acre venue to more than four square miles of the densely populated city.



“A total of 31 people were killed within the concert venue or died before reaching a hospital.”

Hundreds of people broke through the McCarran Airport's chain-link fence, which borders the venue, and ran down active runways. The Government Accountability Office would later declare that this resulted in the largest airport breach in history. Many of these individuals suffered from gunshot wounds or were hysterical. Allegiant Airlines sheltered more than 30 individuals at a maintenance facility, while another 130 people hid in Signature Flight Support hangers — many with life-threatening injuries. Others ran to any building on the airport grounds they could reach. A flight that was cleared for landing had to abandon the approach just before touching down, as a crowd of people were running down the landing strip, nearly creating another disaster. For the next several hours, flights were diverted to Phoenix or other cities.

The shooter used a bump-stock accessory on his rifle(s), which allowed the weapons to fire at near fully automatic (machine gun) speeds. Fire and EMS rescue crews could not make their way into the venue to treat the wounded, as gun shots were still ringing out. Additionally, these initial responding rescue crews had limited access to the people who ran toward the airport, because driving that direction placed them directly in the shooter's line of fire. Units needed to either drive significant distances around the airport to other entrances or otherwise approach from the more rural county areas in the south.

Ultimately, the majority of the injured (approximately 800) found their own transportation to area hospitals or other medical care, using mapping applications on their smartphones to identify



and route themselves. Paramedics were required to respond to more than 20 separate locations around the perimeter of the concert grounds to treat wounded people who initially fled on foot. Each of these locations had between three and 40 injured people.

In addition to the dilution of the wounded from the scene, law enforcement began getting multiple calls regarding additional active shooters. These calls came in from major resort casinos and from airport officials. These types of calls, referred to as "echo" calls, occur when victims run to another location and then collapse. The person who then finds the victim (whether a security guard or lay-person) calls 911 and reports that a person has been shot at their location. It's a natural assumption, in the absence of any other facts, that the victim was



shot at or near the location in which they were found. In any case, all of these (approximately 20) echo calls were responded to by both law enforcement and paramedics just as if an active shooter were present. The result: Echo calls significantly contributed to scene confusion, additional service calls and responder anxiety.

Situational awareness in the initial phases of the response was challenging. Law enforcement and rescue crews had multiple reports of active shooters. Injured and deceased people were spread over four square miles throughout the city. The airport had been shut down. What sounded like machine-gun fire was witnessed by multiple fire and rescue crews. Law enforcement officers tried to engage the one known subject, and several were shot. And hundreds of injured patients, without any prior notification, began arriving at area hospitals.

THE HOSPITAL EXPERIENCE

Oct. 1, 2017, was a day like no other for Clark County hospitals. It was a relatively quiet Sunday night prior to the shooting. Many of the facilities had flexed-off excess staffing. The hospitals were at minimal Periodic Automatic Replenishment (PAR) values for supplies and pharmaceuticals, awaiting their Monday morning deliveries. And then it happened: Car load after car load of seriously wounded people started arriving without any notice.

Cars started pulling into the emergency room driveways and ambulance entrances. These cars were filled with as many people as could fit, many with life-threatening injuries, and some who exsanguinated and died on the short drive from

the concert. The closest hospitals to the concert found themselves thrown into the midst of a mass-casualty incident, with no notice. The injured had no pre-hospital care. There was no field triage; minor injuries arrived in the same vehicles as patients who were critical. Non-trauma centers were receiving critical penetrating trauma. One hospital reported that a line of cars more than a quarter mile long was waiting to make entry into the hospital parking lot. The cars just kept coming, and the shooter was still shooting.

The hospital staff began receiving text messages and phone calls from co-workers, family and friends. Some people were offering to help, some communications were to check up on their status and some were offering additional information. The information flow was dynamic. Witness reports and victim statements were communicated via the network news and on social media. Most of the early information and witness accounts were absent of any actionable data or were false in their entirety. Reports of additional active shooters, gunmen spotted at various hospitals, and speculation about additional targets and motive all created an atmosphere of uncertainty — and in many cases, fear — within the first-responder community.

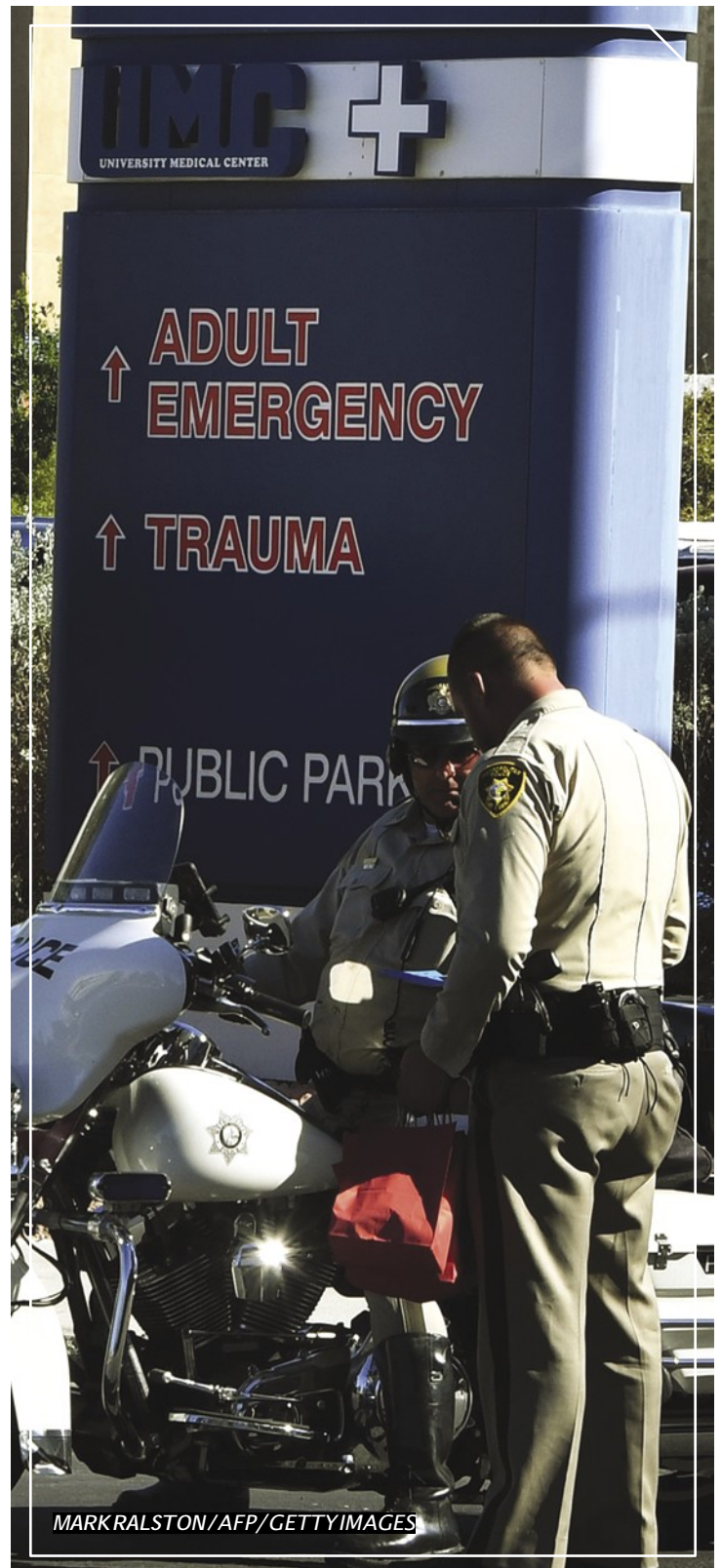
For the hospitals, the staff had to put all their fears and emotions to the side and keep on task. Triage, treatment and establishing some sense of organization were paramount in this situation. Initial tasks included extricating patients from vehicles as they arrived, triaging patients and providing life-saving treatments as fast as possible. Instituting a formal hospital incident command system had to wait until

additional staff could arrive, but “mobile command” and activating elements of multiple emergency plans took place at most facilities.

Almost uniformly, the emergency plans that were activated prior to the formal command centers being established included surge/triage plans, communications/staff call-back and lock down and security plans. The exact order of these plan activations varied based on the individual facilities’ situations; however, all hospitals stated that these plans were for the most part activated simultaneously.

The tempo remained steady for several hours, with patients arriving 10-15 at a time, one car after another, and later through the night, ambulances with multiple patients. Hospitals had no ability to estimate the total number of patients that they were going to receive, or the number of operational periods that this tempo would sustain. Based on limited information, echo calls and rumors/speculation being spread via social media, many people believed that Las Vegas was experiencing a coordinated complex attack like that which occurred in Paris, France².

Doctors, nurses and hospital staff were quick to report back to work. Many simply showed up prior to being requested. This was both a blessing and a curse. It was a blessing because staff members in all disciplines were needed to effectively deal with the large numbers of patients that were arriving. It was also a curse because hospitals needed to ensure that they had enough staff depth to cover all positions and shifts the next day and thereafter.



MARKRALSTON/AFP/GETTYIMAGES

² Paris, France was the site of a series of coordinated attacks in November 2015. Attackers killed 130 people and injured another 413. Coordinated attacks took place at more than three locations and resulted in the deadliest occurrence of violence in France since WWII.



Because several reports had been received stating that gunmen had been seen at multiple hospitals, Metro deployed officers to help secure these medical facilities. At one facility specifically, Metro believed they had a credible sighting and created a multi-layered perimeter around the hospital while they began a search for the suspect. This activity made it difficult for several responding physicians and staff to get to their normal workplace. The staff that could not make it to their normal worksite drove to other facilities to help in any way they could.

One community hospital (non-trauma center) near the incident began receiving patients with major injuries. They activated their communications plans, calling in all available specialties and staff. Additionally, some people who were not able to get to their normal workplace showed up and augmented this hospital's capability. Realizing that the trauma centers in the Las Vegas valley were all inundated, they functioned as though they were a trauma facility, with all specialties on-site throughout the night and all of the next day. ST elevation myocardial infarction (STEMI) alerts, unrelated motor vehicle traumas and other seriously injured patients were sent to this facility, load-balancing patients on a macro-scale during the healthcare system's response phase to the shooting incident.

As the numbers of patients, tempo at which they arrived at area hospitals and acuity levels stayed steady, it was difficult to register everyone. Electronic health record (EHR) systems and registration clerks simply couldn't keep up. Patients needed immediate surgery. Other minor injury patients needed to be treated and released or transferred to

outlying facilities. Much of this occurred without any patient registration taking place.

Hospitals began to run out of supplies and medications. Clean linens, endotracheal and chest tubes, as well as rapid sequence intubation medications stores were all quickly exhausted. Hospitals needed to share these items among themselves, borrowing from unaffected facilities such as the long-term acute care hospitals and those facilities that were more distant from the venue. At the same time and unrelated to the shooting, hospitals throughout America were experiencing critical shortages of IV fluids. This situation was exacerbated in Las Vegas by the sudden unanticipated need to start more than 1,000 IVs on one night. These added stressors disrupted normal workflows and projected a feeling of frustration that was felt by providers and staff throughout the healthcare system.

Blood was everywhere, and Environmental Service (EVS) crews became the unsung heroes at many hospitals — cleaning emergency rooms, waiting rooms and operating suites as fast as possible. Making room for the next patient was a critical task. And this task was never ending that night. Cleaning gurneys, equipment, floors and everything in between was required to eliminate cross-contamination, infection and other hazards related to bloodborne pathogens. Simple items that aren't thought of as mission critical or difficult to acquire during disasters suddenly were in short supply, as they became contaminated and needed to be discarded. These items included, but weren't limited to, ball point pens, dry erase markers, note pads and triage tags. Terminal cleaning and



sterilization of surgical equipment was also an around-the-clock operation.

The next surge that hospitals experienced, occurring only minutes after the initial patient arrivals, was that of friends and families. It is estimated that for every patient seen, four to six others also came to the facilities. Waiting rooms designed for approximately 20 people were now crowded with literally hundreds of concerned family members. These people were starved for information. They wanted to know the status of their friends, when they could be seen, how long they were going to be in the hospital, what the long-term prognosis was — and they wanted that information immediately. Hospitals, on the other hand, couldn't initially provide any information. Many of these patients arrived without identification or were unconscious. It became difficult or impossible to confirm to families and friends if they were taking care of their loved ones.

Families and friends remained at hospitals. They used the restrooms, needed food and water, and they were constantly on their cell phones until the power was drained. This created additional logistical concerns in the early-morning hours: hospital cafeterias were generally closed at this hour, restrooms needed restocking, and having considerable numbers of people wandering the halls — looking for an available outlet to charge their phone — wasn't previously anticipated in most emergency operations plans. To make matters more difficult, these people were emotionally fragile. The following day county officials began coordinating with hospitals to redirect family and friends of those injured to the Family Assistance Center

where they could get up-to-date information and a variety of social services. This helped to relieve these particular hospital stressors almost instantly.

Law enforcement, emergency operations centers and public health departments also were reaching out to hospitals in search of information. Phone calls, emails and in-person visits were relentless. These agencies all had valid needs to access the information requested, as family reunification, patient tracking, witness identification and casualty counts become impossible tasks without the necessary data. Some hospitals quickly shared information as it became available but, several hospitals didn't have immediate access to the information requested or felt they were prohibited from disclosing it.

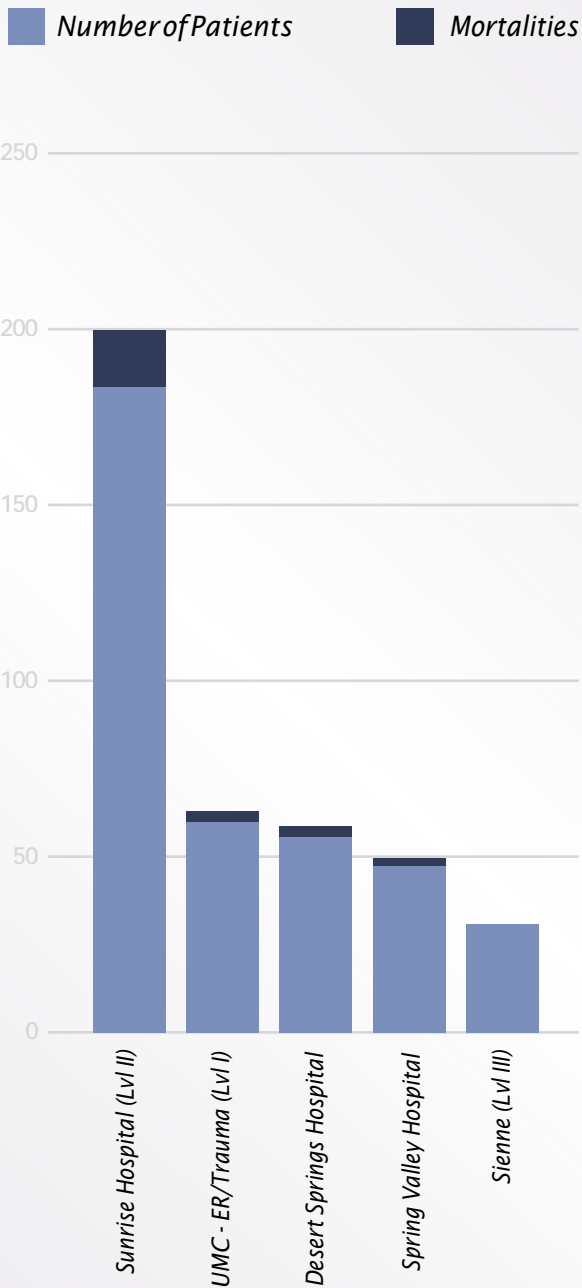
Immediate access to the information was hampered for a multitude of reasons. First, many of the patients were unresponsive — either from their injuries or from anesthesia and pain medications administered during various medical procedures. Second, many patients had not been registered into the hospital system, as their injuries were so serious that the only priority was providing life-saving medical care. Third, some EHR systems don't allow patient information to show up in queries until 24 hours post-registration. And lastly, some hospitals interpreted that federal law (Health Insurance Portability and Accountability Act, or HIPAA) prohibits the release of requested personal health information without either the patients' informed consent or a court order.

