

Sunrise Hospital & Medical Center

Response to October 1 Mass Casualty Event



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Range of Disaster Experience



80 Injured as Amtrak's California Zephyr Jumps Track in Iowa- October 12, 1987

RUSSELL, Iowa — Amtrak's California Zephyr slammed into a railroad crane laying new track Monday, knocking both locomotives and 11 cars of the passenger train off the tracks and injuring more than 80 people, officials said.

"Everything was going smoothly and all of the sudden I heard the screeching of the brakes and everyone went flying," said passenger Mildred Faddis of Oakland, Calif. "There was debris everywhere. It was terrible."



Eighty people were taken to the Lucas County Memorial Hospital in nearby Chariton, said hospital administrator Bill Bruce, while three of the most seriously hurt, including two railroad workers, were flown by helicopter to hospitals in Des Moines.

Marciniak said Amtrak's records showed 248 passengers and 22 crew members were on the train.

What Happened

- The eastbound train was operating on the **westward track** because the eastward main track had been taken out of service for maintenance. At about **60 mph**, it entered a **stub track** and struck **maintenance-of-way work equipment**, including a Burlington Northern railroad bridge crane and three flat cars
- The crash caused:
- **Two locomotive units** to derail
- **11 of 14 passenger cars** to derail
- The crane and three flat cars to be damaged

Cause and Contributing Factors

- The **National Transportation Safety Board (NTSB)** investigation concluded that the accident was likely caused by a **switch inadvertently left open** by maintenance crews working on the main tracks. This allowed the train to enter a secondary track where it collided with the crane.
- Key safety issues highlighted in the NTSB report included:
- **Speed of trains through work areas**
- **Visibility of mainline switch banners**
- **Maintenance-of-way qualifying procedures**
- **Management oversight of rules**
- **Toxicological testing of maintenance crews**
- **Crashworthiness of equipment**

Injuries and Response

- Of the 111 injured, **99 required hospital treatment** and **12 were admitted**. Most injuries were **broken bones**, especially legs. Many victims were transported by ambulance to hospitals in Chariton and Osceola, Iowa, with some receiving air ambulance care to Des Moines and Chariton
- The Lucas County sheriff's office said most of the injured were taken by ambulance to hospitals in the communities of Chariton and Osceola. At least four of the victims were transported by air ambulances to hospitals in Chariton and Des Moines, officials said.
- 'Most of the injuries were broken bones, mostly broken legs,' said Rich Ruble, a member of the Lucas County emergency response unit.
- A spokeswoman at Lucas County Hospital at Chariton, 11 miles from the accident scene, said 87 passengers and crew members were released from the hospital after treatment for injuries ranging from cuts and bruises to broken bones. Nine others were admitted overnight for observation and were in satisfactory condition, she said.
- Another passenger, Forice Messamaker, 48, Pella, was airlifted to Iowa Methodist Medical Center in Des Moines where she was listed in good condition after suffering cuts and bruises, hospital officials said.
- Two Amtrak employees, Richard Dillon, 38, and Mayme James, 59, were airlifted to Mercy Medical Center in Des Moines suffering from abdominal injuries. Dillon was listed in serious condition, while James was in satisfactory condition, Mercy spokesman Bill Maurer said.

Aftermath

- All 22 crew members were tested for drug use under FRA policy, with results pending for about three weeks.
- NTSB and FRA investigators arrived at the scene late the same day to begin their probe.
- The accident underscored the need for improved track safety protocols, switch visibility, and crew training in work zone operations.
- This incident remains a notable example of a **work-zone derailment** and led to recommendations for stricter safety measures in railroad maintenance operations.

Iowa Major Disasters

- **Armistice Day Blizzard (November 11, 1940):** A sudden, ferocious blizzard dropped up to 17 inches of snow with 20-foot drifts, killing 154 people (mostly duck hunters) and devastating Iowa's apple orchard industry.
- **Portsmouth Tornado (July 8, 1940):** Levelled the downtown area of Portsmouth, accompanied by severe local flooding from Mosquito Creek.
- **Palm Sunday Tornado Outbreak (April 11, 1965):** Part of a historic regional outbreak that caused severe destruction across multiple Midwestern states.
- **Jordan F5 Tornado (June 13, 1976):** A violent, rare F5 tornado tracked through rural areas of central Iowa, leveling farms and leaving massive structural damage.
- **Iowa Flood of 2008 (June 2008):** Catastrophic, historic flooding along major waterways like the Cedar and Upper Iowa rivers led to massive evacuations, levee breaches, and billions of dollars in infrastructure and agricultural damage across eastern Iowa.
- **Midwest Derecho (August 10, 2020):** A destructive inland hurricane-like straight-line windstorm caused widespread wind gusts up to 140 mph, severely damaging millions of acres of crops, flattening grain bins, and knocking out power to hundreds of thousands of residents.
- **Summer 2024 Floods & Tornadoes:** Severe storms, heavy downpours, and tornadoes swept across the state, prompting major federal disaster declarations.
- **Winter 2025 Severe Winter Weather:** Severe ice and snowstorms damaged public infrastructure and private properties across western counties.

Nevada Major Disasters

- **1942: Carole Lombard Plane Crash**
A TWA plane carrying 22 people, including famous screen actress Carole Lombard, crashed into Table Mountain near Pahrump, killing everyone on board. [\[1\]](#)
- **1950: Western Nevada Floods**
Warm atmospheric storms melted the Sierra snowpack in late November and early December, causing severe flooding in downtown Reno and along the Carson and Walker rivers, resulting in two deaths and millions in damage. [\[1\]](#)
- **1954: Dixie Valley-Fairview Earthquakes**
A powerful series of earthquakes struck Churchill County, with magnitudes reaching up to 7.1, causing major surface faulting, land displacement, and structural damage across western Nevada.
- **1980: MGM Grand Fire (Las Vegas)**
A devastating electrical fire broke out at the MGM Grand Hotel and Casino on November 21, 1980, killing 85 people and injuring hundreds more. It remains one of the worst hotel fires in U.S. history and led to sweeping modern fire safety and sprinkler regulations. [\[1\]](#)
- **1988: PEPCON Explosion (Henderson)**
An accidental industrial explosion at the Pacific Engineering and Production Company plant on May 4, 1988, leveled the facility, produced the most powerful non-nuclear civilian explosion in U.S. history, killed two people, and injured hundreds more with shockwaves felt for miles. [\[1\]](#)
- **1997: New Year's Day Floods**
A warm, wet weather pattern ("Pineapple Express") combined with a heavy snowpack caused catastrophic floods across northern Nevada and the Truckee River basin, causing hundreds of millions in damages and forcing mass evacuations.
- **1999: Las Vegas Flash Flood**
A severe summer thunderstorm dumped torrential rain over the Las Vegas Valley, producing record peak flows on the Las Vegas Strip, sweeping away cars, causing severe property damage, and killing two people. [\[1\]](#)

Perilous landscape: California's 250-year struggle to prepare for natural disasters



A burned building on Sunset Boulevard during the Palisades Fire on Wednesday, January 8, 2025, in Pacific Palisades, CA. (Photo by (Jeff Gritchen/MediaNews Group/Orange County Register via Getty Images)

San Diego County Major Disasters

- **Major Wildfires**
- **1943 (Hauser Creek Fire):** Burned 10,000 acres in the Cleveland National Forest and killed nine firefighters, including seven Marines. [\[1\]](#)
- **2003 (Cedar Fire):** Burned 280,278 acres, destroyed 2,820 buildings, and caused 15 deaths, making it one of the most destructive fires in modern California history. [\[1\]](#)
- **2007 (Witch Creek and Guejito Fires):** Burned 288,430 acres alongside other regional blazes, destroyed 1,650 buildings, and resulted in 7 deaths. [\[1\]](#)
- **2014 (Cocos, Poinsettia, and Bernardo Fires):** Consumed roughly 26,000 acres and destroyed 65 structures across North County. [\[1\]](#)
- **2016 (Border Fire):** Burned 7,609 acres near the international border, destroying 18 structures and causing 2 fatalities. [\[1\]](#)
- **Aviation Disasters**
- **1978 (PSA Flight 182):** A Pacific Southwest Airlines Boeing 727 collided with a private Cessna over North Park, resulting in 144 fatalities, which made it the deadliest commercial aviation disaster in California history at the time.
- **Major Floods and Storms**
- **1980 (January/February Storms):** Record rainfall caused severe flash flooding, overflowing rivers, and major infrastructure and bridge damage across San Diego County.
- **1993 (January Storms):** Heavy rainfall led to widespread flooding in Mission Valley and surrounding river basins, prompting major disaster declarations.