The facilities that did provide patient information as soon as it was available interpreted HIPAA



PATIENT DISTRIBUTION

BY NUMBER OF PATIENTS INITIALLY RECEIVED



*Mortalities include:
DOA, intra-operative, unsalvageable, and withdraw of care.*

regulations differently, believing that providing the requested information for the purposes of family reunification or to comply with the state's mandatory reporting of gunshot wounds was allowable. These inconsistencies, related to some hospitals providing information and some hospitals not providing information, became frustrating to requesting agencies.

Mortalities were inevitable. Some patients were dead on arrival to area hospitals, and some patients were simply unsalvageable. In all, 26 individuals expired at area hospitals. Four facilities experienced between one and four deaths, while one hospital had 16 decedents, including a law-enforcement officer. Hospital mortuaries are generally small, holding one or two patients. Many of these facilities found themselves in a position requiring temporary additional mortuary surge space. In addition to this, at one point in time, a hospital was reportedly informed that they were to become the temporary mortuary for the 31 dead at the scene. This turned out to be rumor, but valuable resources and personnel time were required to straighten out this miscommunication to ensure bodies would not, in fact, start arriving.

The hospitals' initial response phase lasted for approximately 24 hours. The patient acuity, volume of patients and workflow tempo took a noticeable toll on the hospital staff — both physically and emotionally. The wounds were described as horrific, and many reported that they felt as if they were working in a war zone. "People saw things nobody should ever have to see," explained one charge nurse. Everyone — from the clinicians to administrators to EVS to volunteers — participated



in the response and were likewise affected by the carnage and fear.

RESPONSE

The response phase included patient triage and stabilization, staff and visitor security, internal and external communications, visitor surge, ICS activation, and mortuary-care services. Within this phase of the incident, other challenges also became apparent, including issues with the electronic health record systems, HIPAA compliance and the simultaneous need to prepare for a follow-up attack or other disaster. We will discuss each of these challenges within this section, but lessons learned, and next steps will be presented in subsequent chapters.

Triage

Triage was imperative and constant. It was imperative because the numbers of critical patients requiring surgery, blood products or respiratory support immediately overwhelmed available resources at each of the involved hospitals. It was also a constant operation: Every minute, additional patients arrived, making it impossible to determine what the final patient counts and classifications (red, yellow, green, or black) would be in the end.

Hospitals approached both triage and most elements of the response differently, depending on the facility. Some hospitals teamed a physician with an emergency-room nurse and utilized Simple Triage And Rapid Treatment (START) Triage. This approach moved employees with a critical skill set away from the emergency department (where treatment was needed), adding

to a human-resource shortage in the emergency department. Second, triage tags are designed for pre-hospital care, and therefore lack necessary elements for hospital-level treatments such as adequate space to document chest tube placement, ventilator settings and the use of blood products. Third, START Triage assumes that patients will be stratified across an acuity continuum (i.e., that not all patients will be red). However, based on the START protocol: All patients who are unconscious, or have respirations of more than 30 breaths per minute, or who have poor vascular perfusion, or who are unable to follow simple verbal commands are determined to be “red,” or critical, patients. This grouping contained a significant percentage of the patient population on this particular night — enough so that this group by itself was overwhelming to most facilities.

To overcome the issue of using emergency room staff to perform triage, one hospital decided to utilize ICU nurses to perform this function. While this concept was admirable, the ICU nurse generally doesn’t receive training regarding START Triage, and hence, misunderstandings related to how the tags worked resulted in some confusion. The confusion was related to the bottom of the triage tag, which is removable to quickly signify the color code of the patient. These untrained nurses thought the color code was based on whether the patient had been seen by a physician or was still waiting to be seen; this type of color code is frequently used in physician offices. The result was that some “red” patients were classified as “green” because they had been seen by a physician during the triage process. This confusion



did not result in any bad outcomes because it was quickly identified.

Other issues related specifically to START Triage included the predictable issues of inadequate available tags and cross-contamination. The issue of contamination was felt in many areas related to supplies and equipment. The amount of blood was unfathomable. “Everybody had an open wound, and hence everybody was bleeding,” one doctor explained. “The image that comes to mind would be that of a whaling in one of those Greenpeace ads,” said another hospital worker. This created a situation where somebody who wasn’t touching or treating patients had to act as the recorder: If you touched the patient and then reached for a triage tag, you stood the real risk of contaminating the entire stack of unused tags. Likewise, ball-point pens and other writing utensils were easily contaminated and needed to be disposed.

One facility handled triage in a novel way based on SWAT and military medicine teaching:

- All patients entered the emergency department and were seen by a trauma physician. A quick evaluation was performed. Patients needing respiratory support were intubated, patients needing blood products had an intraosseous line established (if IV access wasn’t immediately available), tourniquets were applied, and chest tubes were placed. This was essentially all treatments performed in the emergency room.
- Patients shot in the abdomen or hemorrhaging uncontrollably went immediately to surgery. These patients underwent procedures to stop the bleeding. The initial surgery had only this

single mission. The patient was then moved to post-op with the wound being covered, but not closed. These patients would all return to surgery to complete all necessary procedures once operating rooms and surgeons were available to work at a more normal pace.

- Patients shot in the chest went to an ICU within the hospital where all cardio-thoracic specialties had been located. Head shots went to the trauma ICU, where all neuro resources were being staged. Isolated extremity wounds waited in chairs in a designated waiting room. These patients were evaluated by an orthopedic specialist and provided necessary wound cleaning, tetanus vaccination and splinting. Surgery, if needed, was scheduled for a later time.

This cohorting of patients, based on that patients’ sustained injuries, proved to be efficient and effective. One hospital alone treated 124 gunshot wounds in less than 24 hours.

Safety and Security

Safety and security was of paramount importance to all hospitals during the incident. Hospitals were being told that additional gunmen were seen on their campuses, and the rumors of multiple attacks made hospitals feel as though they could be the next soft target. The primary goal to combat this was to “harden” the facility.

Target hardening was achieved through a combination of methods — all of which were used to some extent at every hospital in the valley. These methods all included, to various degrees, an increased police presence at the hospitals,



contracted armed security reinforcements and access control.

Metro was quick to respond to several hospitals, providing security along the perimeter, directing traffic and screening vehicles. The quantity of officers that were available to each hospital, however, was limited by the factors related to the initial incident. Private security contracts were quickly activated. These contracts provided hospitals with additional security officers (both armed and unarmed).

Hospitals adopted a “Hot Zone” approach to security. This approach was easy to communicate to staff, as it was based on the principles of hazardous materials — a discipline that is taught routinely throughout the area. The outside grounds of the hospital were considered “hot,” meaning security could not be guaranteed. This area was patrolled by Metro, and in some cases, cleared by tactical teams. Emergency rooms, waiting rooms and other common areas in the hospitals (bathrooms, cafeterias, etc.) were considered “yellow.” This meant that these areas were relatively safe and secure, but employees must remain on guard and aware of what’s occurring in their immediate surroundings. Private armed security officers were frequently used to provide security and achieved a visual deterrent in these areas. The “green” zone was determined to be surgery as well as patient rooms on the various floors. Nobody (non-employees) could move from the “yellow” area of the hospital to a “green” area without a bona fide need. Many “green” areas also had a security presence, although several hospitals reported that unarmed security was provided in these areas as

much to help provide information and customer service functions to visitors as for the purpose of “security.” The need to keep the press off patient floors was anticipated, although this type of intrusion wasn’t reported by any of the facilities.

Facility lock-down also helped harden the hospitals. Many facilities reported they established specific entrances for patients, a separate access point for visitors and yet a third for staff. For hospitals that reported establishing these access control points, the reviews were all positive. Patients accessed immediate triage and care, visitors were directed to people who could attempt to answer questions, provide reassurance and support, and employees could rapidly make it into the facility and to their areas of responsibility without getting caught in the crowds.

“Hospitals were being told that additional gunmen were seen on their campuses, and the rumors of multiple attacks made hospitals feel as though they could be the next target”



Communications

Communications proved to be a challenge at every level during this event. Communications challenges can be subdivided into groupings of phone trees, internal communications, external communications, technology issues, equipment shortages, personnel shortages and lexicon issues.

Phone trees proved to be effective in many instances. Many of the hospitals did not have any type of computer-generated call-trees, but instead required employees to make physical calls to other employees. Surgeons, nurses and medical practice groups worked diligently to call in the help they needed; additionally, many staff members self-dispatched and returned to work. This created a situation whereby at first, there wasn't enough staff to handle all the injuries, and then almost as fast, hospitals found themselves with 1:1 staffing. Everyone wanted to help.

However, not every aspect of the phone-tree was without issues. Hospitals reported some phone lists weren't current (numbers changed, people dropped their landline phones and only had cellular now, ex-employees remained on the list) or perhaps more importantly, the phone lists were missing key positions. Some key positions not included on the phone tree were EVS, pharmacy, central supply, radiology technicians and registration clerks, among others. It appears that many of the phone trees were clinically focused, and support staff were absent.

Internal communications, or the ability to effectively communicate with staff members throughout the facility, were hampered during the

crisis. Reasons for this impediment ranged widely from employees being too busy in their respective tasks to read any form of distributed messages, to staff being too busy with emergency operations and response activities to develop meaningful or actionable insights. The pace, tempo and volume of all activities was by itself the largest impediment to effective internal communications.

But staff were hungry for information. They wanted to know if they were safe, if there was more than one shooter, why would somebody do this, and what the current situation was throughout the city and country. In the heat of the incident, nobody had all of these answers; but, in the absence of factual information, many turned to social media for updates. Social media was full of rumor and conjecture, which now found its way into the hospitals and in some instances, traveled like wildfire. This, reportedly, was most predominate in the very early hours of the response.

The internal communications piece that seemed to have the largest impact was communicating with individual nurses and other staff and telling them that they weren't needed at the current time. Hospitals needed to keep some personnel available to cover the next shifts, and many staff members simply showed up to help without being called. "Emotional trauma" is how best to describe the feeling that many people described during interviews related to this communication. Staff had feelings of inadequacy or that they weren't on the "A team." Many reported feelings of being slighted or even angry when told to go home.



External communications were often described as the most difficult part of the response. Physicians repeatedly talked of how they were well prepared to repair trauma and deal with the medical cases as presented but dealing with families was something else altogether. The numbers of broken families and the emotionally drained friends all looking for answers took significant time to deal with appropriately. Among the descriptions: "I felt like I needed to be an emotional superhero for these people," and, "It was difficult not to break down yourself and cry with each story being sadder or more heart-wrenching than the next."

Chief Executive Officers or other high-level administrative staff often found themselves in the position of having to update family members. It was explained that managing expectations was very important when conducting family briefings. These expectations were managed by establishing set schedules for updates and explaining both what would be discussed and what wouldn't be discussed at the update briefings. All information that was provided was aggregate and presented in as reassuring and positive a manner as was possible. Questions related to specific patients or situations were never answered in the group setting; instead, these needed to be addressed one on one.

Because there were so many unidentified patients, hospital staff and families spent considerable time at these briefings, trying to identify people and reunify them with their loved ones. Photos of tattoos, piercings and other body art were all used during the briefings to try to identify patients being treated. Once a patient was

positively identified, the family and friends could be reunified, and, in many cases, could be bedside with their loved one shortly.

Information requests from law enforcement organizations (LEO), public health and emergency management agencies and the press were also challenging external communications situations. LEOs had multiple information needs, including identifying victims, witnesses and following up on missing persons' reports. These requests for information weren't organized through any single point of contact, and hospitals became frustrated with multiple requests from people within the same organizations. Public health and various emergency operations centers also needed information and were constantly calling the hospitals. Patient counts, patient names and level of injury severity were routinely requested to facilitate family reunification and the provision of various benefits or public assistance programs.

Technology issues also reportedly impacted some hospitals and their ability to effectively communicate. Hospitals in recent years have switched to Voice over Internet Protocol (VoIP) phone service from the legacy landline. This new technology basically uses the hospital internet connectivity for telephone services amongst all other uses. On normal days, this technology is problem-free. However, because of the volume of calls, emails, and the amount of medical data being transmitted each minute (radiology, EHR files, lab work, etc.), hospital systems had occasional difficulty.

Phone calls were coming into hospitals at an unimaginable pace. Hospitals reported that they



experienced dropped calls, temporary losses of service and an inability to get an outside line during the height of the incident. Many hospitals expressed that they wished they had dedicated, outgoing-only phone lines and isolated unpublished inbound phone lines for staff use.

Cell phones weren't a complete solution either. Cell towers were saturated at times (although this was surprisingly limited). The biggest issue was poor coverage inside the hospital buildings. Staff were required to be in elevators, basements, radiology suites with lead walls and other areas within these large buildings where signal strength ranged from limited to non-existent. Some ingenious hospital staff members realized that while cellular connectivity was sketchy in these areas of the facility, the Wi-Fi signals were strong. These staff members quickly downloaded commercial-off-the-shelf (COTS) radio apps and installed these on their smartphones. Using these apps, staff members could create talk groups and stay in constant contact with the command center and other employees wherever they were located and despite intermittent loss of outside internet.

Equipment shortages and personnel shortages also contributed to communications issues. A shortage of radios and charging stations for both radios and cell phones was commonly experienced in the healthcare system. The lack of cell phone chargers was experienced by hospital staff and visitors alike. Several hospitals reported that they sent employees out to local retailers to purchase all the phone chargers they could find. However, people have different phones and take different chargers. Apple phones have multiple chargers

“The lack of cell phone chargers was experienced by hospital staff and visitors alike.”

themselves based on the version of phone that is being used, and similarly, Samsung also has multiple charger configurations within their brand. Thus, buying chargers did not prove to be a simple solution. Once the physical charger was made available, adequate electrical outlets to power the charging stations became the next issue. Communications equipment became a micro supply-chain puzzle all by itself.

Related to communications, personnel were also in short supply. There was no way to adequately staff phones. The incoming phone calls were immeasurable. “It does not matter if a facility has 100 incoming phone lines if there are only four people who can answer them,” one staff member stated. Staff members trained and qualified to register patients as they presented to the emergency



department were also in short supply. This human resource situation added to the difficult patient registration process, along with many other EHR-specific concerns that will be explored separately.

Lexicons — or a common set of terminologies used throughout the entire response continuum — would be useful in these high stress, high consequence situations. Hospitals throughout the Clark County area can provide status reports to each other and outside response agencies via an internet-based bulletin board system. The system currently in use isn't described by most as "user friendly." It has significant access controls in place and relies on a grouping of drop-down menus to explain what's being experienced or the status of the hospital. As a further complication, the system is more than 10 years old and doesn't lend itself to customization.

Acronyms and codes created additional confusion within hospitals that night. Outside agencies called hospitals requesting private and protected health information. Often it was stated "I'm with the MSAC," "I'm with the JTTF" or "I'm with Fusion Center," etc. Clearly, most hospital personnel weren't familiar with these terms. In retrospect, several hospitals felt it would have been better if callers simply explained who the parent organization is that they were working for (I'm with public health, I'm with the FBI, I'm with Metro homicide, etc.).

Surge Plans

Surge plans or processes immediately went into effect at the most highly impacted hospitals. At one facility, Hospitalists were called in and tasked with evaluating all current inpatients and to identify those who could be discharged home,

downgraded from the ICU to a hospital ward or transferred to another unaffected facility. All ICU rooms were changed from single to double occupancy. This increased the physical capacity of this facility significantly.

Hospitals reported that most existing patients, when they learned of the incident, wanted to help. Patients wanted to make room for those who were injured. They were more than cooperative to change into a double room or decide to go home (with outpatient follow-up care) or move to another unaffected hospital, more distant from their homes. This was just one example of many where the community members pulled together to make the recovery efforts go more smoothly.

Hospitals quickly learned that the imperative functions during this incident were throughput and not a surge percentage. For years, hospitals had been told and had based their plans on achieving a surge capacity of 20 percent above their licensed bed capacity. But in this event, surge capacity wasn't as important as patient throughput. Critical patients were suffering from injuries requiring surgical interventions. Hence, the surge capability wasn't measured in available rooms, but instead based on "turn times" and in "minutes to surgery."

Having available patient rooms was not important if patients couldn't get the hemorrhaging stopped within minutes. So instead of the previously determined matrices, hospitals needed to increase patient flow. This paradigm shift meant that surgeries needed to be performed in steps, equipment needed to be cleaned and immediately placed back into service and patient registration



processes needed to be streamlined. Every process or procedure needed to be reviewed based on necessity, function and the amount of time the process took. The minutes saved essentially equated to lives saved in surgery.