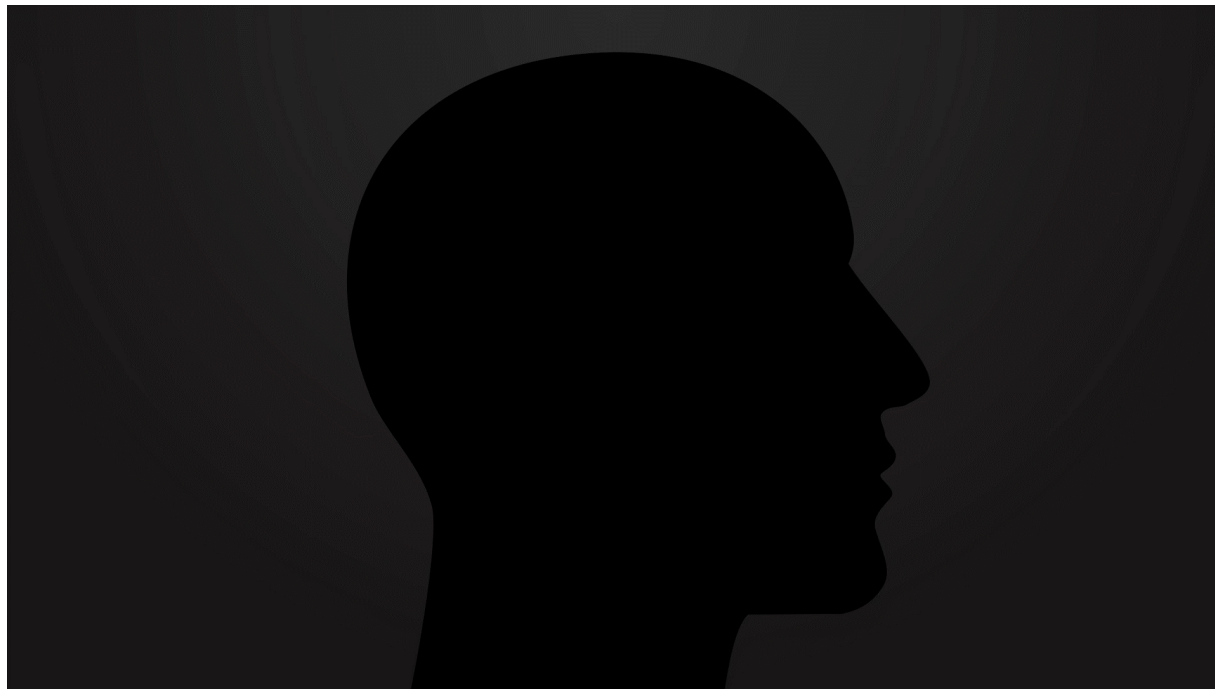
20 Worse Events in U.S. History

- Pearl Harbor
- September 11th
- COVID-19
- Galveston, Texas Hurricane
- San Francisco Earthquake
- Hurricane Maria
- Exxon Valdez Oil Spill
- Johnstown Flood
- Peshtigo Fire
- Hurricane Katrina
- Hurricane Harvey
- Deepwater Horizon Oil Spill
- Hurricane Ian
- Hurricane Irma
- Great Flood of 1862
- Hurricane Sandy
- The Great Chicago Fire
- 1918 Influenza Pandemic
- 1936 North American Heat Wave
- 2017 Las Vegas Shooting

Mass Casualty Incidents – Las Vegas, NV

- **October 1, 2017 – The Route 91 Harvest Music Festival Shooting:** The [2017 Las Vegas Shooting](#) is the deadliest mass shooting by a single gunman in modern U.S. history. Operating from the 32nd floor of the Mandalay Bay hotel, a lone attacker fired thousands of rounds into a crowd of 22,000 concertgoers. The tragedy resulted in **60 fatalities** (including the gunman) and over **800 total injuries** (with more than 500 people wounded by gunfire), severely straining 16 area hospitals.
- **November 21, 1980 – MGM Grand Hotel Fire:** A destructive electrical fire broke out in a ground-floor restaurant and rapidly swept through the casino and upper hotel tower. Due to heavy toxic smoke inhalation and trapped exits, **85 people died** and roughly **700 were injured**. This disaster led to sweeping, mandatory nationwide overhauls of high-rise hotel fire sprinkler regulations and building safety codes.
- **May 4, 1988 – PEPCON Plant Explosion (Henderson):** A massive industrial fire at the Pacific Engineering and Production Company (PEPCON) plant, which manufactured rocket fuel propellant, triggered a series of colossal explosions in Henderson. The blasts registered as a 3.0 magnitude earthquake, shattered windows for miles, caused over \$100 million in damage, resulted in **2 deaths**, and injured more than **350 people**.
- **December 6, 2023 – UNLV Shooting:** An active shooter opened fire on the campus of the University of Nevada, Las Vegas, resulting in **3 fatalities** and **1 critical injury** before the gunman was [neutralized by law enforcement]. Though lower in direct casualties than October 1, it triggered the first major field activation of Clark County's newly engineered mass-casualty victim tracking and family reunification database

Dispatch Audio

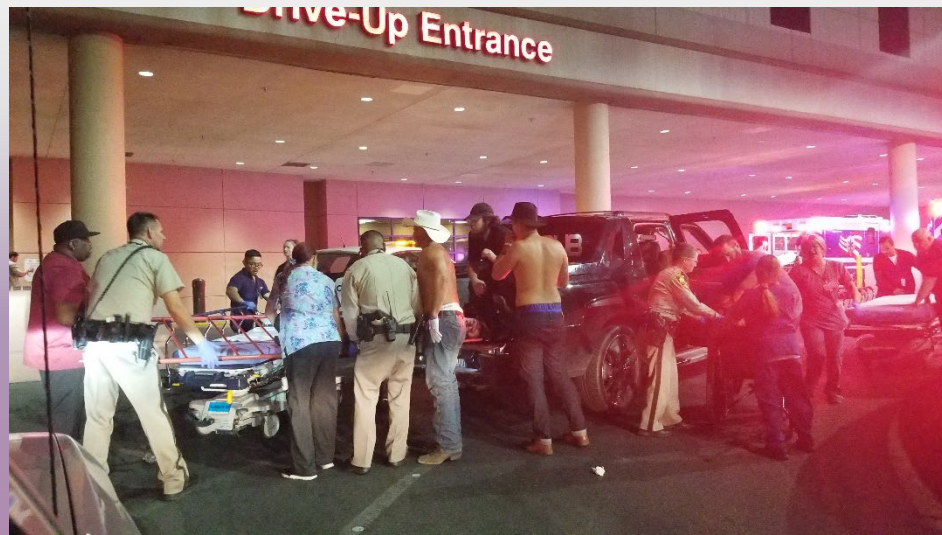






INSIDE
EDITION

Arriving at the Hospital



About Sunrise Hospital & Medical Center



- 692-bed adult & children's hospital
- Regional center for tertiary care
- 170,000 ER visits annually
- Closest hospital to Las Vegas Strip
- Level II Trauma Center



RENO AVENUE

(PUBLIC)

GATE 4

GILES STREET

NOT TO SCALE

**Route 91
Harvest Festival**
09/29/17 - 10/01/17

REVISIONS

Original Draft 08/17/17 MC
Rev01 General Changes 08/28/17 MC
Rev02 General Changes 08/29/17 MC
Rev03 General Changes 08/31/17 MC

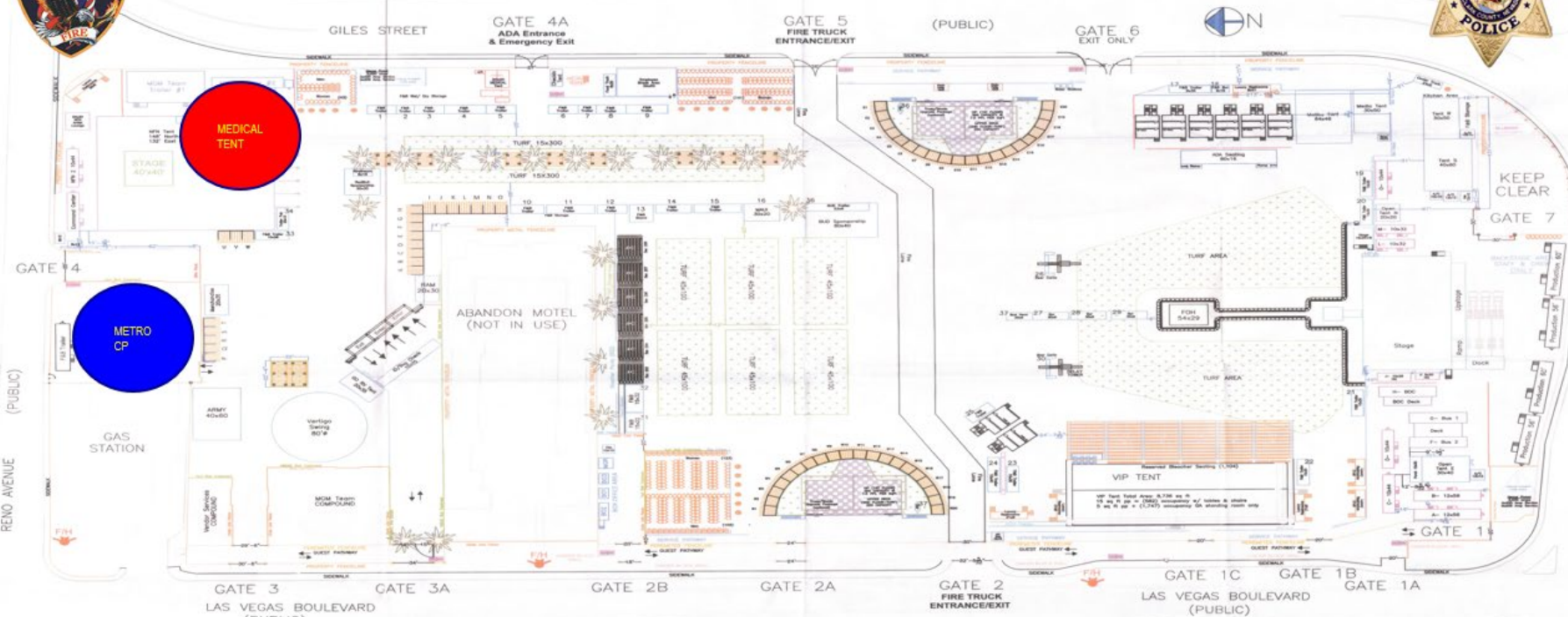
**LAS VEGAS
VILLAGE**

MGM RESORTS
INTERNATIONAL
OUTDOOR VENUES
ENTERTAINMENT
DEPARTMENT

LEGEND

Light Towers
Fire Hydrants
Venue Power Source

Not to Scale
09/29/17 - 10/01/17
Harvest Festival
09/29/17 - 10/01/17





Route 91 Casualty Statistics

- **More than 800 patients:**
 - California, Arizona, Texas
- **More than 422 people shot:**
 - Over 500 total gun shot wounds.
- **58 people killed:**
 - All deaths resulted from GSW.
- **13 area hospitals saw patients.**
 - GSW, trample injuries, fractures, sprains/strains, asthma etc.
- **More that 250 patients transported by EMS:**
 - AMR, Medic West, Community, LVFR



Fire Department Response

- Incident occurs in Clark County Fire's jurisdiction.
- 3 other valley fire departments respond to assist.