Surgical teams worked together in ways never tested. Pediatric trauma surgeons assisted in adult procedures and supervised residents. Anesthesiologists worked as transport team members when not in surgery. Specialty surgeons, who weren't immediately needed in the initial response phase, worked as scrub nurses and assisted in whatever ways they could.

One trauma center reportedly sent an entire medical team to another facility to perform critical neurosurgeries when the patient was deemed too unstable for transport. This team was able to function as credentialed and privileged hospital members in part because of the long-standing Master Mutual Aid Agreement and an executive order that the Nevada Hospital Association crafted with the Governor's office.

All elective surgeries in the area were canceled. This included not only hospitals, but also outpatient surgery centers. This was another area where the community pulled together. While obviously inconvenient, most patients realized that surgical supplies, blood, pharmaceuticals as well as the surgical talent (anesthesiologist, surgeons, surgical techs, nurses, sterilization personnel, etc.) all needed to be focused on the recovery efforts of the community. This decision was made voluntarily and early on during the response efforts. There

was never a need to invoke any crisis standards of care or governmental edicts to get to this decision.

Equipment and supplies initially were in short supply. The fact that the incident occurred on a Sunday night — the day of the week and time in which hospitals in general have the lowest acceptable supply levels — contributed to these shortages, as did the sheer numbers of patients. "We ran out of everything," stated one hospital emergency department director.

Linens were the first necessity that were noticeably in short supply. As patients were moved throughout the hospital to create surge capability and while hundreds of bleeding people simultaneously entered the facility, the need for clean sheets, pillow cases, blankets, etc. was apparent. Beds were changed 4-5 times per hour as the flow of patients continued.

Chest tubes, IVs, intraosseous needles and endotracheal tube supplies were also quickly depleted at those hospitals closest to the incident. One hospital reported that they needed to deploy and use more than 100 crash carts in the first hour of the response. Employees who were called into work were told to stop by other outlying hospitals and bring in additional supplies. Long-term, acute care hospitals (LTACs) were quick to offer critical supplies to the general hospitals. At one LTAC located across the street from one of the hardest hit general hospitals, employees literally ran across the street with boxes of supplies to meet the immediate needs of the emergency department. This sharing of supplies is not uncommon in Nevada. The Nevada Hospital Association has



“It simply wasn’t even imaginable – the warmth and outpouring of community members doing anything they could to help.”



developed a Master Mutual Aid Agreement (sharing agreement), which has been in place since 2006 just for these types of events.

Rapid sequence intubation medications as well as ventilators were close to being exhausted. Respiratory therapists at one facility worked on developing contingency plans that included having two patients, with similar ventilator settings and lung capacity, share one machine. This contingency, while developed and ready to be employed, luckily wasn't needed.

Normal processes that included keeping supplies and medications in inventory-controlled lockers (e.g. PIXIS) or access-controlled machines needed to be modified. These lockers could not be restocked fast enough, and it was unrealistic to believe that staff could enter patient information for each medication or supply required. All supplies were set on carts or trays for immediate and easy access. Pharmacists and respiratory therapists worked together to build "kits" of needed supplies grouped together by procedure type. Examples of these kits included: chest tube insertion, rapid sequence intubation and vascular access and blood product administration kits.

Shortages were also created by access-control problems. Extra triage tags were described as "locked in someone's office". A further common issue shared by many staff members "We couldn't access the supplies stored in the warehouse immediately because the warehouse is only staffed on weekdays."

Ironically, while many politicians and newscasters reported on a significant blood shortage, this was

never the case. Hospitals and local blood banks during the event did not indicate that blood or blood products were in immediate short supply. Robust systems are in place to ensure that blood products are always available and can be moved to whichever hospital needs these items.

Family and friends comprised the second surge that hospitals faced on Oct. 1, 2017, but unlike the patients, this surge came in many forms; they were physically at the facility, placing phone calls to the hospital and constantly monitoring and posting comments on social media. An average of four to six family members went to a hospital for every injured patient — and not necessarily the correct hospital. Additionally, these people would telephone hospitals multiple times a night looking for updates and information. Busy signals, confusion, lack of information and frustration all were reported and posted in real time to various social media websites. The situation created an environment where hospitals had to provide quality patient care at a rapid pace, provide outstanding customer service, and become a de facto community liaison office and deliver family assistance until the family assistance center could be opened. These people needed help finding their loved ones, guidance and emotional support. In some cases, they also needed assistance — assistance getting a hotel room, assistance with transportation, assistance with food provisions and assistance financially.

Mortuary Care Surge

Mortuary Care Surge is not something that is practiced at most hospitals. Prior to this event the Clark County Office of the Coroner and



Medical Examiner (CCOCME) and Southern Nevada Health District had spent considerable time working with area hospitals to help them develop plans and procedures to handle mass fatality events. Planning reportedly took place as far back as 2009. However, through attrition and facility remodels several hospitals either had plans that were no longer actionable or staff that was unfamiliar with these plans altogether. This created a situation at several facilities where mortuary surge was managed without the advantage of forethought or preparation.

One hospital experienced as many as 16 decedents from the incident, while other facilities managed a lesser number. Some of these facilities already had corpses in their limited mortuary from other causes, and most of the affected hospitals only have room for two bodies at any time. Hospitals solved the storage problem in many ways. Some hospitals dedicated a patient room away from the emergency department to use as a temporary mortuary. One hospital converted the endoscopy suite to serve this function, knowing that the area could be secured, is on an isolated HVAC system and had resources that could be reasonably anticipated to be needed by the coroner should any field examination be required. It was imperative to quickly relocate these people away from the sight and general area of other patients. This effort was felt to help with patients' emotional states and the morale of hospital staff.

Decedents from a crime or terrorism scene are possible sources of evidence. Therefore, hospitals were instructed by law enforcement to secure the bodies, not allow any viewings, and not allow loved

ones to remove personal items or heirlooms such as jewelry, cell phones, etc. A chain of custody needed to be maintained. Additionally, many of the people killed were not immediately identified, so antemortem identifications needed to be performed by CCOCME.

Mental Health and Wellness

Mental health and wellness of hospital workers was an immediate concern during the incident. Staff was understandably shaken, sad and emotional. Healthcare facilities and the community as a whole did not have any actionable and exercised large-scale psychiatric first-aid plans. These emotional wellness concerns were not just for the clinicians, but every employee of every hospital. The scale of such an undertaking to many seemed overwhelming.

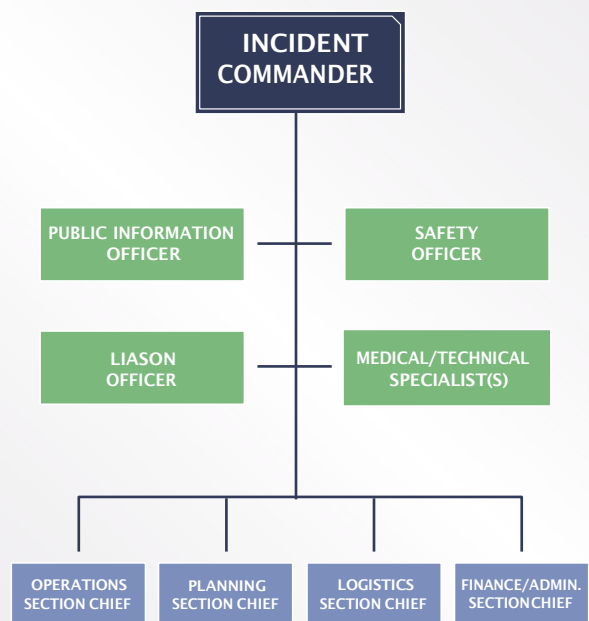
The VA healthcare system came to the immediate aid of these workers. Having unique expertise in dealing with people who experience emotional trauma, this group organized buses that housed private counseling rooms and trained personnel. These buses were deployed and spent weeks at area hospitals helping those in need. These counselors, who are accustomed to working with individuals returning from war zones, are not all psychologists or licensed counselors. It was pointed out, "Most of these affected people do not have any diagnosable disease or pathology; what they have is the normal human response to extreme stress, emotional pain and feelings ranging from hopelessness to exasperation. They don't need medications or treatment. They need support, a positive outlet for their feelings, and counseling

about signs and symptoms of withdraw, depression and the tendency to turn towards alcohol and the like.” For all practicality, the mobilization of this spontaneously developed task force, combined with the ingenuity of the personnel that recognized this capability, filled an enormous planning gap.

RECOVERY

In retrospect, it is difficult to determine when the response ended and when recovery efforts began. For many incident commanders, the four phases of emergency management (preparedness, response, recovery and mitigation) are neither linear nor a cycle as described in much of the hospital incident command trainings. Instead, the incident demanded that simultaneous, multifaceted, dynamic and complex actions be taken in each of the emergency management phases. Hospitals found themselves responding to the incident and providing patient care, while at the same time developing plans and preparing for a potential second or third wave (possibly from additional attacks) of patients and sustaining the heightened tempo for an unknown number of operational periods. Additionally, activities revolving around the electronic health record system, HIPAA legalities and other issues all required attention during what would have been the response and recovery phases.

The Hospital Incident Command System (HICS) was employed by most hospitals throughout the response and recovery phases to various degrees. This command system is designed to help hospitals organize resources to deal with a large-scale incident by arranging all administrative functions into four core disciplines under the commander.





These four functions include operations, logistics, planning and administration/finance.

Many hospitals described significant chaos and a lack of situational awareness during the initial hours of the incident. This created a situation whereby the hospitals focused more on calling in personnel instead of quickly establishing a formal command structure. Hospitals reported that in hindsight, they wished the HICS system was established earlier and maintained longer into the recovery phase. Areas where HICS organization could have been better managed were almost universally described as patient registration, staff assignments, donations management, the public information officer and time unit leader roles. All of these functions ultimately played a significant role in the recovery of the hospitals.

For the purpose of this case study, we will say that the recovery efforts began approximately 12 hours after the incident began. All patients had been seen by the emergency departments, undergone initial life-saving surgical procedures and were admitted to the hospital or treated and discharged. Many hospitals found that response and recovery phases had significant overlap.

Registering patients was one of the key elements of the hospital recovery process. Many patients had been seen, treated and admitted using a trauma alias or "John/Jane Doe" identifier. Once the patient's name was discovered, entering that information as well as any treatment information was necessary to facilitate other recovery operations. These included victim assistance, family

reunification and revenue cycle management, to name but a few.

This process was extensive. Due to the volume, tempo, anonymity and acuity of the patients, many people did not get registered during the response. Registration clerks and clinicians found the electronic health record system to be cumbersome and time consuming during the crisis. Clinicians, including surgeons, treated patients with urgency to stop bleeding and save lives. Documentation of procedures was minimal, and, in most cases, written on paper or triage tags instead of entered into an electronic system. These handwritten notes, which were often incomplete, would later need to be manually entered for each patient.

The Public Information Officer (PIO) role in HICS is defined as "the position responsible for coordinating information shared inside and outside the hospital. They serve as the conduit for information to internal personnel and external stakeholders, including other agencies." However, most hospitals used this position primarily for responding to media inquiries. This limited application equated to multiple nurses, administrators and other staff being asked for information almost constantly by outside agencies. It has been identified by multiple emergency managers that greater hospital participation within the Medical Surge Area Command (MSAC) would have significantly limited the number of requests.

Time unit leaders are responsible for ensuring that hospitals have the correct numbers of staff, staffing the correct units and functions, and tracking the time each employee works. This job at many



hospitals was not implemented. Staff members were called in or showed up to work without a call and reported directly to their normal unit or floor. In the recovery phase, this created an inability to immediately determine the staff members who responded, staff hours and cost of responding to the incident. Additionally, if there was another disaster that occurred within the hospital, staff accountability and evacuation tracking would have been virtually impossible.

Donations management was ongoing for several days and weeks following the shooting. Hospitals received items ranging from food and clothing to large sums of cash. According to one physician, “Do you know how many FTEs it takes to manage 1,500 pizzas? It takes four.” Other hospitals reported that they didn’t have a plan to deal with the large

numbers of people who showed up to donate items and cash. “It simply wasn’t even imaginable — the warmth and outpouring of community members doing anything they could to help.”

Donated food at one facility was placed in waiting rooms for families. Cafeteria workers were needed to maintain safe food-handling processes, monitor temperatures and maintain order. Public health personnel were also present to ensure adherence to good processes. Other hospitals had donated items like food moved to the family assistance center.

During the earliest portion of the recovery phase, hospitals found themselves needing to organize dignitary visits. These visits ranged from political representatives such as the Governor and President of the United States to celebrities. These visits were welcomed, but they disrupted normal



operations. Dignitaries want to tour the facilities and meet the families and injured. Heightened security and the extensive security processes are not just enacted for the limited time when the VIP is on site. Secret service advance teams visit and planning meetings take place prior to any high-level visitor reaching the hospital.

As a result of the initial response, elective surgeries were canceled for several days. Rescheduling all canceled surgeries became another logistical process during the recovery phase. One administrator compared rescheduling surgeries to the act of re-accommodating passengers on canceled flights, “The surgery suites are generally full, and yet now you need to accommodate another 2-3 days’ worth of surgeries into the schedule.”

Cleaning the entire hospital was required. It wasn’t just the emergency departments and patient rooms; it was literally everything. During the event, those using the hospital facilities, waiting rooms, cafeterias, meeting spaces and offices included a surge of patients, hundreds of family members, law enforcement officials and double the typical staff.

Significant numbers of patient transfers also occurred during the recovery phase. Many of the injured were from out of state and wanted to return home for the rehabilitation phases of their care. This created another planning and logistical component that hospitals needed to complete. While none of the recovery tasks were by themselves overwhelming, the collection of unrelated tasks, needing to be completed almost simultaneously, was a service stressor. Those hospitals that maintained the HICS system

throughout the recovery phase reported a seemingly more organized ability to systematically complete all tasks.

The scope and nature of this event impacted all hospitals and hospital systems within the region. Multi-Agency Coordinating Groups (MAC) were formed or activated to assist however they could.

“The scope and nature of this event impacted all hospitals and hospital systems within the region.”

These groups included the Medical Surge Area Command (MSAC), corporate offices of hospital systems, the Veterans Administration and the Nevada Hospital Association.

The MSAC is a standing committee of the Southern Nevada Healthcare Preparedness Coalition. The primary function of the MSAC was originally to manage medical supply requests and distribution during large-scale medical surge events. This



function is tested multiple times a year, and the MSAC is routinely activated as part of the county's emergency operations center (EOC) during large events such as New Year's Eve. On this night, the MSAC was also activated.

The MSAC is staffed during emergencies by sending a message to coalition members and asking them to respond to the EOC for an activation. During this event, the normal activation process was not utilized, but instead individual calls were made to members by the health district. This proved just as effective, as the MSAC was quickly staffed and operational. Members of the MSAC began working with other response agencies and unified command centers to piece together some situational awareness of the event. This information would be the first official information regarding the event provided to hospitals; it began to be disseminated more than an hour after the arrival of the first patients.

The MSAC's primary mission wasn't required during the shooting response. Hospitals and hospital systems were able to share among themselves using internal transfers and the Master Mutual Aid Agreement to quickly mitigate shortages. The MSAC, however, did step up to take on a critical new role: assisting with family reunification and patient tracking tasks. This would prove to be a frustrating assignment. Not only was this previously undefined (no policies, procedures or job action sheets), but also, several hospitals wouldn't provide necessary information to this group.

Health systems activated their internal (national level) emergency plans and controls. Many of

these systems had recent experiences with large-scale disasters, including wildfires in Nevada and California as well as hurricanes, flooding and evacuations in Texas. Because of these recent experiences, these health systems were quick to activate, and their staff were well trained. Health systems focused on ensuring they could provide additional personnel into their facilities if needed. This part of their corporate business continuity plan would ensure that if current Las Vegas-based personnel were exhausted, or if staff augmentation was required, entire teams could be deployed from other locations within their systems.

The VA system activated their mental health resources to assist hospital personnel. This activation included organizing hospital visits, transportation and use of the buses as well as other significant logistical issues. Compartmentalizing this mission into an internal MAC afforded an effective and efficient deployment, without the need to add any additional workload to the various hospitals or EOCs.