Fire Response – Units/Personnel



- **Suppression Personnel (Valley Wide)**

- 15 Engine companies.
- 3 Truck companies.
- 26 Rescues. (2-person ALS Ambulance)
- 1 Squad. (2-Person ALS unit)
- 7 Battalion Chiefs.
- 2 EMS Supervisors.
- 55 ambulance
- 1 Mass Casualty Incident unit.
- 1 Air Resource / Rehab unit.
- 11 Chief Officers /C-Staff.
- 161 valley wide FD personnel: + over 150 EMT's & Paramedics
 - CCFD (81 suppression personnel/1 EMS Sup./8 C-Staff) 90 total.



Fire Department Response



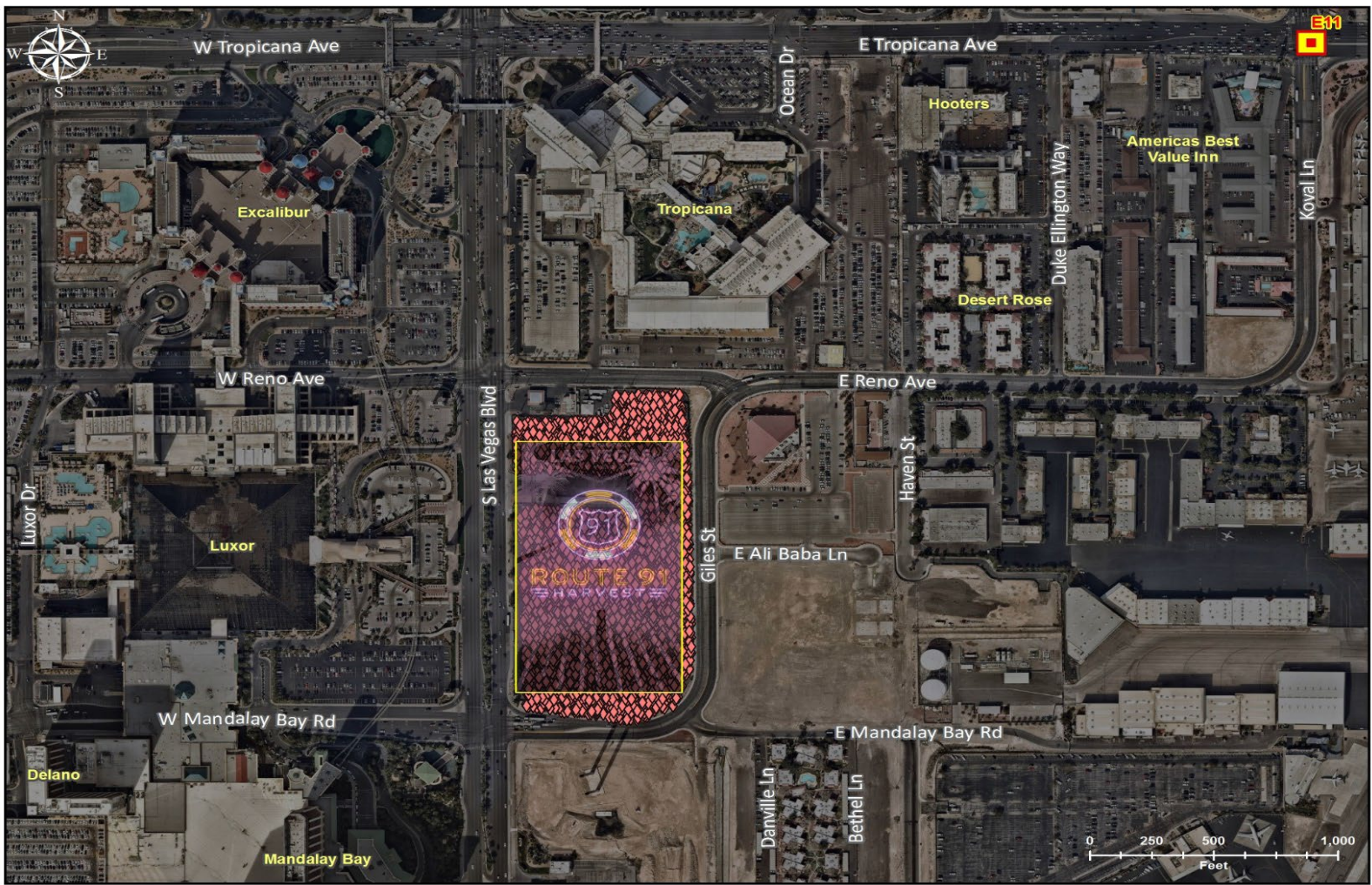
- Fire Departments time on task:
 - 9 hours and 27 minutes.
- 15 hours of radio traffic.