The Nevada Hospital Association (NHA) is not generally thought of as a response or recovery agency. As an industry association, the core mission of the NHA is to advocate for members. However, the association does maintain a community resilience program — which includes elements of hospital preparedness — and the association receives a sub-grant through the Nevada Division of Public and Behavioral Health to administer one of the state's four coalitions in the rural areas.

On October 1, the NHA received many calls for assistance from various agencies, organizations



and members. Calls ranged from the MSAC advising NHA of the situation, ASPR officials trying to gather ground truth, politicians making inquiries, hospitals implementing the master mutual aid agreement and hospital corporations seeking information regarding total patient counts and aggregate injury types. It was obvious that there was a need for a central entity to collect, plan and disseminate information for hospital response and recovery purposes. The NHA was uniquely qualified and prepared to become this coordination body.

Concerns and issues included hospital corporations wanting to ensure they could deploy reinforcements in the form of complete surgical teams into the region, if necessary; area facilities and public health entities wanting to make sure

“Rumors of blood shortages, additional shooters at hospitals, multiple attacks in different cities throughout Nevada, all needed to be clarified.”

hospitals weren't experiencing any insurmountable shortages of equipment or supplies and to ensure high patient care standards could be maintained; and, politicians, emergency managers and resilience planners wanting to have plans in place to deal with either a simultaneous disaster or secondary attack.

The NHA worked on all of these issues with other partners. The community resilience office was the initial point of contact for all incoming calls, but the entire NHA office was dedicated to this cause. Issues were quickly prioritized into roughly the following categories: (a) direct requests for member assistance; (b) resilience and system sustainability concerns; (c) rumor control; (d) other information requests.

An example of a direct member request would be locating 50 ml bags of IV fluids for one hospital that was in extremely short supply after its considerable influx of surgical patients. An example of resilience and sustainability efforts included the NHA working with the Governor's legal counsel to draft an executive order declaring a state of emergency and waiving licensing requirements. Once the executive order was signed by the Governor, the NHA worked directly with the boards of nursing, medicine and pharmacy to develop implementation policies.

Additionally, rumor control was time consuming but necessary. Rumors of blood shortages, additional shooters at hospitals, multiple attacks in different cities throughout Nevada, etc., all needed to be clarified, and accurate information disseminated. Other requests included questions from the press,



attempts to locate foreign nationals from various consulates and embassies, and offers from doctors, nurses and people of every walk of life wanting to donate their services and help. This activity was non-stop for approximately 48 hours post event, and then calmed down — but continued for another few days.

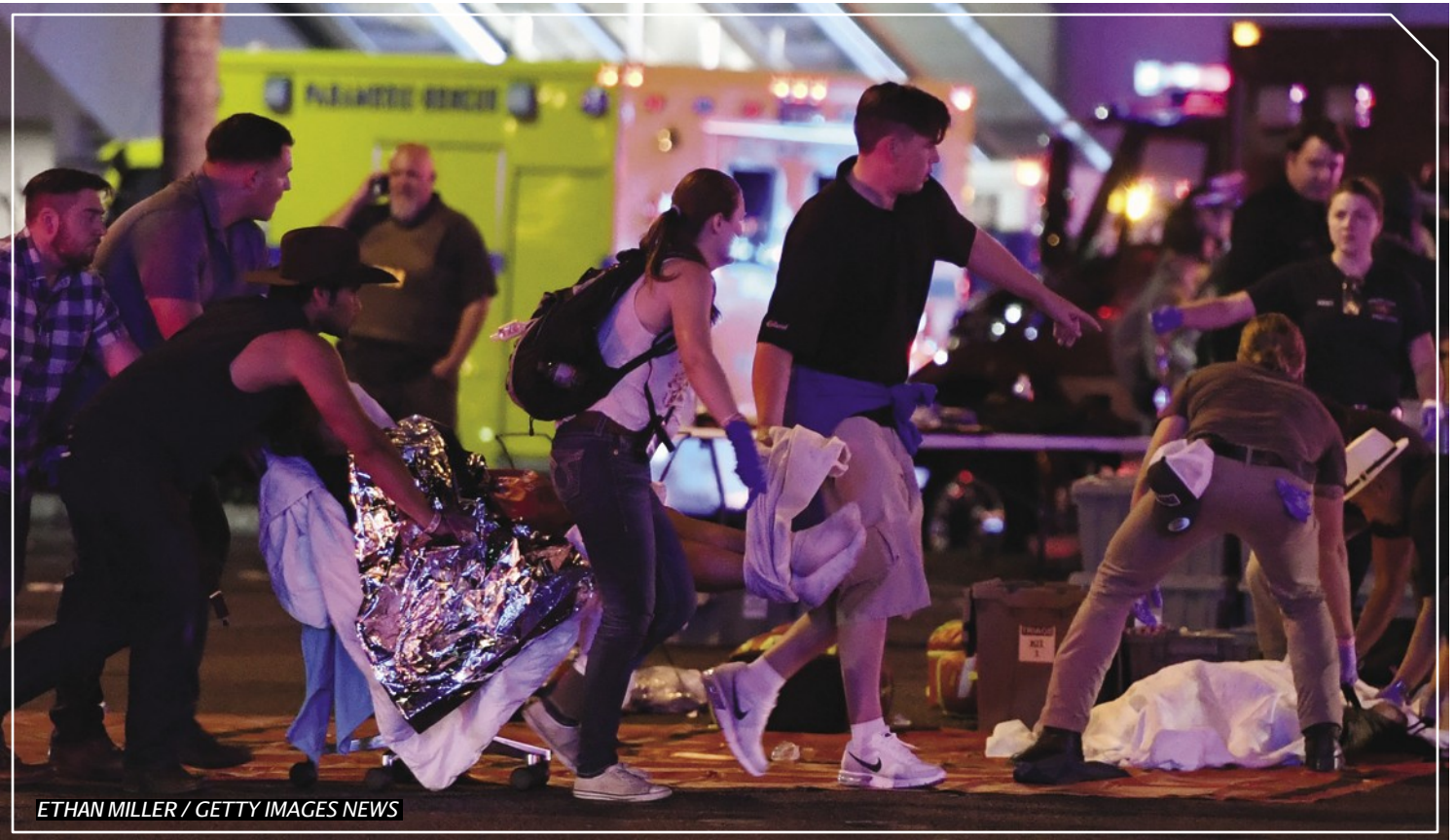
The Nevada Division of Emergency Management and the State Health Officer were in constant contact with the Nevada Hospital Association (NHA), as they were seeking hospital status updates and wanting to know if the NHA had brought in any providers from out of state. The healthcare system was in a vulnerable position. Doctors, nurses and the staffs of most Las Vegas hospitals had been working tirelessly around the clock. There was concern for these individuals, many wondering how long they could keep up the intense, punishing pace. There was concern for the citizens as well, with many wondering, “What if there was another disaster?” The resilience of the hospitals was stress-tested like never before. In the end, the hospital system was deemed more capable and robust than previously imagined. The teamwork and professionalism of the entire healthcare community, along with the breadth and resourcefulness of the various hospital corporations, demonstrated that Nevada can handle these sudden-impact catastrophes.

As recovery efforts continued, the NHA was called by the National Center for Victims of Crime to help administrators of the Las Vegas Victims’ Fund (LVVF). This fund raised \$31.4 million dollars from more than 90,000 individual donations. The administrators had developed a protocol that would

distribute 100 percent of these funds to families and survivors of the shooting, but they needed a method to verify claims. The protocol required a physical injury for eligibility to receive funds, and disbursements were to be prioritized and apportioned based on the extent of the injury. Persons who suffered death, permanent brain damage and/or paralysis, and those requiring continuous home medical assistance, would receive the highest level of payment. Individuals requiring hospitalization would be paid the next highest amount, with a third category for those patients who had a physical injury but were either treated and released or handled on an outpatient basis.

Because the protocol was to distribute funds based on injury severity, hospitals would be required to confirm that each claimant was actually a patient within a specified date range; that they sustained injuries as a result of the shooting; and that they were either hospitalized or not hospitalized. If the claimant stated they suffered permanent brain damage or paralysis, then the hospital would need to verify this claim as well.

The NHA coordinated these efforts. For the protocol to work, all hospitals and their clinics, outpatient centers and urgent cares would need to fully participate. Additionally, all facilities would need to agree to use a single HIPAA compliant release and disclosure form. Multiple meetings were arranged with chief financial officers, hospital coding experts and legal teams. Hospitals were given about 45 days to complete the review for each claimant, and they would complete the review on a rolling basis, as claims were filed. Once again, the hospital sector came together to help the



ETHAN MILLER / GETTY IMAGES NEWS

community; 532 claims were paid by the fund, and approximately 700 medical charts were reviewed by the receiving hospitals.

The recovery and mitigation efforts are expected to continue for the next several years. Hospitals and their staffs are still dealing with the emotional trauma that resulted from the events of that night. Many policies and procedures are being refined based on lessons learned. New laws, regulations and the restructuring of state commissions are being proposed. First responders, emergency managers and community resiliency personnel are evaluating the best ways to utilize available resources during large-scale medical events or disasters, and new partnerships with community organizations and businesses are being developed.

OBSERVATIONS, INSIGHTS AND LESSONS

Many observations, insights and lessons-to-be-learned (OILs) resulted from this tragic event. In this section, many of these OILs are articulated and discussed. Understanding that there is no way to document and communicate all the OILs from the situation, an effort has been made to focus on knowledge points that could be easily learned and applied to other healthcare entities. Observations serve as the building blocks of future discussions and policy development. Insights provide an objective review of existing laws, regulations, policies and practices that were employed during the disaster response and



recovery. Lessons-to-be-learned are insights that have specific actions attached to them.

Observations

Throughput. All of the physicians and hospitals reported that it was the throughput of the patients within the hospital system that saved lives. Immediate bed availability or surge capacity was not a critical factor in this incident. The majority of patients with life-threatening injuries needed surgery. Therefore, it was the hospitals' ability to move the patient quickly through triage and the emergency department to surgery that was the main determinant of appropriate care. Steps should be taken to memorialize these processes and standard operating protocols created. It was observed that in disasters (mass shootings, earthquakes, fires) that create large numbers of traumatic injuries, throughput should be the focus of hospital preparedness, over all other forms of surge capacity.

Non-traditional transportation methods (ride-sharing services, private auto, police vehicles and buses). The hospitals received the overwhelming majority of patients related to this incident via non-traditional methods. While this is not an uncommon occurrence during sudden impact events, such as the Sarin gas attacks (Tokyo, 1995), this was a first for the Clark County healthcare system. Patients arrived without benefit of field triage, advanced casualty care, or pre-planned hospital destinations. Additionally, several hospitals received no advanced notice of the MCI.

It was observed that this no-notice, sudden impact event created a significant service disruption

caused by, among other things, the use of non-traditional transportation. Hospitals should have an ability to issue system-wide alerts of their own initiative to other area hospitals. Additionally, policies and standard operating protocols should be incorporated into hospital disaster plans that detail who is responsible to extricate patients from non-traditional transportation, how alerts to other hospitals and first responders should be activated, and protocols defining both the method as well as who is responsible to organize mass casualty triage.

Relationships. Many individuals credited their personal and professional relationships with other hospitals, public health entities and first responders as one reason the event was managed so effectively — despite the lack of warning or immediate notice. The Southern Nevada Healthcare Preparedness Coalition (SNHPC) is a large planning group that, each month, brings together key emergency managers and preparedness personnel from the entire healthcare and emergency response continuum. It was observed by many that this coalition, while not having any direct response capability, helped the overall coordination through prior discussions, planning sessions and facilitated exercises and education. Additionally, because of the monthly meetings, agencies and responders know each other on a personal level, and they also understood the capabilities and available resources throughout the entire system.

Patient Registration. The function of registering patients during a mass casualty event can become overly burdensome. This burden was felt in multiple systems and across multiple agency types. Starting with ambulances, registering patients



and completing patient care records was limited. Hospitals also found themselves overwhelmed based on a number of elements including (a) sheer numbers of critical patients arriving at near simultaneous times; (b) a limited number of trained registration clerks staffing the emergency departments based on time of day and day of the week; (c) trauma patients arriving at non-trauma centers that didn't have a trauma alias system in place; and (d) the normal process, by itself, is time-consuming. Additionally, hospitals needed to register these patients multiple times, in multiple systems, including the electronic health record system and the trauma registry system.

The registration process created downstream complications as well. Normally, HIPAA waivers and disclosures are completed during the registration process. Likewise, the registration process begins the medical chart that will follow the patient through their entire treatment process. This chart is then used for everything from legal documentation, mandatory reporting to the state health division or law enforcement, and revenue cycle management.

It was observed that these processes are rarely tested during drills and exercises. Hospitals should consider creating a "streamlined" or accelerated registration process that can be instituted during MCIs. One hospital's observation is that they could cross-train other administrative personnel to perform the patient registration process, including human resource personnel and similar job classifications. This could then create a reserve force.

Finance issues were observed during the incident that included needing emergency services and contracts. Additional security, barriers,

“The function of registering patients during a mass casualty event can become overly burdensome.”

porta-potties, bottled water, telephone chargers, and the like were all purchased to help manage the incident. Several hospitals reported that these additional unplanned services and purchases exceeded \$600,000 each.

It was observed and appreciated that the hospitals and healthcare organizations in Nevada represent a robust industry with a national reach and significant resources. These hospitals have the resources to back-fill personnel, move material and supplies, load-balance patients and specialty items such as blood as well as maintain a high-



quality level of care. Hospitals should be viewed as a dynamic system — particularly those operated by large, publicly-traded corporations — instead of as single resources. With this new reality fully recognized, planners and legislators should work together to ensure personnel and patients alike can be easily moved or deployed across political boundaries.

Hospital Environmental Services (EVS) was observed to be one of the most critical support services within many hospitals. The copious amounts of blood that were involved in this traumatic incident required effective and efficient cleaning and decontamination of everything. Cross-contamination was a serious concern of physicians. EVS — not a department that generally speaking had surge plans — was forced to recall additional personnel. All hospitals reported that these workers were an integral part of the patient-care team, and many clinicians stated that they have a renewed appreciation for the tasks and work that this department completes. It was further observed that EVS was required to “triage” their workloads and tasks to best manage patient throughput. According to one EVS manager, “It isn’t enough to clean. We needed to disinfect the right equipment, rooms and areas of the hospitals so that the next patient didn’t have to wait.

The 96-Hour Graph, which most hospitals maintain to help determine operational sustainability during a disaster, was of limited use during this event. It was observed that these charts and graphs are created based on normal patient flows (admissions and discharges) and do not take into account the sudden need to change bed-linens throughout the hospital 4-6 times within hours, nor does it take

into account that most admissions will require chest-tubes, etc. Hence, hospitals discovered that what they had believed to be a 96-hour supply of linens was in fact exhausted in less than 2-4 hours. It can be reasonably anticipated that in many sudden impact disasters, specific supply caches will be exhausted much faster than normal.

Many commercial-off-the-shelf (COTs) applications were observed to be beneficial to both rescuers and patients alike. Apps that let people use their smart phones as a walkie-talkie over Wi-Fi, as well as family locating apps, proved to be effective at a time when the numbers of available radios and cell signals seemed to be tapped out. Planners should evaluate which apps work across platforms (Apple and Android) and provide training to personnel on how these may be used during a disaster. Additionally, emergency managers should start encouraging families to install location detection apps on their smart phones as part of a personal accountability, individualized emergency reunification plan.

Plan Familiarity was an observed deficiency. Many individuals weren’t knowledgeable of existing plans and processes. This was observed throughout the responder continuum. Individual organizations, communities and coalitions should evaluate the implementation process of new and revised plans. Development of a formalized knowledge transfer protocol, that ensures personnel have access to institutional knowledge as well as new and revised policies, should be explored. After action reports and similar documents that don’t result in educational plans or teachable lessons are insufficient.



Human factors and ingenuity were observed from everyone involved. Many concert goers put themselves at great personal risk to save people they'd never met. People liberated vehicles and began operating an impromptu shuttle service to the hospitals. A respiratory therapist began researching methods to use a single ventilator to oxygenate multiple patients. In the hospital, patients self-discharged to make room for the critically injured. Security officers created different zones with varied levels of safety assurances. Doctors and nurses developed novel ways to triage hundreds of patients simultaneously. As planners and emergency managers, we need to develop a system to capture and memorialize all these invented solutions and test them to determine the most effective processes going forward.

Post-Traumatic Stress Disorder (PTSD) developing in rescuers, hospital staff and support personnel remains a concern. Many of these people helped victims who were experiencing devastating injuries or provided care to the family and loved ones of persons who were killed. Additionally, many rescuers directly knew someone who was injured or killed. This created an environment of heightened emotions in everyone affected. These emotions ranged from sadness to fear, with feelings of being overwhelmed and simultaneously having an overarching desire to do anything that could help. Mental health workers, life coaches, celebrities, therapy dogs and even Disney characters were all used to help relieve stress and help lighten the mood in the days following the event. By all accounts, all of these devices helped at the time. Human resource departments and organizational

development professionals should continue to observe the individuals who worked during this event. It would be beneficial to the sector to understand if these traumatic occurrences manifest as PTSD in the individual at some future point or affect other areas of employee performance, such as employee retention or, conversely, employees who leave the field early. Once we understand the effects, hopefully we can develop countermeasures or training to protect our mental health following such tragedy. In the meantime, planning for the development and implementation of peer support teams should be considered.

System Saturation Plans. It was observed during this event that there remains a large window of opportunity to develop system saturation plans. These plans would fill the gap between what could be described as a normal functioning healthcare system and crisis standards of care. On October 1, the EMS system, trauma system and both fire and LEO were all operating above any anticipated maximum capacity. Any subsequent large-scale emergency could have tipped the scales and changed the outcomes for many patients. Through the ingenuity of many individuals, non-designated hospitals staffed and organized to provide trauma services, ride-sharing companies and drivers began providing emergency transportation, hotel security staff augmented LEO at many resorts, hospitals moved supplies and resources from non-affected facilities to the ones most in need, and hospital corporations were ready to move entire planes full of healthcare professionals into the region to augment medical personnel as needed. It was further observed that many of these resources



and ad hoc contingencies belonged to the private sector, not any governmental entity or unit. It is believed that the system would benefit if high-level future plans were developed, through state hospital associations or other non-governmental organizations, that memorialized the solutions developed during this crisis and simultaneously worked with the legislatures to remove bureaucratic barriers that limit the efficiencies of these plans. The hospital and healthcare sector should look to other sectors of the economy — such as electrical utilities or the transportation sector — and model their established processes to ensure continuity of services during major disruptions.

Release of Patient Information should be standardized throughout the community. This observation was recognized by multiple

“Triage doesn’t need to be overly complex.”

organizations at the local and state levels. Hospitals released a varied amount of information regarding the types or injuries being treated, patient names and the number of people being treated. Facilities interpreted HIPAA regulations differently, some personnel weren’t aware of the statutory mandate to report gunshot wound information to law enforcement and participation at the MSAC was limited. Standardization and agreements to share information bi-directionally would minimize response frustrations and may facilitate faster family reunification processes.

Insights

Triage. Several insights have been noted regarding triage and triage methods. The first insight was that while many hospitals did triage differently, all variations seemed to work equally effective (if the measurement of “effective” is the lack of otherwise salvageable people perishing from their wounds.) The key determinant or goal of triage in this case was to get the patients with uncontrolled hemorrhage into surgery first. This goal is obviously unique to trauma and perhaps easier to determine than when trying to triage pandemic patients who may need ventilation. Different triage methods may not be as effective as others in non-trauma situations.

The next insight was that triage doesn’t need to be overly complex. Based on the conclusion that each method used was equally effective — whether it was a trauma surgeon’s professional opinion after looking at a person or an algorithm that classified each patient — triage should be simplified as much as possible to minimize throughput times.



Regarding whom should be trained to perform triage, it was discovered that perhaps nurses, other than ED nurses, should be trained to perform this task at hospitals. ED nurses were needed to treat casualties, as were the physician staff at most facilities. Other nursing personnel in many cases were available, but untrained in emergency triage processes. During these mega-mass casualty incidents, it may be beneficial to have more people trained to perform initial triage from different disciplines.

Security. Injured people — along with their families and friends — all congregated at area hospitals en masse. People at facilities, meanwhile, reported seeing individuals with guns or reported hearing gunfire on or near their campuses during the event. And hospital staff were recalled and asked to report back to the hospital to work. This situation created many security vulnerabilities.

Insights that several hospitals have shared regarding security include:

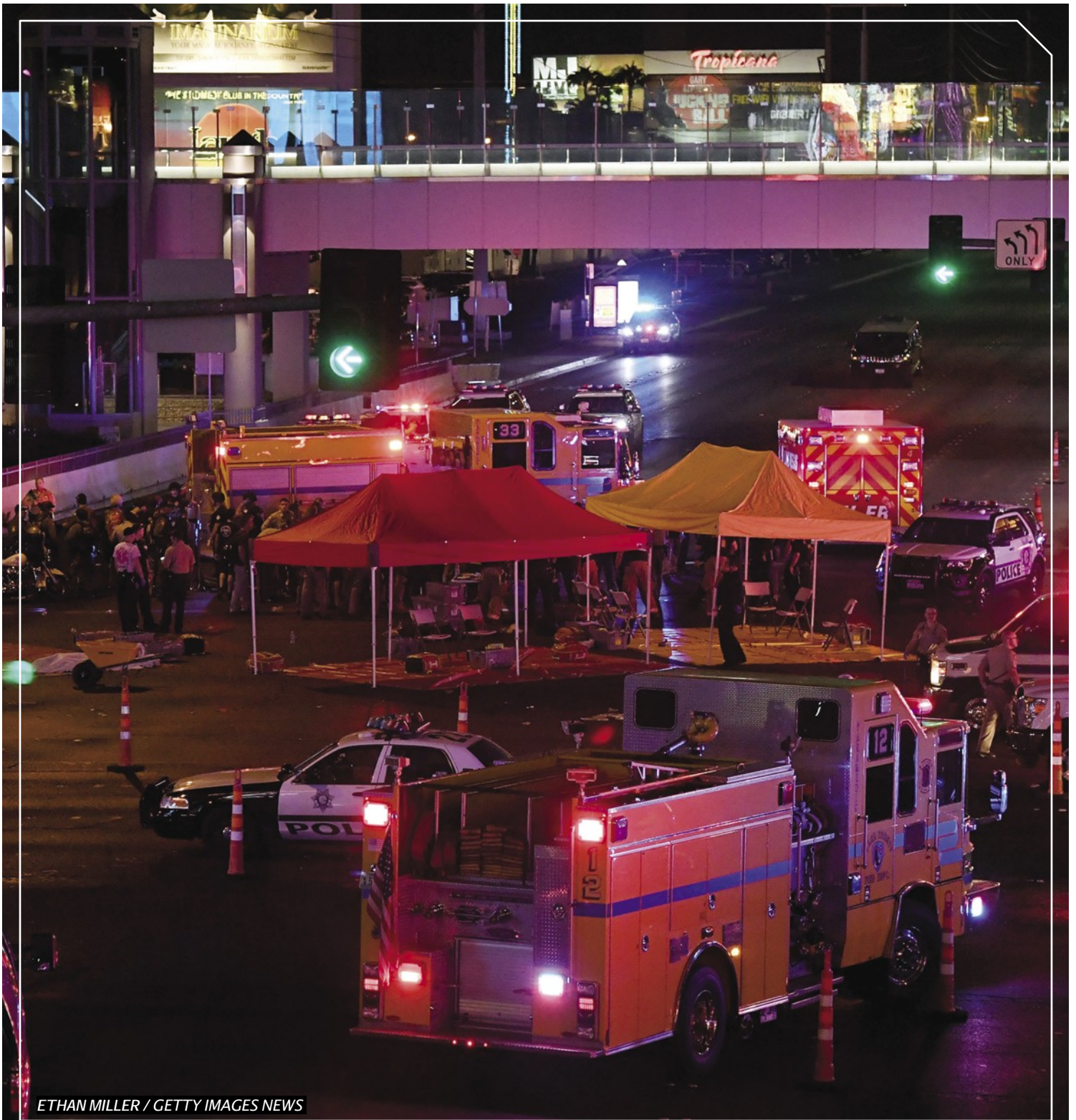
- Taking proactive steps to harden their facilities before the next event.
- Dedicating employee entrances separate from patient or visitor entrances.
- Limiting the numbers of unlocked entry points during night-time hours.

To date, there have not been talks of installing metal detectors or having all visitors go through a security screening process, as has been discussed or employed by hospitals in other states. Based on the numbers of visitors and the recall of employees, this type of security screening may not have been efficient during this event.

It is outside the scope of this analysis to specify security methods employed by our hospitals during this event or on a daily basis. However, many security professionals with whom we talked did praise the “zone defense” strategy employed at one major hospital. This approach focused a police presence in the parking lots, driveways and entrances to the hospital. Inside the facility, contracted (armed) security officers were used to maintain order in the waiting rooms, registration areas and to perform access control functions. On the floors or otherwise secure areas such as surgery, non-armed hospital security was utilized to enforce access control and provide information and direction to approved visitors.

Surge Capacity insights were among the most prolific. For years, hospitals have been focusing on surge capacity measures as a percentage of beds that could be made available, above the number of licensed capacity. For example, hospitals were told to achieve a 20 percent surge capacity. The premise that these numbers would be adequate was proved wrong on several different levels during this mass shooting event.

First and foremost, the number of available beds within an individual hospital doesn't equate to an ability to provide adequate patient care. In this instance, patients required surgery. The only treatment that would minimize death and suffering was surgery and administration of blood products to the most critical patients. Hence, surge capacity in the traditional sense meant nothing, and throughput was the more meaningful measure.



ETHAN MILLER / GETTY IMAGES NEWS

“Hospitals should understand that the number of patients they will receive will be proportional to the distance they are, in relation to other hospitals, from the incident.”



Second, the idea of 20 percent surge capacity is generally coupled with an assumption that EMS will be completing triage, medical transportation and load balancing the distribution of patients among all area hospitals. In this instance, patients self-transported to the closest hospitals. Many hospitals experienced an influx of patients equal to 30-50 percent of their regularly staffed bed capacity. In the new paradigm, hospitals should have plans and exercise simulations based on receiving the majority of patients via private auto. Hospitals should understand that the number of patients they will receive will be proportional to the distance they are, in relation to other hospitals, from the incident location.

Master Mutual Aid Agreement (MMAA) worked throughout the incident. Hospitals shared equipment, supplies and personnel. The major insight to the MMAA was that any system developed for the provision of emergency resources needs to be free of bureaucracy. This goes back to the patient throughput concept. Hospitals in crisis do not have the time or personnel to make multiple phone calls, fill-out requisition forms and wait for an EOC to fill an order.

During this incident, nursing supervisors were able to call other facilities directly and request needed items. They then sent a runner, often a nurse who had been recalled and was on their way into work, to stop by the other hospital to pick up the requested items. This worked effectively and efficiently. The order for requesting items, moving patients or augmenting personnel seemed to be in all cases internal stores first, then facilities within the same corporate structure, and then hospitals

from competing organizations. We are unaware of any requests that went unmet during this event.

We have learned of one case where a non-trauma center requested a specialized neurosurgical-trauma team to assist in the surgery of an individual deemed too unstable to transfer. This request was also met, using the MMAA. Adding some further insight, it is evident that in some instances it may be safer, more efficient and prudent to mobilize surgical teams to the patients vs. the traditional model of immediate patient transport. More study needs to be completed regarding this assessment, but on the surface, cases where either an individual is too unstable for transport (i.e., bullet lodged in the spinal column), or where there is a significant quantity of critical trauma or burn patients at a non-trauma or non-burn center, specialized team mobilization may be a better option if it can be accomplished judiciously.

Use of Clear Text. The need for healthcare facilities to switch from various overhead paging “codes” to clearly stating what the issue is (clear text) was highlighted during this event. Hospitals found themselves full of multidisciplinary responders, including Metro, fire, EMS, FBI, contracted security personnel and others as well as a plethora of visitors and guests. Additionally, the healthcare workforce was augmented by professionals who generally work at different facilities, including competing hospitals, out-patient surgery centers, private practice offices, etc. If there was a secondary emergency within the facility — such as a fire, active shooter or an attempt to kidnap a newborn — announcing a “code” (i.e., Code Red in radiology) would mean nothing to a significant



portion of those occupying the facility. This event also provided insight that having standardized codes for all facilities within a geographic region is not the solution. For standardized codes to be effective, the assumption must be made that the majority of occupants work within the local hospital system. This case pointed out that many practitioners, non-healthcare personnel and if needed outside resources from other states, assist during these tragedies; thus, regional codes would also be less than effective.

Hospital Incident Command System (HICS)

worked effectively once initiated, but trainings and exercises need to be conducted that focus on the transition from normal operations into HICS operations and the transition from one operational period to the next. Multiple hospitals stated that HICS should have been initiated immediately but wasn't. Perhaps some of the hesitancy to institute the incident command system was based on the lack of situational awareness, as those inside overwhelmingly did not know the scope and scale of this incident. Additionally, based on the time and day of this incident, hospitals were at minimal staffing levels, and there is a natural tendency to focus all available resources toward treating patients vs. managing the incident. Once HICS was established, hospitals praised the system and stated that it remained in place for approximately a week as the facilities moved from response and treatment, ultimately migrating into recovery, reunification and managing dignitary and VIP visits.

Several other insights that were gained included a common statement from hospital staff that HICS is "slow to get going" as the command team

organizes and determines what steps to take first; and the "time unit leader" position specifically wasn't utilized to its full potential. To help with the issue that command is slow to get going, the Nevada Healthcare Preparedness Partners will be working to promulgate the "PENMAN" mnemonic. This mnemonic was originally created to teach paramedic students scene safety but has been modified by the NHA to help hospital command staff gain immediate situational awareness during crisis or disasters.

In the mnemonic, the "P" stands for Personal Safety and Personnel Safety. First and foremost, commanders are responsible for the safety of themselves and their staff, patients and visitors. On Oct. 1, the commanders realized that they had an immediate need to lock-down areas of the hospital, establish a perimeter, deal with the incoming traffic and respond to reports of other persons with guns on campus.

The "E" stands for Environment. This prompt for command is to quickly evaluate the state of the hospital's current environment, which could include such things as damage assessments, environmental hazards, system status checks (radios, internet availability, critical infrastructure, etc.). In this event, the environment would also include the mood and demeanor of the crowd and staff. Both crowds resulting from this incident — those comprised of visitors and patients, the other comprised of staff members — reflected spirits of somber disbelief, sadness, fear and an urgency to help treat the injured patients. However, it could have just as easily been one of rage, hostility and vigilante tendencies with just a few minor changes



to the situation (example: if the shooter had been injured and transported to one of the area hospitals). Unanticipated changes to the hospital's environment of care would be a service disrupter that command staff must immediately identify; this is why it's the second most important priority.

"N" signifies the number of victims. This would include both external and internal victims. It is not important at this stage to have an exact number of patients, but instead a simple quantification such as 10-25, 26-50, 50- 100 or more than 100. It is also useful at this early stage to gain an awareness of the tempo in which patients are arriving.

"M" is used to remind commanders to gain an understanding of the mechanism of injury and the types of injuries that are arriving to the facility. Likewise, in a pandemic or novel contagious disease, it is at this point in the initial phase that command should attempt to quantify the illness by both type and symptom.

The "A" serves to remind commanders to identify additional resources needed. Using the Oct. 1, 2017 scenario and the "PENMAN" mnemonic, commanders would easily have determined the need for additional law enforcement and security (P), need for additional radios, communications apps to be installed on smart phones, cell phone chargers (E), the need for additional staffing, supplies and equipment (N), and the awareness that this was going to be a surgical intensive event (meaning specialized personnel, equipment,

services, blood products, etc. would all be in high demand) (M).

The last letter, "N" reminds commanders to evaluate the need to evacuate early in the HICS process. None of the facilities had a need to evacuate during this event.

Using the PENMAN mnemonic, hospitals can quickly start functioning within the HICS system. Commanders gain a quick and valuable assessment of the current conditions. The operations section chief has an understanding on the type of incident, tempo and number of patients. Immediate planning needs are identified. Logistical concerns and the need to activate contracts, mutual aid agreements or purchase additional goods or services can be quickly assessed; additionally, the administration/finance section can begin tracking costs, and if additional personnel are needed, fill the role of time unit leader immediately.