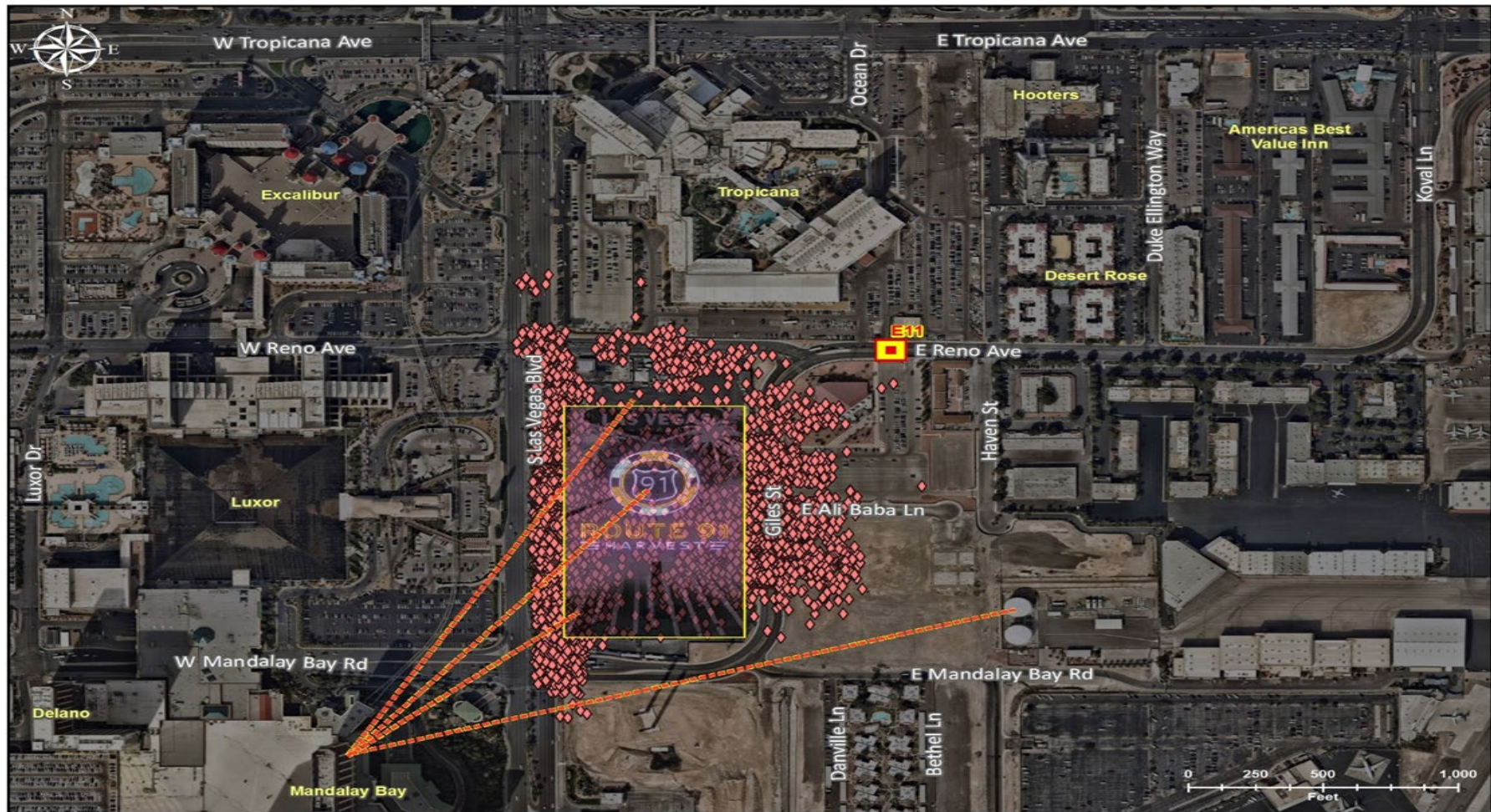


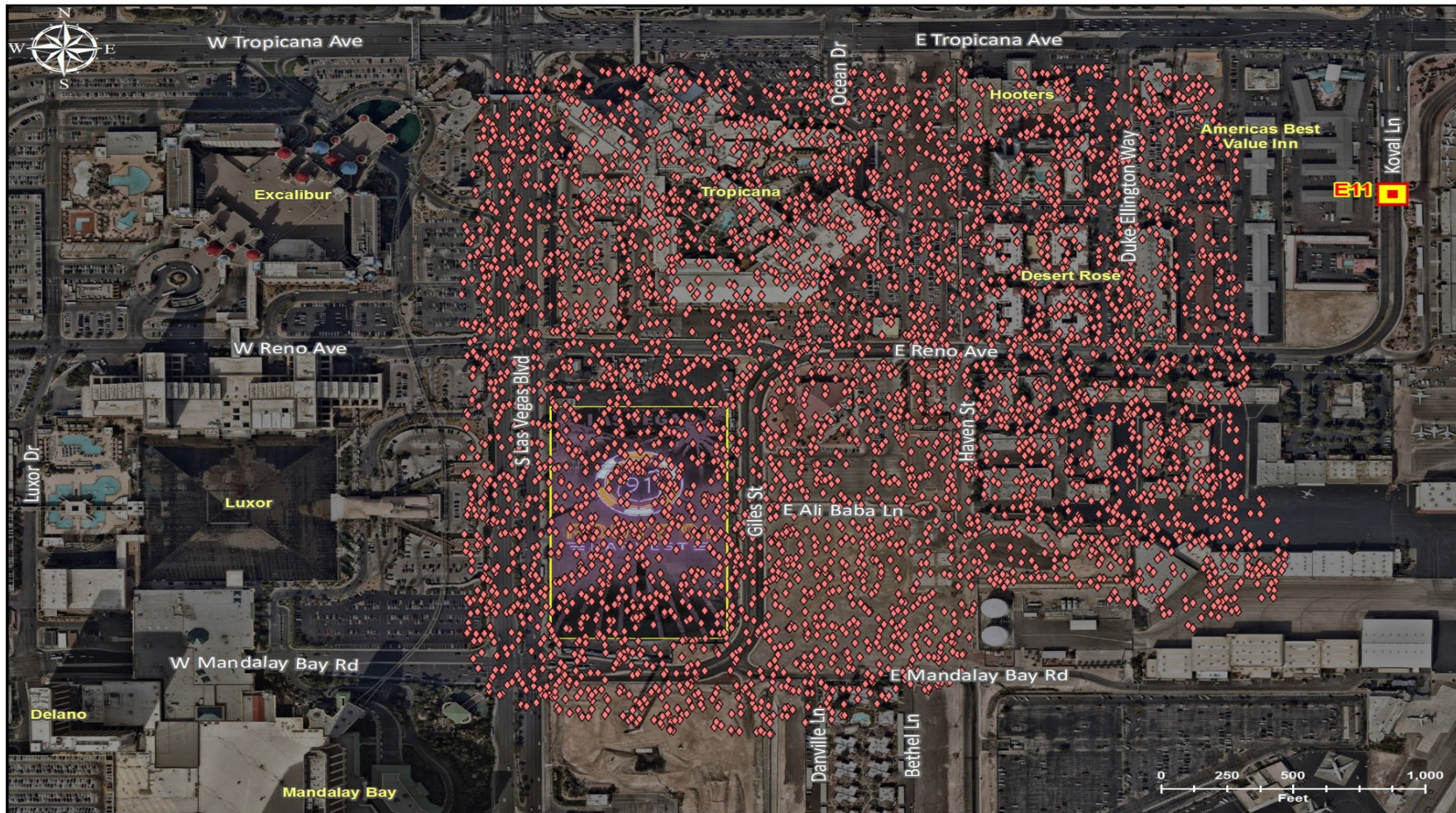
Victim Egress

- **What began as a tragic event on 17.5 acres quickly expanded to a scene greater than 3.5 square miles.**
- **Victim Egress.**
 - In every direction.
 - Inbound crews met with critical patients.
 - Later arriving crews unable to make their way to some assigned areas because they would come across patients.
 - E-32 radio traffic:











Our Proximity to the Incident...



Our Proximity to the Incident



Tropicana Avenue –
first major east/west
corridor from venue

Maryland Parkway–
first major
north/south corridor
from Tropicana and a
direct path to Sunrise
Hospital



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212 patients treated (identified) + at least 30 still unidentified

92 patients arrived with no identification

64 admissions to floor, 31 to ICUs and 34 observation stays

≈ 100 physicians & over 200 nurses responded to assist

83 surgeries performed

516 blood products administered

50 crash carts deployed in 1 hour

Together, we are a community dedicated to healing.

Patient Breakdown

- 124 Gun Shot Wounds
- 58 surgeries in first 24 hours
 - 5 Thoracic
 - 15 Abdominal
 - 5 Cranial and Cervical
 - 17 Orthopedic
 - 2 Vascular
 - 9 Multi system
- 83 total surgeries to date
 - 7 additional Cranial and Cervical
 - 15 additional Abdominal
 - 6 additional Orthopedic
 - 2 additional Multi system
- 16 Mortalities (initial review)
 - 10 DOA
 - 4 Unsalvageable
 - 1 Intra-Operative
 - 1 Withdrawal of care (Brain Death)
- 516 Blood Products
 - 222 units of PRBC
 - 100 units of Cryoprecipitate
 - 119 units of FFP
 - 42 units of single donor platelets
 - Waste
 - 5 single donor platelets
 - 21 units of PRBC
 - 7 units of FFP

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- Valley Health System

- Centennial Hills (23 miles away)-226 bed
 - 5 patients treated
- Desert Springs (4 miles away)-293 bed
 - 93 patients treated
- Henderson (17 miles away)-142 bed
 - 25 patients treated
- Spring Valley (4 miles away)-292 bed
 - 53 patients treated
- Summerlin (19 miles away)-454 bed
 - 10 patients treated
- Valley (7 miles away)-409 bed
 - 30 patients treated

- Injury Summary for all of Valley Health System

- 216 Patients total
- 128 Gunshot Wounds
- 51 other*
- 21 Lacerations
- 8 Trample injuries
- 8 Deaths

- Care Summary

- 148 Treated and Released
- 40 Admitted
- 14 Transferred out
- 8 Deaths
- 6 Observation
- 27 Surgeries performed on 24 patients

Las Vegas Area Hospitals

Las Vegas Area Hospitals (cont.)

- **Dignity Health System**

- St Rose Dominican San Martin (8.6 miles away)-147 bed
 - 23 patients treated
- **St Rose Dominican Sienna Campus**-Level III Trauma Center (8.9 miles away)-326 bed
 - 58 patients treated
- **St Rose Dominican de Lima Campus** (15 miles away)-110 bed
 - 5 patients treated

- Injury Summary for Dignity System

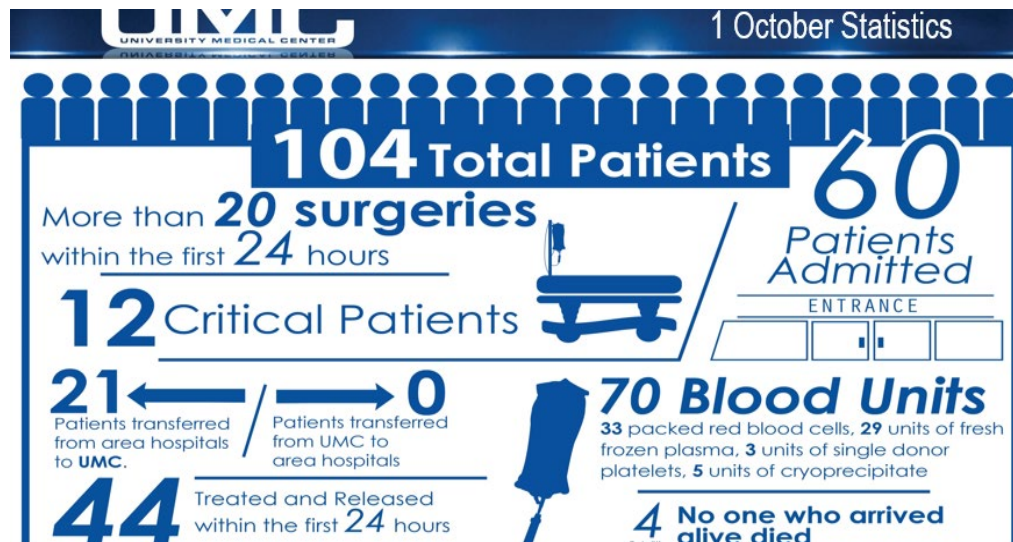
- 87 Total patients
- 37 Gunshot wounds
- 20 Falls
- 1 Trample
- 29 Other*

- Care Summary

- 37 Gunshot Wounds at Sienna
- 6 OR Cases
- 0 Deaths

Las Vegas Area Hospitals (cont.)

- **Mike O'Callaghan Federal Hospital-Nellis AFB** (19 miles away)-50 bed
 - 0 patients treated as receives zero EMS traffic
- **VA Southern Nevada System-North Las Vegas VA Medical Center** (18 miles away)-90 bed
 - 0 patients treated as receives zero EMS traffic
- **North Vista** (11 miles away)-177 bed
 - 0 patients treated

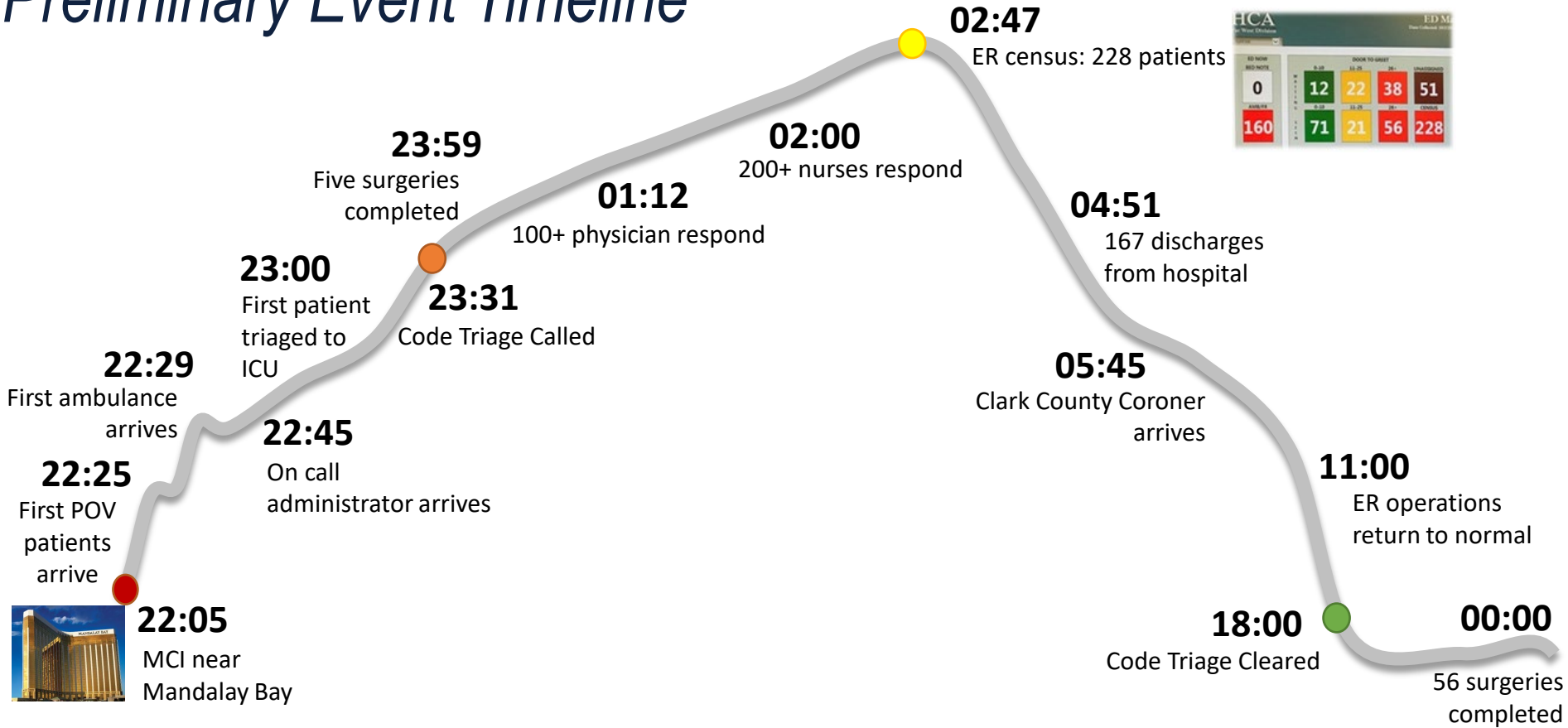


Preliminary Event Timeline



The image shows two overlapping dashboards. The top one is labeled 'HCA' and 'On Your Own Terms'. The bottom one is labeled 'EDM' and 'Real-time Patient Care'. Both dashboards display various metrics in colored boxes.

HCA		EDM			
NO. IN	NO. OUT	0-15	15-30	30-45	45-60
0	160	12	22	38	51
		71	21	56	228



Entry to Emergency Department

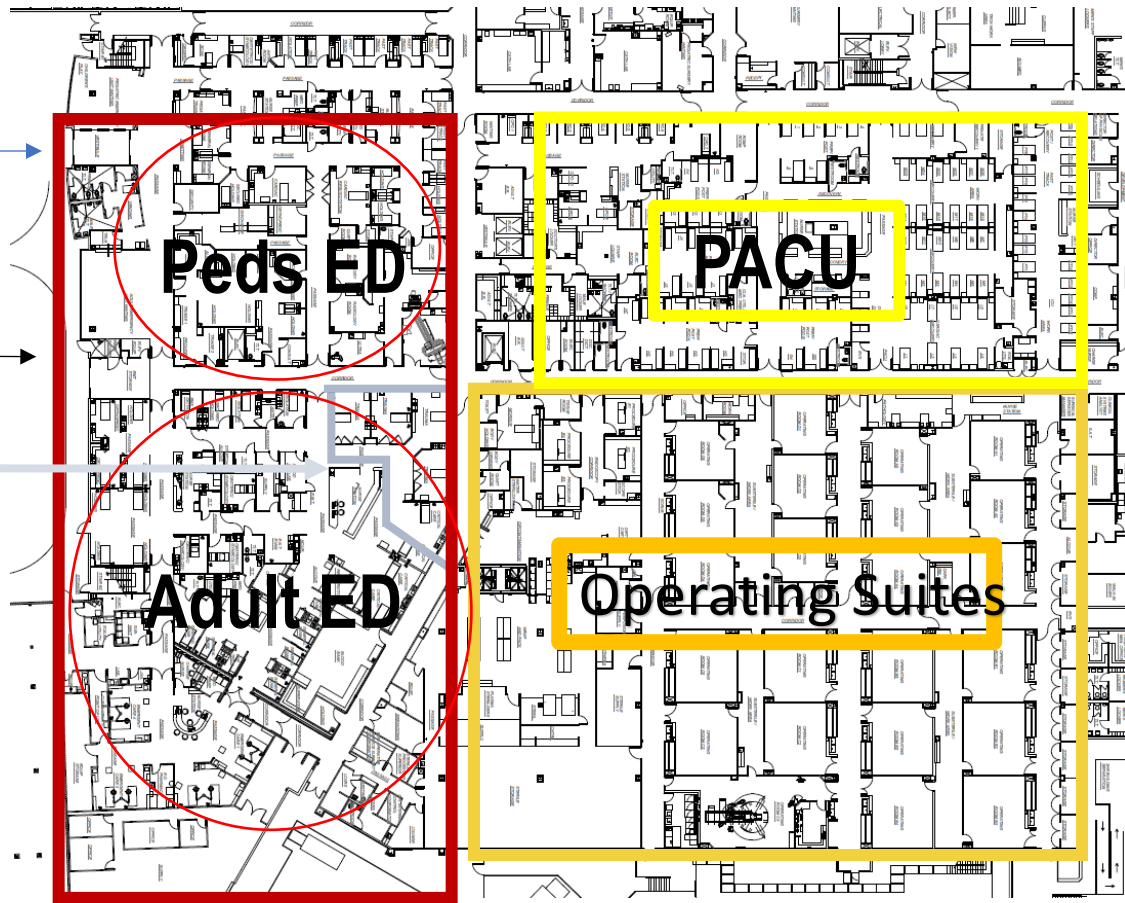


Sunrise Footprint

Walk In Entry

Ambulance Entry

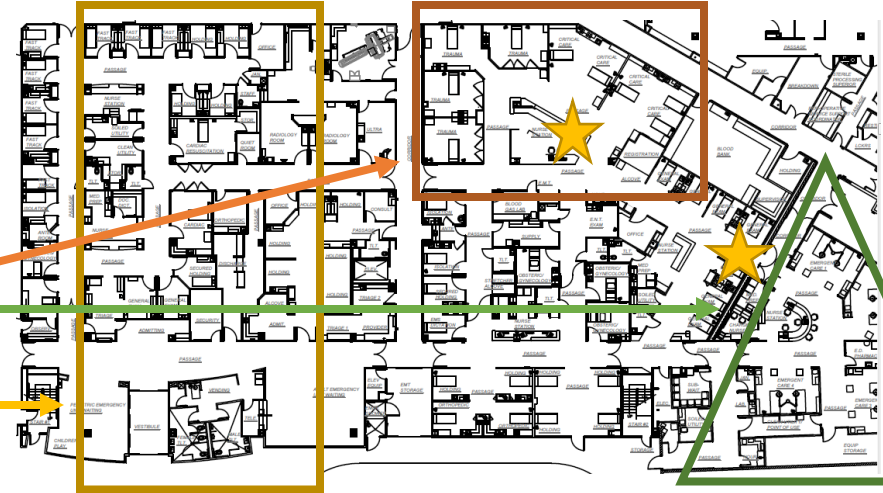
6 Trauma Bays



Triage, Assessment and Treatment

- Utilized Emergency Room for Initial Stabilization and Evaluation
- Routed to Trauma Bays for Initial Treatments with major injuries
- Emergency Room areas dedicated to specific treatments
 - Airway Management
 - Bleeding Control
 - Minor injuries to Pediatric Space
- Activated hospital staff to pair one RN to one patient
- Dedicated RT for intubation support and supply pack creation in ED
- Dedicated ED pharmacy resources to ensure adequate medication supplies

★ Created staging area for resupplying treatment areas.