Time Unit Leaders were not used to their fullest capability during the incident. This functional position, located under the administration/finance section of HICS, has the primary mission of ensuring that the correct amount and type of personnel are requested based on the minimum staffing levels for each operational period, as determined by workload. The Time Unit Leader is the position that should be able to call in personnel based on needs (i.e., EVS, surgical staff, etc.) and should be able to track which personnel have reported to work and where within the hospital these individuals have been assigned. Renewing the



P PERSONAL SAFETY / PERSONNEL SAFETY

Are we in a safe area?

Are our staff and visitors safe?

E ENVIRONMENT

What is the state of our current environment?

Damage assessment (interior/exterior)

Environmental hazards (spills, fires, asbestos, live wires, oxygen-enriched environment, etc.)

System status checks (email, pager, cell, phone, internet, radio, TV/Cable, etc.)

N NUMBER OF VICTIMS

Internal and external

M MECHANISM OF INJURY

What caused the incident (earthquake, bomb, infectious disease, MCI, HazMat, etc.)?

A ADDITIONAL RESOURCES NEEDED IMMEDIATELY

Fire department, bomb squad, law enforcement, additional personnel or providers, etc.

N NEED FOR EVACUATION

Loss of power, water or sewer

Structural integrity issues



interest in this position could serve hospitals better during disasters on several fronts.

- First, hospitals would meet requirements within the CMS Emergency Preparedness Conditions of Participation related to personnel accountability and tracking.
- Second, by recalling only the personnel needed, hospitals could ensure that they have available human resources for subsequent operational periods or should a secondary event take place.

Lessons-to-be-learned

The following lessons-to-be-learned are insights and observations that have specific action items for the NHA. Many actions have already been started within Nevada and are being advocated through the Nevada Healthcare Preparedness Partners and NHA Community Resilience programs. These items are not viewed as more important than any of the other OILs; however, these items could be described as more systemic or macro in nature, and therefore can't be achieved by any single facility or responder agency alone.

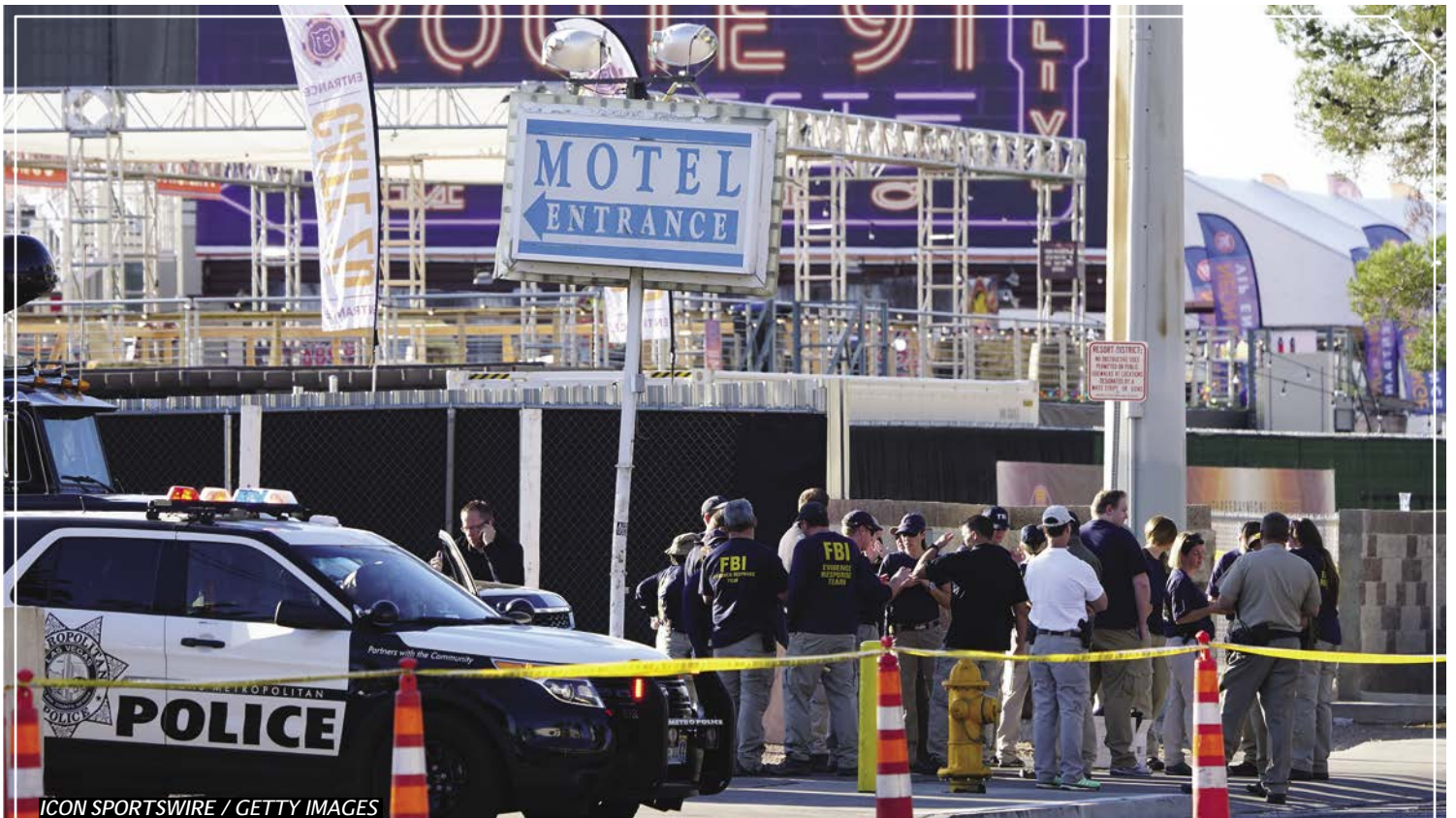
Electronic Health Records (EHRs) were problematic during the response, recovery and mitigation phases of this disaster. Additionally, without EHR vendors, hospitals and providers making changes, these difficulties can reasonably be anticipated to be repeated during subsequent disasters and MCIs.

In the response phase, the patient registration module proved very time- and labor-intensive, and many non-trauma centers didn't have an ability to automatically create trauma aliases (in the quantities required). This created significant

difficulties down-stream with patient treatment. Due to a significant number of patients being non-registered prior to surgery, or in some cases treated and released, the EHRs were incomplete. Without the registration process taking place, items such as HIPAA waivers and informed consent weren't completed. Surgeons didn't have an EHR to record their patient interventions; lab and radiology didn't have an EHR to which to attach test results; and entering information on hundreds of patients retrospectively was inadequate to capture the entire treatment continuum. Conversely, for those patients who did have an EHR started, surgeons reported frustration about the number of mandatory fields that were required to be completed and an inability to modify these fields based on the situation.

Some EHRs were found to be unable to run reports until the patient was admitted for 24 hours; still other EHR systems did not have any data collection field that would connect the patient to a specific incident. This proved inadequate at several points during the response and recovery. Law enforcement officials needed complete lists of those persons involved in the incident as part of the crime investigation. Operations centers needed the names and patient counts being seen at area facilities to help with reunification, identification of foreign citizens (to advise consulates, etc.) and to facilitate planning section activities.

During the mitigation phase, hospitals found it difficult to identify all patients who were treated related to this event. This created a situation whereby Metro's Force Investigative Team was tasked with attempting to locate and



interview approximately 869 patients without the benefit of addresses, phone numbers or known location where the patients were staying (hotel). Additionally, based on Nevada Revised Statute, hospitals are required to report all gunshot wound (GSW) victims to law enforcement officials. On this night, 413 GSW victims were seen at area hospitals. Having a standardized batch report that could be initiated during mass-shooting events would have saved considerable time for both LEO and hospitals.

Hospital revenue cycles and invoicing for professional services were limited in many cases. The lack of complete EHRs and documentation of all services, treatment modalities and medications administered to individual patients made it impossible for many physicians to invoice insurance

companies. As mitigation continued, hospitals were asked to verify each person's injury and classify by severity or type. This function was requested of the Las Vegas Fund administrators and also proved difficult and time consuming based on the earlier issues with patient registration and EHR processes.

The specific actions to be taken in regard to the electronic health records include:

1. The NHA conducted meetings and focus groups with first responder, emergency management and hospital organizations to determine what specific information is required of healthcare entities in the early stages of a mass casualty or terrorist event. The essential data points, based on input from law enforcement, public health, and emergency management, are:



- a. Patient name
 - b. Contact information
 - c. Current location (hospital name or discharged)
 - d. Injury type (GSW, blast, blunt force trauma, etc.)
 - e. Acuity level (critical, serious, stable, minor, deceased)
 - f. Total number of patients seen as a result of the incident
2. The NHA conducted meetings with GoFundMe administrators and Las Vegas Victims Fund administrators to determine what information needs can reasonably be anticipated from hospitals following a disaster, school shooting or other MCI when a fund me page or fund of some type is established to benefit victims. The data points that are needed to validate benefit claims or eligibility were determined to be:
- a. Patient name
 - b. Treating hospital name
 - c. Dates of service
 - d. Length of stay
 - e. Statement, injury code or other evidence that the patient sustained a physical injury as a result of the incident
 - f. If applicable, statement from treating physician or other evidence within the medical record that patient sustained permanent brain injury and/or permanent paralysis requiring continuous home medical assistance or long-term care
3. The NHA will be soliciting input from and conducting a virtual meeting with hospitals and prominent EHR companies to determine the best method of creating a simplified registration process as well as the creation of an “MCI toggle” that would either eliminate the mandatory fields function or create an express/lite version of the EHR. Developing canned reports that would collect the information required during the response phase, mandatory GSW reports and fund administration also will be explored.
4. Additional tasks and action steps can be anticipated following the meetings with EHR providers.
5. Once solutions are developed, the Nevada Healthcare Preparedness Partners will incorporate a patient registration surge component into our annual statewide exercise program. Mass patient registration processes had never been exercised to the extent seen as a result of this mass shooting.

The Health Insurance Portability and Accountability Act (HIPAA) created significant frustration for LEOs, emergency managers and hospitals alike. This federal regulation applies to all hospitals and healthcare providers who accept Medicaid and Medicare. Currently in Clark County, these regulations apply to all but one licensed hospital, and they also applied to all of the hospitals involved in resuscitations on Oct. 1, 2017. The frustrations centered on the bona fide needs of LEO and emergency management for patients’ private healthcare information (PHI) and



the inability of hospitals to provide this without violating HIPAA.

The fact pattern of this incident, specific to HIPAA, was that hospitals were truly overwhelmed. There were not enough registration clerks to manually register everyone as fast as critical patients were arriving, and the EHR system could not keep up with the tempo. Because of this, normal registration processes were not adhered to, including informing patients of their rights under HIPAA, gaining verbal consent from patients to release information and the process of getting a signed HIPAA waiver. Additionally, the ability of all hospitals to create a list of patients being treated wasn't possible in the first 12-24 hours of the incident.

Hospitals were unable to determine what type of information would be considered the minimum required, as required by HIPAA, when information requests were for all patients that had been seen. Every patient doesn't require reunification, and victims who are not GSWs aren't required to be reported to police. Additionally, some of the groups that were requesting information were pseudo-entities — calls from an emergency command center, for example. Some hospitals believed that for purposes of compliance and documentation, requests needed to be made in writing from a specific organization such as Metro or the FBI.

Exceptions to HIPAA are delineated in the regulation. These exceptions include 1135 waivers, court orders, subpoenas, administrative requests, activation of the national security act and to

protect against an imminent threat to public health and safety. Under these exemptions the release of PHI is permissible, but not a requirement of the hospitals. None of these exceptions were applicable.

To compound the issue for hospitals further, the CMS Emergency Preparedness Conditions of Participation state explicitly, "HIPAA requirements are not suspended during a national or public health emergency." Based on these concerns, some hospital privacy compliance personnel didn't feel comfortable releasing PHI information. Retrospectively, the Nevada State Survey Agency agreed with the hospitals that providing this information may conflict with the current privacy laws.

In conclusion, hospitals wanted to provide the information as they received it and ultimately provided much of the information to the Southern Nevada Health District, which stepped up to assist with the disaster relief operations. The information was incomplete based on issues during the patient registration process and was slow to be transmitted. It would be more than 30 days before an accurate list of patient names could be generated.

The specific actions to be taken regarding HIPAA include:

1. The first action taken by the NHA Community Resilience Program was to conduct interviews with representatives from involved community partners to understand the issues and concerns related to HIPAA. This was an emotionally charged issue for many of the personalities involved, as everybody wanted to help the victims and also do what was right under the



law. The issue can best be summarized in the question, “When does the right to individual

“When does the right to individual privacy need to yield to a greater public good?”

privacy need to yield to a greater public good?”

2. Second, the NHA conducted multiple conference calls and asked many clarifying questions via email of our federal partners. CMS, ASPR and the FBI all participated and provided subject matter expertise. In some instances, confusion or inconsistencies existed even within the various branches of government. This event’s scope and scale made it unlike any circumstance envisioned. The number of patients far exceeded a typical MCI, when normal registration processes and HIPAA aren’t generally at issue. Yet, it didn’t raise

to the level of a federally declared disaster either. It exposed a hole within HIPAA; all of the elements required during a large-scale disaster were present (nexus to terrorism, mass casualties, mass fatalities, need for family reunification, Presidential interest and requests for informational updates, international media, large population of injured from distant locations, the largest reunification operation of personal effects since 9/11, etc.), but for purposes of HIPAA it remained a status quo situation.

3. The NHA organized and hosted a symposium of HIPAA experts and Oct. 1 command staff to consider the issues exposed and develop solutions. This one-day symposium was held in Las Vegas, and HIPAA compliance experts attended from throughout the nation. CMS’ Office of Civil Rights attended with legal counsel and enforcement representatives. CMS Region IX sent personnel, and many other federal divisions including CMS’ Quality, Safety & Oversight Group and the HHS Assistant Secretary for Preparedness and Response (ASPR) had representatives attend via web conferencing. Local public health, fire, county legal counsels and hospital privacy officers, risk managers and lawyers also were in attendance.

The MCI was dissected, and all HIPAA concerns were identified during the first part of the symposium. During the second part of the symposium, possible solutions were identified.

CMS was forthright and explained that they were aware of the issues brought to light, but



that there is no political appetite to change the current regulatory language. Additionally, the current interpretive guidance is believed to be complete. It was also explained that individuals can't bring suit or legal actions directly against a hospital or provider for a suspected violation of HIPAA regulations. Unlike other areas of federal law such as the Americans with Disabilities Act (ADA), an individual's sole remedy for a HIPAA violation is to report it and file a complaint with CMS' Office of Civil Rights (OCR). Once a complaint is received, OCR investigates and determines if a violation occurred and what the extenuating circumstances were. Most cases are reportedly solved without fines, penalties or prosecution. OCR speculated that in this specific scenario, no findings would have been made against hospitals or any other covered entity.

Regarding releasing minimally required information, it was the consensus of the group that hospitals do not have the knowledge, skills or abilities to evaluate what would be the minimal information requirements for such things as a terrorism investigation, homicide or missing persons investigation, reunification process or epidemiological investigations. It was determined and agreed to by CMS' OCR that if a verifiable request came in from a known governmental or disaster relief entity and the other requirements of HIPAA were met (patient authorization or one of the exemptions), then the information being requested should be viewed as the minimal required PHI. The PHI would then become permissible, but not required, to be released. The ultimate

determination regarding the release of PHI still remains with the hospital unless there is a legal requirement for the release.