- Utilized ICUs to triage and state pre surgical care – Neurosciences ICU, Trauma ICU, Medical ICU, Cardiovascular ICU



Entry to Emergency Department



Emergency Department



Triage, Assessment and Treatment

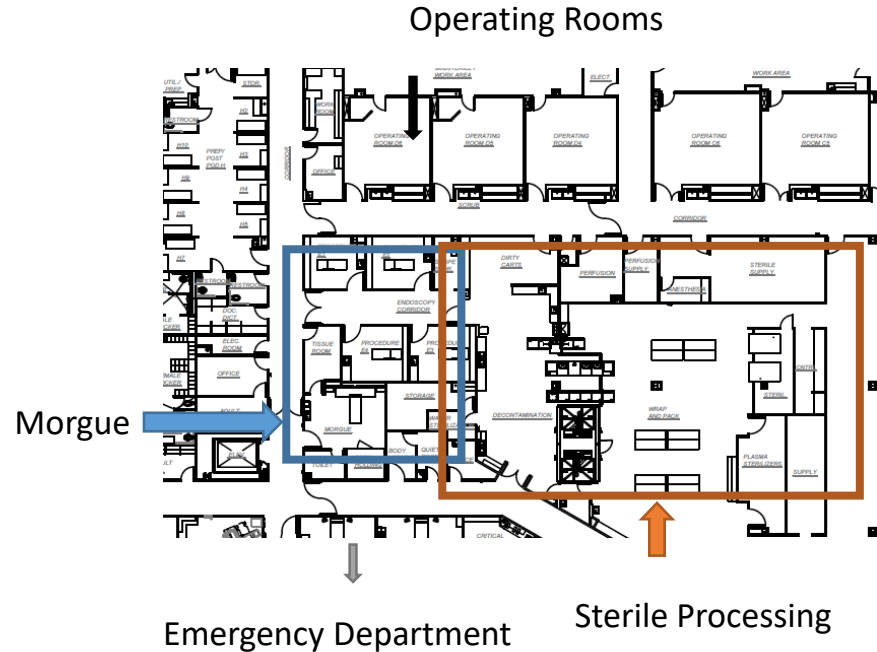
- **Pre-operative unit dedicated for isolated orthopedic injuries**
- **Dedicated team to Pre and Post Operative Care Unit to manage immediate post-op recovery while assigning ICU bed**
- **Transitioned patients to ICU to complete evaluations**
 - **Trauma Surgeon, Anesthesiologist, Intensivist and support team in each ICU**
 - **Moved as soon as hemodynamically stable**
 - **Mobilized Hospitalists and Intensivists to ensure open ICU beds (184 discharges in 15 hours)**

PACU: ICU/ Floor Holding



Triage, Assessment and Treatment

- Created Temporary Morgue in Endoscopy for appropriate management and preservation of evidence
- Ensured Sterile Processing had rapid turn around of high need trays
 - All staff responded to call in
 - Transported Equipment required from local hospital partners (HCA facilities)
- Dedicated Additional Staff for OR room turn around
- Grouped pods of OR rooms for specific types of cases
- Ensured sufficient anesthesia coverage to operate all available rooms (capacity of 20)



Hospital Wide Efforts

- **Logistics**

- **Blood Bank ensured shifting of supplies from hospitals not impacted**
- Ensured Environmental Services team dedicated to all spaces
- **Support from local HCA hospitals to ensure all supplies available at all times**
- Created dedicated supply chains for pharmacy, surgical and general needs
- **Created additional inpatient bed capacity thru returning beds to service**
- Ensured security engagement to control campus

Hospital Wide Efforts

- **Family / Staff Support**

- Assigned Chaplain and Social Worker Resources to manage concerned families
- **Created Dedicated Family Space allowing treatment space to not be disturbed**



- On Ward family brought to bedside
- Staff to managed visits in the operative and trauma areas
- **Regular communications to update on status**
- Dedicated Nutrition Teams to keep staff hydrated and fed
- **Immediate Deployment of Crisis Counselors from HCA, Department of Veterans Affairs and Local Teams**

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- **What Went Well**

- Preparation and Practice with Complex Events: New Years Eve, airport incident and regular drills
- Strong Physician Leadership from Emergency Room and Trauma Physicians
 - ED leader & Trauma leaders with experience
 - Color triage predicted needs of patients to allow for allocation of resources
- RN Engagement with patients (1:1 in ED area)
- Outstanding Anesthesia and Trauma Call Panel Support
- Use of the Residents from Mountain View

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An aerial night view of the Las Vegas skyline, showing numerous illuminated skyscrapers and city lights against a dark background.

- **What Went Well**

- Bed Flow Process (ED Triage-Trauma-OR-Treatment) & Use of ICUs
- Logistics Management (Incident Command) and Division Support
- Family / Decedent Management

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- **Initial Lessons Learned**

- Communication Mechanism with our Staff
- Communication Mechanism with Medical Staff
- Documentation Templates for MCI
 - ED Specific notes
 - OR Specific templates in EMR
- Registration Process for MCI requires more flexibility
- Greater Detail to Surge Policies
- Improved communication with community resources
 - Managing Community Support
 - Coordination of Efforts
 - Ongoing Media Engagements



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“Everyone just focused on taking care of the patients and doing their job.”

“We had all the supplies and staff we needed”

“The whole hospital came together”

“We maintained a calmness throughout the chaos”

Clinical Strengths – For Immediate Life Saving Care

- Experienced tactical (SWAT) physician made an **early decision to designate areas in the Emergency Department (*1)**
- ED and Trauma Physician leaders **strategized to stabilize patients in the ED then immediately transfer by primary injury category (*2)**
- ED Physician took **lead on immediate triage of victims and directed to appropriate areas**
- Trauma Physician took **lead on surgical triage and directed surgical strategy**

Clinical Strengths – For Immediate Life Saving Care

- **ED Nurses rapidly reprioritized patients and initially engaged in resuscitation** of multiple patients until additional staff arrived
- **Leaders take pause in care to organize a system response** (Critical factor to gain control)
- **Paramedics and flight crew on-site supported** Sunrise staff by placing IOs and Intubations
- **Clinical staff self-dispatched** to support the anticipated need at Sunrise and upon arrival did whatever role or task was needed

Clinical Strengths – For Immediate Life Saving Care

- Rapid and wide-spread **utilization of Interosseous (IO) Needle** for volume management and med administration
- RRT rapidly developed **intubation packs** (Meds/Tube/ETCO2 cap)
- Use of **capnography for tube confirmation** (due to scope batteries dying)
- Radiologist performed **immediate bedside read on digital x-ray machine**
- Cardiology performed **bedside ECHO & FAST exam**
- Use and **triage of O-Negative blood**

Non-Clinical Strengths

- **Early notification (verified)** by hearing initial police dispatch on Metro PD Officer's radio in ED
- **Whole-of-community response by staff** of Sunrise Hospital (All departments, all personnel did what was needed without delay to save lives)
- **iMoble for rapid & effective mass notification of in-house staff** (Best Practice in Nursing Supervisor utilization of iMobile messaging system)
- **Metro Police and Sunrise Public Safety Officers secured the facility perimeter** for safety of staff and patients

Non-Clinical Strengths

- **Immediate establishment of a family staging area** (Critical point to keep family out of the clinical units to allow staff to care for volume of patients and to manage a safe environment of care)
- **Give the families/loved ones a task so that they can focus and feel a contribution**
- **Provide on-going updates to the families are routine times** to manage anxiety and expectations
- **CEO provided the family updates** so that they feel the top leader is addressing their concern

Non-Clinical Strengths

- **EVS rounded on the ORs** to perform a rapid “all-hands clean-up” to turn over the ORs rapidly
- **Single rooms (head-walls) were made into double or triple occupancy** to manage the surge
- **Leadership presence and emotional intelligence instilled in staff a sense of calm and stability** that gave staff the sense of order and safety while they worked
- **Supplies and staff from sister HCA facilities allow for additional surge capabilities**

Non-Clinical Strengths

- **Early critical incident stress debriefing by on-site VA vans and from resident Chaplains** prior to formal CISD and EAP resources

Clinical Opportunities

- **Disaster order sets with first nurse protocols** for immediate response to clinical surge needs (CBRNE & Trauma Surge)
- Additional **education and training for triage (consider START triage)** for ED staff and more importantly additional facility clinical staff, such as OR, ICU and MedSurg Physicians, Nurses and Respiratory Therapists
- **Standardize facility equipment, such as rapid infusers** and obtain 2 additional rapid infusers

Clinical Opportunities

- **Pre-determine mass fatality management plan** (Body staging, identification/documentation, family reunification and viewing, forensic protocol and family notification process)
- **Establish a revised disaster surge cart set** that has the critical life-saving surge supplies and equipment, as well as intermediate and minor care supplies
- **Education to all clinical staff in the use and administration of IOs**, as well as the stocking of IOs in higher quantities for rapid infusion access

Non-Clinical Opportunities

- **Immediate need for a mass notification system** for staff and physicians (Text, Voice and Email)
- **Immediate need for a systematic trauma alias identification system** (ID that does not include a name and cannot repeat easily)
- **Immediate need for mass care documentation process** and system (Manual paper charting / Downtime Forms)
- **Immediate need for rapid staff identification system** (For staff that arrive without their HCA identification that can be verified and identified)

Non-Clinical Opportunities

- **Immediate need for triage tags** (Rapid triage tags that match the local EMS triage protocols)
- Review of **stocking system that can be standardized** and clearly identified supplies
- **Installation of a bi-directional cellular phone amplifier** for effective cell phone coverage within the facility
- **Designated county emergency operations liaison** with clinical background
- **Need for portable two-way radios and communication plan** for every-day and surge communications

Non-Clinical Opportunities

- **EMR needs to have the ability to rapidly assign surge beds / admissions**
- **IT&S system to hold IT updates** when a critical incident is occurring
- Registration process for **rapid accountability and registration/admissions for surge**
- **Staff and volunteer staging and accountability process** is needed to maintain control as well as safety and security within the environment of care during mass casualty incidents as such

Recovery & Debrief

Steps in Recovery:

- Employee assistance program deployed at both a fixed location and teams rounding on the units to provide both individual staff and staff-family member support
- Leadership rounding within all departments of the hospital
- 1:1 and small group debriefing discussions and critical incident stress debriefings in focused areas
- Leadership will coordinate a survivor reunion (requested by staff) to assist patients, families and staff in the healing process
- Illustrations of appreciation and pride will be shared with staff, families, visitors and the HCA community

Recovery & Debrief

Steps in Debriefings:

- Follow up debriefings with the County and local community will continue
- Follow up debriefings and discussions with HCA EPEO will continue with each department engaged in the preparation, response and recovery of the incident
- Peer-to-peer debriefings will take place locally and regionally
- A formal after-action report will be produced by the HCA EPEO team and presented to the Leadership of Sunrise for review, edit and approval

Recovery & Debrief

Steps in Debriefings:

- A formal approved after-action report will be shared with HCA executives, as well as action plans for quality improvement and best practice recommendations to better prepare the HCA enterprise and other health care facilities
- Professional presentation core-slide decks will be developed for use and distribution

Clinical Care Referenced

- (*1) **Initial Triage**: **Critical Treatment** – Surgical & Non-Surgical, **Intermediate Treatment** – Bleeding Control & Airway Management, **Minor Treatment** – Self Care & Buddy Care

Clinical Care Referenced

- (*2) **Treatment and Initial Care Strategy:** **Head shots:** Initial rapid neuro assessment, IO, RSI intubate, analgesia, long acting paralytic, bleeding control and transfer to Trauma/Neuro ICU for immediate care; **Chest shots:** IO, RSI intubate, chest tubes, immediate bleeding control & volume resuscitation (blood O-), bedside CHEST/ABDOMEN X-ray (read at bedside), bedside ECHO & FAST, transfer to the CVICU for immediate care; **Hemodynamically Unstable Belly shots:** IO, RSI intubate, control bleeding, bedside ECHO & FAST, critical to OR for immediate bleeding control and contamination control, end case with an OPEN belly for follow up surgery, then transfer to PACU – **Hemodynamically stable belly shots:** IO, RSI intubate if needed, external bleeding control, bedside CHEST/ABDOMEN X-ray (read at bedside), bedside ECHO & FAST immediately read, volume resuscitation with blood (O-) and transfer to MICU for immediate care. **Limb/Extremity shots:** Self-care or buddy care, direct pressure, moderate use of tourniquets (belts, t-shirts and professional), IO for volume control and moved to Pre-Op / Post-Op mass care area established in recliners and chairs.

Clinical Care Referenced

- Initial wave of incoming surgeons were **Residents**. **Senior residents** sent to pair with Anesthesia and start OR cases with the above survival strategy: Open, Stop the Bleed, Contain Contamination, End Case with an Open Belly. **Junior residents** were sent to assist in ER with moderate and minor procedures, to the Units to reassess patients and provide orders.
- Upon arrival of **Attending and Specialty Physicians** they were directed to their respective ICUs: Neuro ICU, Cardiothoracic CVICU, General Surgeons MICU and ORs to continue Care. Additional **Adult and Pediatric Surgeons** paired with Anesthesia to assist with additional OR cases.

Clinical Care Referenced

- **Anesthesia** took lead in OR triage and turning rooms over for cases. Anesthesia rounded to ensure patients were re-dosed with long acting paralytics, sedation and analgesia.
- **Hospitalist** were called-in to manage the current (prior) patients and to assist in re-assessment and documentation of orders on patients related to the incident.
- **Nursing and ancillary clinical staff** reported to the ED to transport current patients to make room for surge and to take assignment as needed to assist in the initial wave

Tuesday



Donations



Donations & Visits

Stars Of Hope



Disney



Jason Aldean



Comfort Therapy Dogs



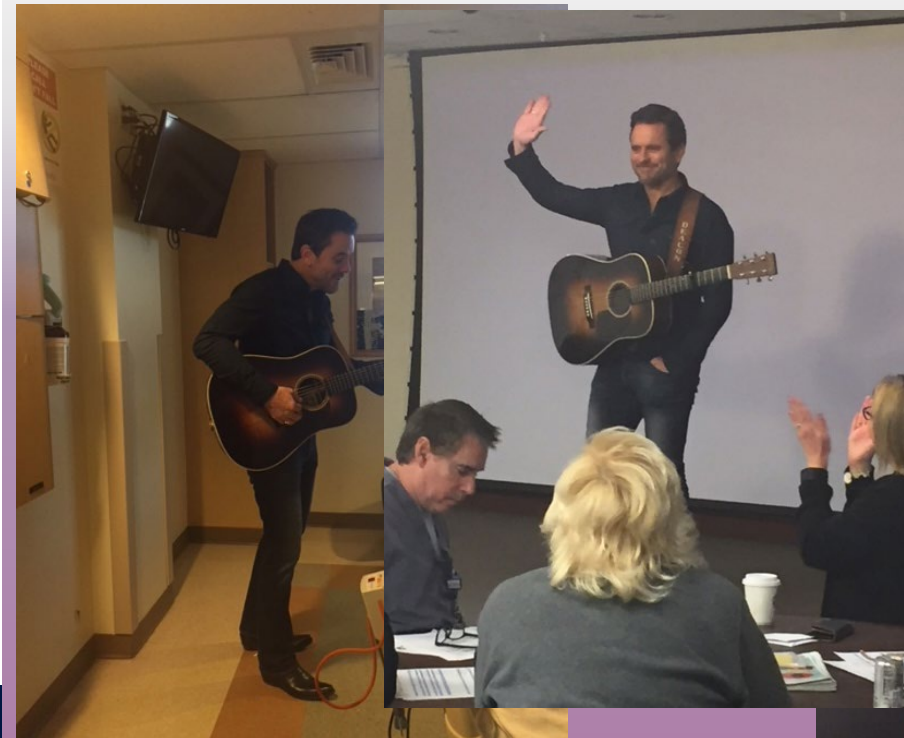
Department of Veterans Affairs



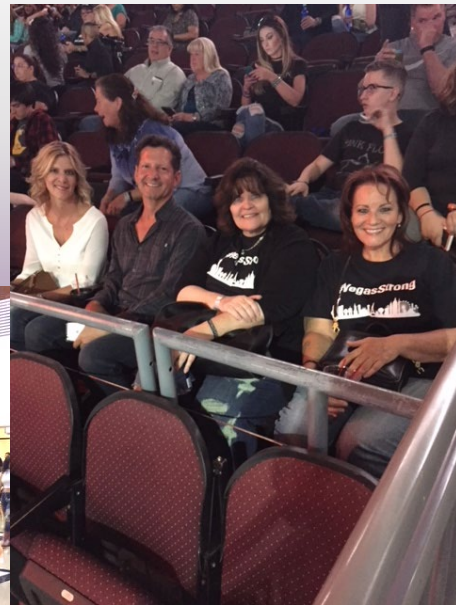
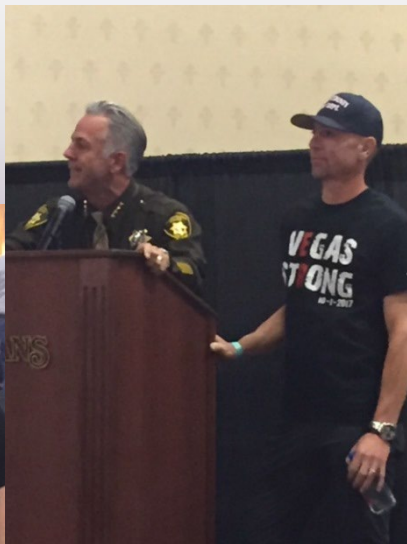
Musicians On Call



The Healing Power of Music

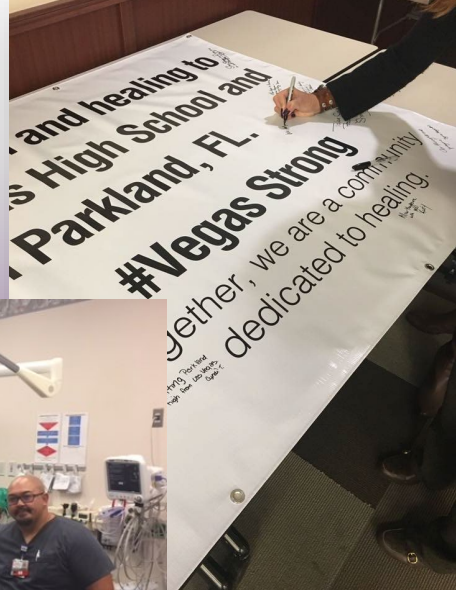


Benefit Concert





Coping as a Hospital



Surviving...A New Normal

STAGECOACH

CALIFORNIA'S COUNTRY MUSIC FESTIVAL

FRIDAY APRIL 27

FLORIDA GEORGIA LINE

JAKE OWEN • KELSEA BALLERINI
CODY JINKS • CHRIS JANSON • CHRIS LANE
MOLLY HATCHET • LINDSAY ELL • THE GEORGIA SATELLITES
TANYA TUCKER • WALKER MCGUIRE • JORDAN DAVIS • MORGAN WALLLEN
JOSHUA HEDLEY • JADE BIRD • BANDITOS