Blanket request for all patients being treated or seen remained problematic. HIPAA protects individual rights, not the rights of a class. Based on this, individual requests are one of the foundations of the regulations. Everyone understands that in this instance, and many more that are imaginable, individual requests would be disruptive to all organizations involved. Subject matter experts debated and worked to find the solution to this specific issue. One interim solution offered was to establish a business association between the hospitals and other emergency management organizations and then to use a standing letter to describe the minimum data elements that would be required during an MCI. This may work depending on how the relationship is established and the wording of the letter. However, it was pointed out that anyone who has a business relationship and receives PHI would then themselves be considered a covered entity subject to HIPAA regulations. This reality makes this solution more palatable for relationships between hospitals and public health entities and less desirable between hospitals and LEO (who are otherwise not covered entities). The final proposed solution was to develop a new Nevada Revised Statute (NRS). HIPAA allows covered entities to report PHI to law enforcement when required by law. The exact language was not determined; however, the recommended intent is to create an NRS requiring healthcare facilities to provide a minimum amount of PHI for each



person involved in a major MCI, when a local state of emergency or disaster is declared and when requested by a governmental entity. These facilities would then be required to report the information, for example, to the State Disaster Identification Team. Additionally, it was recommended that any individual or entity providing this information to the proper authority in good faith shall have immunity from any civil action related to the disclosure or consequential damages.

The issues of 1135 waivers and their ability to help with HIPAA regulations in these situations or even larger disasters was also discussed by the group. CMS explained that 1135 waivers “are not the panacea that they have been made out to be,” as they only provide an exemption for up to 72 hours and the exemption is extremely limited in scope. 1135 waivers do not exempt hospitals from all aspects of HIPAA regulations, and in this scenario, would not have been of any benefit. Additionally, both the President and the Secretary of Health and Human Services must declare an emergency or disaster and a public health emergency. Further, it was pointed out that 1135 waivers are not part of the HIPAA regulations; instead, they are contained in the Project Bioshield Act of 2004 and were initially intended to assist in cases of pandemic or bioterrorism.

4. The NHA and its members will work with the Nevada Department of Emergency Management (DEM) to draft proposed and acceptable language for any bill draft request related to mandating release of PHI during MCIs. The NHA

Community Resilience Program has already been having preliminary talks with DEM on this issue, and DEM has made a formal recommendation to the Governor’s Office and Homeland Security Commission through the Statewide Resilience Strategy, released July 1, 2018.

5. If a new NRS is developed, the application of this law will be incorporated into the NHPP’s annual statewide exercise and subsequently tested. Suggested changes to the application, administration or use of the new law will then be forwarded to DEM for the purpose of incorporating these lessons learned into the applicable administrative codes.
6. Currently under Nevada Revised Statutes, both GSW patients and burn patients are required to be reported to authorities by hospitals. Because this is delineated in law, no HIPAA violations can be assessed when hospitals provide PHI for these patients. On Oct. 1, 2017, this provision theoretically applied to 413 GSW patients, leaving 456 individuals who sustained injuries other than GSWs (at the event) for which hospitals were not covered by this particular HIPAA exemption. The law was never envisioned to be applied to an event such as the Harvest Festival. Instead, it was anticipated to help LEO become aware of suspects or other instances of gun violence that would have otherwise gone unreported. The unanticipated consequence of such a specific law was that hospitals were placed in a situation whereby only a portion of the victim count was reportable. If a new NRS is not introduced to cover MCI reporting, it may be beneficial to



modify the existing NRS language to include all patients who were involved in a shooting, burn or fire-related incident. This would have allowed for the reporting of all patients and would have significantly streamlined both requests for information and information gathering processes. Similarly, by including all patients related to a fire, LEO, fire marshals and arson investigators would have accurate patient counts following burn, fire and blast incidents that resulted in injuries — not necessarily just burns.

7. The NHA Community Resiliency Program will work with the Attorney General's Office and law enforcement agencies to develop a standardized information request form that can be quickly filled out and submitted to hospitals. This form will indicate the minimally necessary information and the applicable provision of NRS under which the request is being made or mandated. The form should be a check-box style one-pager that should be standardized across the state. The NHPP will then provide information and education to all hospitals and emergency departments regarding the law and the use of the form with the goal of clarifying the request process and the information that hospitals are compelled to provide in certain circumstances.

Licensing and credentialing medical personnel from outside Nevada was a potential challenge. There was an immediate concern that Nevada was experiencing a complex coordinated attack. There was no situational awareness regarding the total number of patients, possible other imminent

attacks or the possibility of another simultaneous disaster. The hospitals, physicians and support staff were all working at levels over the normal capacity of the system. The need to preplan and anticipate the requirement of medical reinforcements and to develop force multipliers was obvious.

Nevada has a plan to issue emergency licenses to medical providers. Unfortunately, the process is antiquated, time intensive and done on a case-by-case basis. During this situation, the current process seemed inadequate to meet the potential needs. The desired system would have a standardized process that would cover all provider types including those with licenses (physicians, nurses, pharmacists, etc.) and those with certifications (radiology techs, surgical techs, EMTs, etc.). Additionally, the desired system would prioritize the needs of hospitals.

The NHA began working with our hospital systems to identify potential needs as well as the ability of our hospital corporations to backfill personnel and other resources. We quickly discovered that our healthcare system is more robust, resourceful, reflective, and flexible than we had imagined. Many of our impacted hospitals are part of Fortune 100 corporations or large non-profit organizations. One system has more than 160 hospitals throughout the nation, while others operate between 30 and 70 additional facilities. These corporations reported having the ability to move complete trauma or other specialized surgical teams into their facilities. Many of these corporations have teams that all work together on a daily basis — teams that are trained in the corporate policies and procedures (HR, emergency preparedness, HAI,



special event reporting, etc.) as well as specific and proprietary systems such as the EHR, and medication ordering. Additionally, all personnel that would be temporarily reassigned have already been through the background, credentialing and privileging processes, employee orientations and are employees or providers in the specific hospital's system. It was also found that these organizations have the scale and cash on hand to leverage service contracts, supplies, and even charter large aircraft to facilitate logistics between states.

To facilitate moving these personnel if needed, the NHA began working with the Governor's office to develop a solution. Our hospitals had the capabilities, the resources and the personnel to backfill or augment their facilities, but we needed a method to quickly allow these people to practice

in Nevada. We looked to how other states had handled similar situations and quickly determined we would craft an executive order, signed by the Governor, waiving licensing and certification requirements for all medical providers. There was some debate regarding if the Governor has the authority to waive these requirements. This added some time to the process. We modeled the executive order from a similar order signed by the Governor of Texas during the recent hurricanes and subsequent flooding; this added additional credence to the Governor's authority. Ultimately, the order was crafted, walked through the approval processes and signed within 10 hours.

Following the issuance of this executive order, the NHA Community Resiliency Program began working directly with each of the licensing

boards, DEM and the State Division of Public and Behavioral Health to agree on a single process. The collaboration and level of teamwork was unprecedented. It was decided that if hospitals brought any personnel in from out-of-state, they would provide a list that included the name, license numbers, state of license, license type and contact phone number (cell phone). Additionally, whenever any of these provider's temporary assignment was over, the boards would be notified. The NHA Community Resiliency Program agreed to facilitate this process and function as the intermediary between the licensing boards and the hospitals. The process was never activated. The shooter was a lone-wolf, no subsequent attacks took place and the local facilities were able to effectively manage the surge of patients without needing reinforcements.

The specific actions to be taken regarding licensing and credentialing include:

1. The NHA Community Resiliency Program presented an overview of our mutual aid agreement and proposed the following recommendation to the Nevada Intrastate Mutual Aid Committee:

“In the event of a public health emergency or a disaster declared by the Nevada Governor, the Governor should have explicit authority to temporarily waive licensing requirements and to grant temporary reciprocity to all medical providers, allied health professions, and others who work within a licensed hospital system that currently operates within Nevada for the declared period of the incident. Out of state practitioners could also receive temporary

waivers if their specialties or services are specifically requested by a licensed hospital system that currently operates within Nevada. In order to implement this recommendation, DEM, the Nevada Hospital Association and State Division of Public and Behavioral Health should work together to develop procedures for coordinating and processing out-of-state medical professionals listed above upon their arrival to and departure from the state to support the specific incident.”

The Nevada Intrastate Mutual Aid Committee voted to approve this recommendation on March 28, 2018.

2. In the absence of any new authorities being granted to the Governor, the executive order that was drafted and issued shall serve as the template for any new executive order related to licensing during any disaster that requires medical reinforcements from other states. The NHA Community Resiliency Program will work with the State Division of Public and Behavioral Health to add this executive order's language into the Crisis Standards of Care plan.

GoFundMe or the establishment of other trust funds can reasonably be anticipated during the next disaster. Hospitals and state associations should prepare in advance of this eventuality.

The Nevada Hospital Association and the affected hospitals did not participate in any of the GoFundMe planning. We were not included in determining the distribution protocols, nor were we part of the contracted administrative services of the victims' fund. The funds were not



distributed as an insurance payment or to assist with medical reimbursements. Distributions were non-assignable and for all practicality amounted to a gift to those injured. This would later prove an important point, as receipt of fund monies for some, theoretically, could change their status if they are on public assistance, Medicaid or other similar programs. Some hospitals reported receiving requests from patients for financial guidance on these types of issues.

Shortly following the Las Vegas Victims' Fund's development of a draft protocol, it became apparent that hospitals would need to play an active role in validating claims. The draft protocol called for all payments to be prioritized and apportioned among the families of the decedents and most seriously injured. Injury was further delineated as a physical injury that needed medical treatment. Hospitals would need to evaluate every claim to the fund and determine: (1) if the claimant was in fact a patient during the set time frame (2) if the injuries being treated were a result of the Harvest Festival shooting (3) the extent of the injuries (4) the length of stay and dates of service.

To facilitate this process, the fund administrators developed a web-based portal and screening process. Claimants filled-out claim paperwork and signed a HIPAA waiver. They also attached any and all records or evidence of their injuries. The claim then was initially screened by an insurance company who volunteered their services. Claim forms were inspected for completeness and accuracy. Any discrepancy was rectified through direct contact with the claimant. Next, the FBI confirmed that the patient's name was

on the manifest of concert attendees. If it was not, the claimant would again be contacted by the insurance company and asked to provide evidence of attendance such as ticket stubs, photos, Facebook posts, casino host statements, etc. At this point, people were assumed to be in attendance if any attempt at providing evidence was made. The next step was for all claims that had been pre-verified to be reviewed by the hospitals and urgent care centers that provided treatment. This verification process was completed manually at each facility. Hospitals would receive an email each day telling them if they had claims to review, and then a designated person would open the virtual claim, review and print the HIPAA form, and then enter the necessary information.

The Nevada Hospital Association's role was to get the buy-in and support of every hospital and urgent care center that treated patients. This was imperative if the protocol was to work. We arranged conference calls with all of the respective CFOs and fund administrators. Hospitals used this forum to hear the plan and ask questions.

Elements that all hospitals needed to unanimously agree upon included administrative policies previously never discussed in Nevada. All health-care facilities needed to accept a standardized HIPAA release form, in an electronic PDF format. The language of the release needed to be sent to all hospitals and urgent care centers and be approved by their respective legal departments. Hospitals would need to agree to validate all claims of permanent paralysis or brain injury and issue a certification statement to this effect. This statement would then need to be uploaded into the



system. All facilities would need to appoint a single point of contact who would be responsible to complete the claim verification process. For many hospitals, this was the Chief Financial Officer. One system designated the Director of the Corporate Central Billing Office to complete this task on behalf of the six hospitals within their system that received patients. Still others assigned this function to the Health Informatics Management Director. Lastly, all facilities had to agree that all claims would be completely validated within 30 days of the closing of the claim period. The NHA was able to get all facilities to unanimously agree to all the required terms and conditions.

There were some difficulties within this process. One facility had difficulties with the web-based software; some attachments weren't making it through the virus scanning software. Another facility had issues being able to upload documents. Still other facilities received what may have been fraudulent claims. Claims where a person stated they had been admitted to a facility, yet no record of the person existed. Others tried to claim permanent brain injury as a result of the concert, when what they were diagnosed with was actually a psychogenic shock (absent any physical injury). In one case, a person with an extensive mental health history claimed the event compounded their illness. These claims were denied by the administrator based on the final protocol that stated only persons with physical injuries would be gifted money from the fund.

Whenever any issue related to the hospitals' or urgent cares' ability to use the software, meet timelines, or any other technical difficulties

“GoFundMe or the establishment of other trust funds can reasonably be anticipated during the next disaster.”

occurred, the NHA served as the intermediary between the facility and the Victims' Fund Administrator. This intermediary role at times was time-consuming. Additionally, once outside organizations learned that the NHA was performing this intermediary role, requests for information from the Las Vegas Resiliency Center and Victims of Crime programs from multiple states began, with these entities then seeking help for their unique informational needs.

The specific actions to be taken regarding GoFundMe administration and support are as follows:

1. The data points that are needed to validate benefit claims or eligibility were determined to be:
 - a. Patient name
 - b. Treating hospital name



- c. Dates of service
- d. Length of stay
- e. Statement, injury code or other evidence that the patient sustained a physical injury as a result of the incident
- f. If applicable, statement from treating physician or other evidence within the medical record that patient sustained permanent brain injury and/or permanent paralysis requiring continuous home medical assistance or long-term care

The NHA will be recommending that hospitals create a check-box field within the electronic health record system to delineate patients from MCIs that sustained permanent paralysis and to delineate patients who sustained permanent brain injury. It was a common complaint from hospitals that the entire patient chart needed to be reviewed to determine if these claims were legitimate; in some of these cases, the treating physician had to be contacted and asked to provide the certification because it wasn't clear in the hospital chart.

2. The NHA will be keeping the meeting minutes and other notes from this experience. We would be happy to assist other hospital associations that find themselves needing to recreate this process following a disaster.

Fire and EMS resources and MCI dispatch protocols should be evaluated based on this event. Since the development of paramedic programs, it has been the operational assumption that critical patients would arrive at hospitals via ambulance transportation. This was the assumption going into

this MCI. However, the fire department responded en masse to the area of the shooting, only to be pinned back by gunfire. Likewise, ambulances from throughout the county were staged at a nearby fire station, committed to the incident and ready to transport patients. But many of the patients found their own transportation to area healthcare facilities.

The situation created was one where fire personnel and resources were sitting idle outside the area of immediate danger. Ambulances were staged and unavailable to perform interfacility transports or help load-balance affected hospitals. Hospitals found themselves having to extricate hundreds of patients out of incoming vehicles and performing triage in the ambulance bays outside the emergency room doors.

While it is outside the scope of this report to change any EMS policy, it is worth suggesting that a new deployment model should be explored. A model such as this may have improved throughput times and patient arrival-to-surgery times, if it were to dispatch a cadre of personnel to area hospitals to assist in the extrication, triage and even emergency procedures such as tourniquet placement, IV/IO line establishment and endotracheal intubation of patients. Additionally, using paramedic personnel to staff buses that could then move the walking-wounded to distant facilities instead of having paramedics stage at a fire station could have assisted with load-balancing, patient wait times and throughput.

The specific actions to be taken regarding fire and EMS deployment models are as follows:



MARK RALSTON/AFP/GETTY IMAGES

“The shooter was perched in an elevated platform – shooting down from the 32nd floor of the Mandalay Bay Resort, located across the street from the concert and more than 350 yards away.”



1. The NHA Community Resiliency Program suggests large urban fire, EMS providers and the hospital community explore ways that fire and EMS resources could be best utilized.
2. If a deployment change is contemplated, the NHA will work with all parties and CMS officials to ensure any plan is compliant with the Emergency Medical Treatment and Active Labor (EMTALA) Act.
3. The Nevada Healthcare Preparedness Partners will incorporate any new procedural change into the statewide annual exercise so that personnel can become familiar with how any change in operations would work.

Personal responsibility and accountability can significantly alter the outcome of any tragic event. Whether it is having a personal evacuation plan, knowing first aid or CPR, or using modern technology to locate family members or the closest hospital, taking a direct personal role in the situation should be encouraged.

During this event, people used all available methods to quickly secure medical attention. Patients liberated vehicles, stole police cars, called Uber and ridesharing services or otherwise self-transported. Smartphones were instrumental in getting out-of-town visitors to the closest hospitals via mapping applications. These personal choices are all credited with decreasing the time from injury to surgery and saving many lives.

CPR and tourniquet application were also commonly used by laypersons. These techniques had limited effects (CPR isn't effective on patients

in hemorrhagic shock, and most of the tourniquets were applied incorrectly); however, these actions demonstrate that people are willing and able to initiate resuscitative measures under extreme circumstances.

Smartphones and various apps were utilized by many to help mitigate various issues. Aside from the obvious use of mapping apps, some people utilized family tracking apps to identify which hospital or other location their loved ones had fled to. Uber was used to summon transportation, and radio apps were used to keep groups of friends in contact with each other.

The specific actions to be taken in regard to personal responsibility and accountability are as follows:

1. The NHA Community Resilience Program will work with partner hospitals and others to develop multimedia educational materials related to tourniquet fabrication techniques (using readily available clothing and materials) as well as tourniquet application. All of the tourniquets applied during this event were non-commercial, make-shift devices that generally weren't applied tight enough to stop arterial blood flow. It would be the desire of the Community Resilience Program to develop open-source, free educational materials that could be downloaded, adapted and taught in any school district or by any healthcare coalition to laypersons or life trustees.
2. The NHA Community Resilience Program will work to develop an individualized safety plan template that families and individuals could



use to create emergency plans. This template will focus on: (1) crowd safety and evacuation processes; (2) how to react to an active shooter or other sudden impact event; (3) establishment of predetermined reunification or meet-up locations if at an event and forced to evacuate; (4) use of various free smartphone apps to remain in contact with family and friends while attending large events; and (5) apps that track family and friends to facilitate reunification when separated. Hospitals, coalitions, fire department, public education programs and community groups will be able to download, adapt and utilize these materials to help build individual resilience within their communities.

3. The Community Resilience Program will evaluate apps that could be installed and utilized by healthcare entities, emergency operations centers and incident commanders, life trustees, and others during any major crisis. Apps will be evaluated based on cost (an emphasis will be placed on free apps), cross-platform interaction (Android and Apple OS), ease of use, band-width requirements, ability to work on both Wi-Fi or cellular networks. Additional comparisons may become evident during the evaluation process.

The type of apps that will be evaluated include:

- Walkie-talkie
- Personnel locator or tracking
- Social media monitoring and situational awareness

- Mapping that allow pins to be dropped to indicate various things, ability to look at the map based on a location typed vs geo-locating, ability to easily send map to printer, email or MMS to other responders
- First aid instructions

Master Mutual Aid Agreement (MMAA) expansion will be evaluated for feasibility. The MMAA worked exactly as intended during what was the first large-scale application of the agreement. Hospitals shared personnel, resources and supplies. They accepted patient transfers, and unaffected hospitals such as LTACs even went so far as to solicit affected acute care facilities to offer whatever help they could. The hospital community all pulled together to ensure there were no lapses in access to care, quality of care or patient safety.

Following this application of the MMAA, another major unrelated event occurred. Hospitals in Hawaii were at significant risk of running out of IV fluids. The healthcare system in Hawaii had apparently tried to get IV fluids via their regular suppliers but were unable due to the national shortage. They had reached out to state and federal emergency managers, attempting to get relief without success; and then they contacted the Hawaii Hospital and Healthcare Association, which put out a desperate plea via the AHA Emergency Readiness Group listserv.

The Nevada Hospital Association heard this plea for supply and logistical help, and the Community Resiliency Program activated the MMAA on behalf of Hawaii. The hospitals of Nevada immediately began developing a plan in coordination with the



Hawaii Hospital and Healthcare Association. One facility in Reno provided several pallets of solution via overnight air transport, immediately providing some short-term relief of the problem. Another facility referred the request to its corporate logistics and supply unit in Arizona, and soon thousands of bags were transported via air to the islands. But the help didn't stop with shipping fluids to the island. The corporate logistic and supply unit was able to help Hawaii get an emergency contract with a pharmaceutical wholesaler in California. This was our first experience where one of our corporate hospital systems leveraged their buying power to assist an outside healthcare system. Once again, the system worked beautifully, and the industry solved the impending shortage crisis. All of the coordination, planning, logistics and contracts were provided by private sector organizations without the aid of any governmental entity or unit.

The lesson learned in the Hawaii example can't be understated. Hospitals are no longer single resources confined by political or geographical borders. In this instance, hospitals in one state requested help and the NHA took the lead and instituted the MMAA, which resulted in fluids being supplied from both Nevada and Arizona. Additionally, an emergency contract was enacted with a supplier in yet a fourth state, California. This level of cooperation and interconnectivity among the healthcare sector was also being preplanned behind the scenes, as a contingency should a subsequent attack have occurred.

The specific actions to be taken regarding the MMAA are as follows:

“Hospitals are no longer single resources confined by political or geographical borders.”

1. The Nevada Hospital Association will contact the large hospital corporations and non-profit systems and determine if there is interest in entering into a MMAA at the system level. It is anticipated that an MMAA between the largest 40 hospital organizations would create a network of 1,270 acute-care hospitals that could share services, supplies and personnel in virtually every state.
2. The Nevada Hospital Association will contact the teaching hospitals throughout the nation and explore if we can facilitate an MMAA agreement between this subset of the hospital sector. It is estimated that approximately 78 percent of all burn beds, 60 percent of all pediatric ICUs, 80 percent of all Level I trauma centers and 40 percent of NICUs are found in



this subsector of the hospital community. This agreement would add an additional grouping of large hospitals, which could be as many as another 1,000 facilities.

3. If there is significant interest in MMAA expansion across the hospital sector, the NHA would begin discussions with leaders in other sectors to determine the best model of governance and administration. The NHA would work through the sector coordinating councils for the energy, transportation and rail sectors to identify subject matter experts, benchmarks and large-scale sample agreements that have had many activations.
4. Following the discussions with other sectors regarding their mutual aid agreements, a committee or board would be installed, an action plan would be developed and work on the program's development would commence.

A hospital association emergency action plan and communications plan will need to be developed to preplan our response to any future disaster or major emergency. During the October incident, the entire Nevada Hospital Association was working issues on behalf of our members. We had the Community Resilience Program working on plans and operational issues. Our publications people were monitoring social media and helping to produce press releases and situational updates. Our president and CEO was in constant contact with high level political personnel and hospital executives. Everyone was busy, but we experienced overlap. Based on this experience, we believe we

can organize ourselves to be more efficient during this type of event.

The plans should delineate what actions the association will undertake during a crisis, what the priorities will be, and who within the association is responsible for which actions. This will help create a more organized approach to the issues that can be anticipated and the communications that will need to occur.

The specific actions to be taken regarding emergency action plan and communications plan development are as follows:

1. Planning assumptions must be made during the plan's development. Based on this incident, as well as others that have occurred in Nevada, we will be making the planning assumptions as follows:
 - a. The event will occur after normal business hours. By making this assumption at the outset, we can plan for the worst case and develop communications routines that aren't based on face-to-face interaction or the luxury of having administrative support.
 - b. Only minimal information or situational awareness will be available for the first few hours.
 - c. All news reports, EOC communications and intel received is, at best, an estimate of what's happening and subject to change or further clarification.
 - d. Hospitals will be overwhelmed and will need assistance.



- e. Additional attacks, aftershocks or chaos will occur, and hospitals will need assistance developing contingency plans for these activities.
2. The plans must be made based on positions, not personalities. Certain individuals within the association have an institutional knowledge or other disaster response experiences from which they can draw to solve problems. The plan must try to capture this institutional knowledge and build job action sheets that could be used by anybody, regardless of disaster experience level.
3. The plan will be a living document, and appendixes and annexes that contain specific names, email addresses and phone numbers will require frequent updating.
4. The plan (excluding annexes) should be shared with association members so hospitals understand our capabilities and the services that can be offered during a crisis. Annexes will be transmitted to hospital command centers during the incident so that we can verify that the most current versions are being used by all facilities.

CONCLUSION

As this special report is written, we are still awaiting the results of the FBI's Profiling Report. There currently is no known motive for why a person would cause so much death and destruction.

The healthcare system did learn that we have much to do regarding disaster management. This event is the closest thing to any large-scale disaster (such as an earthquake or other sudden-impact event) we have experienced in the times of modern

healthcare and smart phones. More than 800 people were injured, 580+ needed emergency medical attention, and 58 people perished. Hospitals, EMS and law enforcement were stressed to levels never before seen in America.

We learned the human dynamics of experiencing such a disaster in the current time. Patients didn't wait for help to arrive, paramedics didn't have opportunity to provide field triage and treatments for many, and critical patients didn't arrive evenly distributed to area facilities via ambulance. Instead, hospitals had limited notice of the event. Patients used smartphones with mapping software or ride-sharing apps to quickly get to the closest hospital. Trauma centers and community hospitals alike received major penetrating trauma; and these facilities needed to resuscitate and manage these patients in-house.

Situational awareness was absent. First responders learned about the system disruption that was caused by echo calls and the confusion with lexicons and codes. Law enforcement officers and paramedics were pinned down by gunfire, unable in many cases to get to the most critical of patients. We learned that the individuals attending the concert, while being shot at themselves, attempted to provide first aid and life-saving measures. These people who responded to the situation, before first responders could make entry, were the life trustees of the community.

Facilities experienced large numbers of patients swarming to their medical centers. Extricating the unconscious and unresponsive people from vehicles was physically laborious. Hundreds of



patients required triage, and the patient counts were constantly increasing. The goal of triage was to identify individuals requiring immediate surgery. All triage systems used proved equally effective to reach this goal.

Throughput was the most important principle. Surge capacity meant nothing if patients weren't quickly rushed to surgery. Blood and blood products, rapid sequence intubation medications, compression bandages and endotracheal and chest tubes were the most needed items during the initial resuscitation phases.

Hospitals experienced internal problems with the patient registration process and EHR systems. Many of these problems stemmed from the sudden volume of patients, the sustained tempo in which patients were arriving and the staffing levels of registration personnel. We learned that specialized, computer-based programs that required individualized credentials and prior training (designed to provide updates and communication to various response agencies, EOCs and other hospitals) offered little value to the hospitals and took providers away from the bedside. These systems proved time intensive, redundant and restrictive. Managers, commanders and other key people would have been tied to a computer screen if these systems would have been utilized as designed.

Routine supplies ran low, including ball-point pens, triage tags and linens for the beds. Medical implements also were in short supply. Everything needed constant disinfecting, and cross-contamination was of the highest concern. EVS personnel proved to be an important part of the team and

critical to the concept of throughput. We learned that extra EVS personnel need to be on the call-back list of every hospital, should a situation

“Throughput was the most important principle.”

like this occur in the future.

The hospital incident command system (HICS) worked well for the operations management of the incident. Administrative functions were slow to be implemented and made various elements of staffing and information flow less efficient. Specifically, use of the public information officer as a single point of contact and a strong time-unit leader function would have improved administrative controls.

Mortuary surge plans must be updated and included as a component of any hospital's



emergency plan. Additionally, job action sheets for the person(s) responsible for this operation must be developed. Hospitals also must realize that the person assigned to this function needs to be emotionally stable and one who is exhibiting good coping mechanisms based on the situation. Communication skills, empathy and leadership are all important characteristics of this position.

Mutual aid agreements between facilities that allow for the sharing of supplies, equipment, medications, personnel and the transfer of patients proved highly effective. These agreements did not require any paperwork nor other bureaucracy to activate or use. Throughput times were improved, and lives were saved because all hospitals worked together to ensure impacted facilities had everything they needed immediately.

Multi-Agency Coordination Groups (MAC), as defined in the National Incident Management System (NIMS), were imperative to managing the workload. The VA functioned as one MAC and managed the emotional support and staff support functions for area hospitals. The Nevada Hospital Association worked as another MAC and managed preplanning for possible additional attacks, provision of medical reinforcements and advocating for the needs of area hospitals. Neither of these MACs were preplanned or named during the event, but instead spontaneously developed to meet identified needs.

Lastly, we learned that communities should develop system saturation plans that address issues such as what to do when the trauma centers can't take additional patients — and there are no available

ambulances — and medical personnel, supplies and equipment are in severe short supply. These situations should not require long-term, diminished patient access to services or a degradation in the quality of medical care a community can provide.

Looking forward, this incident highlights the need for all response algorithms, plans and assumptions to be updated based on new technologies, societal norms and market forces. It will no longer be acceptable to maintain the same methodologies and mindsets emergency managers have held for generations.

Ambulance providers who don't upgrade dispatch capabilities to match ridesharing apps currently available and used daily by the public will soon find that they are not the first choice of medical transport. People are now accustomed to being able to use a single rideshare app in every city and in most countries around the world. These apps allow the individual and driver to communicate directly with each other via both voice and text. Additionally, vehicle tracking is displayed, and the caller can choose to abandon the request if the unit is coming from too far away or alternative methods are better. Pricing is also displayed and transparent to the user. This is the new normal in transportation services and has already been embraced by several healthcare systems who have contracted with ridesharing services, over ambulances, for routine, non-emergency medical transportation.

First aid, CPR, Heimlich maneuvers, rescue breathing, tourniquet application and other easy-to-use, life-saving procedures should



be taught to everyone at an early age. These programs should be open-sourced, so that free training materials for standard procedures can be developed, and any community group can use them to educate their constituency. Phone apps that could provide additional detail and instructions similar to emergency medical dispatch instructions — and which could also simultaneously dispatch first responders — would be invaluable and are currently technologically feasible. This

“First aid, CPR, Heimlich maneuvers, rescue breathing, tourniquet application and other easy-to-use, life-saving procedures should be taught to everyone at an early age.”

incident proved there are a large number of people who are willing to be life trustees, and they would benefit from this type of education.

Community responders should advocate that all people have some form of family tracking and radio (walkie-talkie) apps on their smart phones.

Just as we teach individuals how to install a car seat, we should teach people that these resources are available for free to download from the applicable app stores. Family reunification and voice contact even when cell signal is minimal would be much easier, and the need for complex, long-term operations to achieve reunification could be minimized.

The hospital sector is also going through dramatic transformations that will change all planning assumptions in the near future. Private healthcare assets, personnel and facilities currently account for approximately 18 percent of the nation’s gross national product. As the sector matures and consolidates, hospitals will strive to provide services in the most economical and efficient manner. This may equate to hospitals rightsizing the number of licensed beds they maintain in inventory, as more and more treatments and services are performed on an out-patient basis. The net effect may be lower healthcare cost, higher quality healthcare and higher patient satisfaction at the expense of surge capacity.

New coverage options and business models also are appearing within the healthcare sector. Several large employers have recently partnered to create an insurance option described as lowering cost and disrupting the status quo. Hospital groups also are experimenting with boutique facilities and hospitals that don’t take any insurance assignment. These hospitals are exempt from HIPAA, Emergency Medical Treatment & Labor Act and all CMS conditions of participation because they do not participate in the Medicare or Medicaid systems. Incorporating these facilities in any



organized community plan will be challenging if this business model flourishes.

Hospital consolidation has also afforded economies of scale in the area of emergency managers, risk managers and hospital preparedness personnel. Where there was once a dedicated person at each facility who held responsibilities for preparedness, large hospital systems are finding it a better alternative to maintain these personnel and functions at the corporate level. This consolidation allows standardized policies and procedures among all facilities in the brand as well as assured compliance with new emergency management regulatory requirements. There are pros and cons with this approach. It is definitely easier to allow personnel transfers between facilities or to bring to bear additional human resources from outside areas when disaster strikes, if everyone is trained to the same policies and procedures. Also, the new paradigm is to incorporate elements of emergency preparedness into everyone's job description, similar to how occupational safety and patient satisfaction initiatives have been done for years. This may result in more effective and efficient preparedness programs. The potential downside for community planners and public health: As more systems begin to internalize their emergency operations, less community-level flexibility exists, and coalitions' influence is diminished.

Changes in the technology, transportation and healthcare sectors is inevitable and occurring at a dizzying pace. Changes in any of these sectors often creates a dramatic shift in the type of care offered in new locations, new methods of getting

either the patient to treatment or a treatment to the patient and requirements for either in-patient or out-of-hospital care. All of these sectors have proven to be interconnected. Changes in any one sector can provide a new service challenge to the others. We experienced this on a micro scale during this MCI. Patients used ridesharing services instead of ambulances. Patients traveled home to distant states, and only then sought medical care at an urgent care center. Patients who needed orthopedic surgery and would generally be a full trauma activation were able to be handled as outpatients. Patients came to area hospitals without any identification. These realities represent some of the new planning assumptions for emergency managers and hospitals.

There were many heroes that night. Their ingenuity, teamwork and hard work cannot be overstated. The human spirit was alive and well. Whenever the plan, policy or procedure failed, the people came together to solve the issue. Lives were saved, and the impacts of these horrific injuries were minimized by the individuals who came together to take life-saving action. Training, exercises and policy all help — but in the end, it's the people who make the difference.