SATURDAY APRIL 28

KEITH URBAN

KACEY MUSGRAVES • BROTHERS OSBORNE
DWIGHT YOAKAM • JASON ISBELL AND THE 400 UNIT • GRANGER SMITH
MIDLAND • RONNIE MILSAP • WALKER HAYES • CARLY PEARCE
TYLER CHILDERS • BRANDY CLARK • JILLIAN JACQUELINE
SETH ENNIS • JADE JACKSON • MUSCADINE BLOODLINE

SUNDAY APRIL 29

GARTH BROOKS WITH TRISHA YEARWOOD

LEE BRICE • BRETT YOUNG
KENNY ROGERS • KANE BROWN • AARON WATSON
GORDON LIGHTFOOT • LUKAS NELSON OF THE REAL • COLTER WALL
PAUL CAUTHEN • ASHLEY MCBRYDE • TEMECULA ROAD
LILLIE MAE • RUNAWAY JUNE



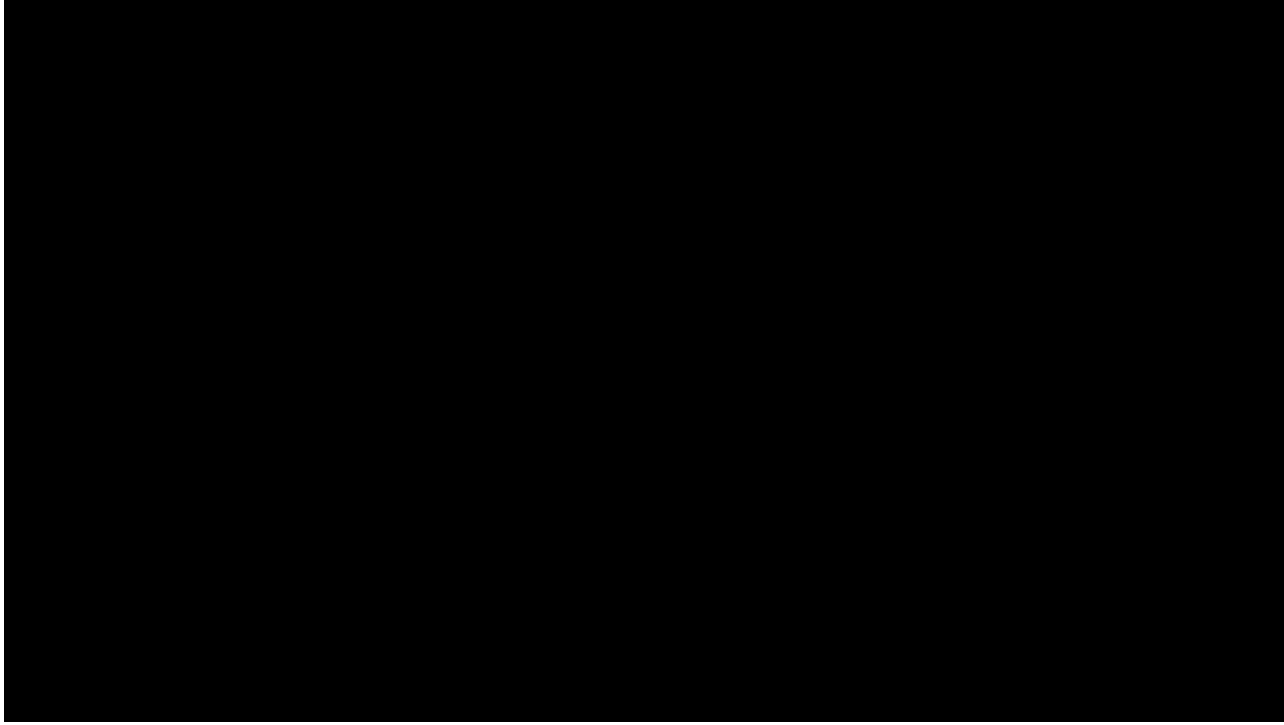
EMPIRE POLO CLUB • INDIO, CA



Healing Garden



Healing



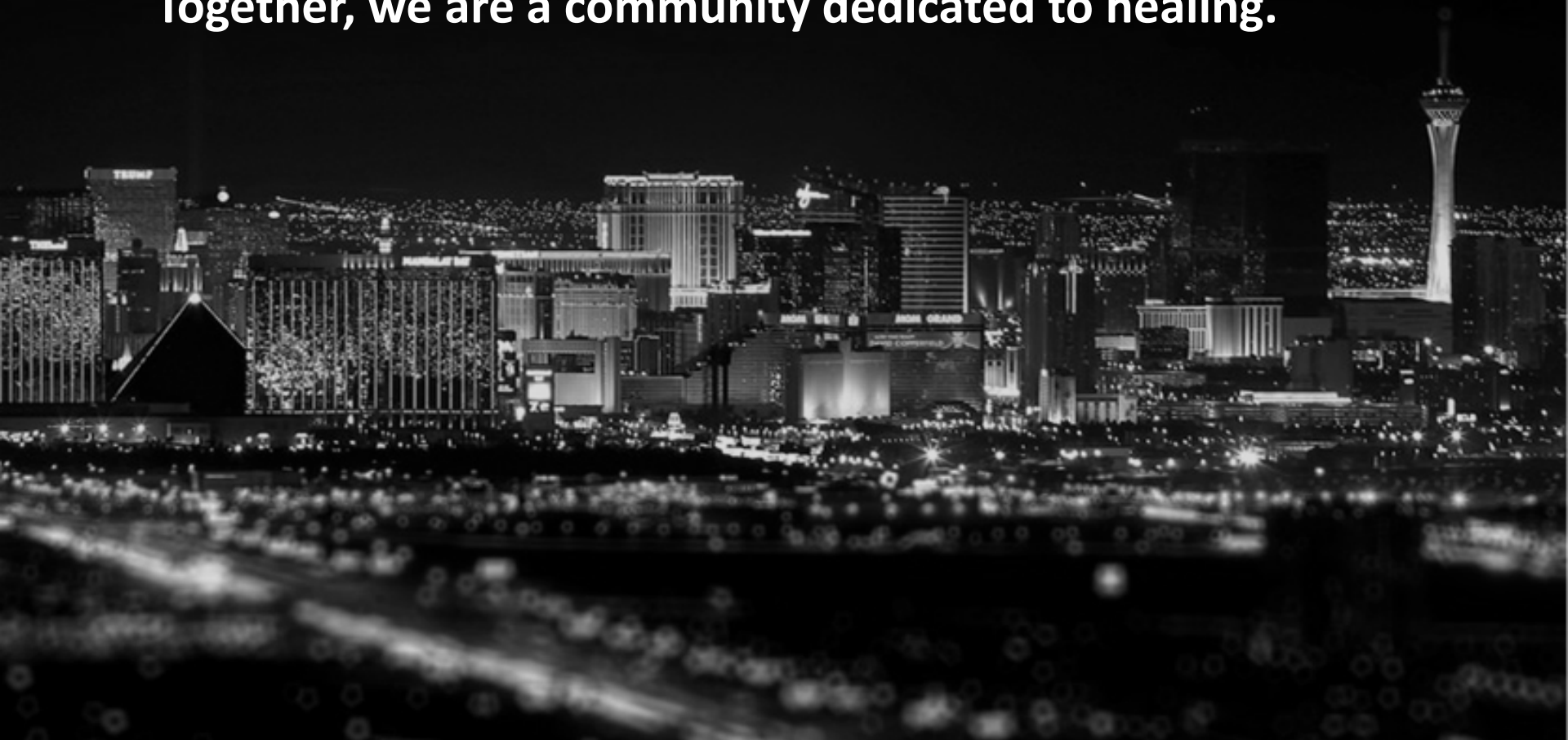






The first part of the paper discusses the importance of understanding the underlying mechanisms of the observed phenomena. This is followed by a detailed analysis of the data, which reveals several key findings. The results indicate that the proposed model is highly effective in capturing the essential features of the system under study. Furthermore, the analysis shows that the system exhibits a high degree of robustness and adaptability, which are crucial for its successful application in real-world scenarios. The paper concludes by highlighting the potential of the proposed approach and suggesting directions for future research.

Together, we are a community dedicated to healing.



Facility Incident Management

Incident overview:

ICS was activated after initial wave of patients. The ICS structure functioned well with the individuals who had HICS training. Able to coordinate with the HCA resources to ensure those providing direct care services and support to families and staff were well supplied and responses were structured. Managed through the initial response phase and through recovery phase.

Best Practices:	Training in using ICS Structure, Communications with Division and Corporate Resources Managed both injured and family response including identification
Areas to Improve:	More rapid stand up and assessment of utility needs. Communication to entire medical and hospital staff to mobilize resources Command Center Resources
Notable Actions	Improve Emergency Command Center resources (Cellular back up, Data, Land Line)

Emergency Department

Incident overview:

Emergency Room responded to over 230 patients and families during initial response. Provided Triage and Routing of patients for immediate management of airway, bleeding and those requiring immediate surgical intervention. ED implemented color based triage and re-evaluation to ensure rapid initial evaluation and staging. Specialized knowledge of ED physician on duty in gunshot mechanisms of injury improved initial triage. Partnership with trauma team and appropriate cohorting of patients improve throughput. Use of portion of Peds ED for low acuity patients staffed by hospital medicine providers (with appropriate privileges) and additional ED providers who responded maintained flow.

Best Practices:

Use of Color based triage (see earlier slides), location and cohorting of patients and mindfulness of “blind” areas for patient placement.

Use of iMobile (in house communication system on Wi-Fi) to mobilize staff from across all units to support surge in the ED.

Areas to Improve: More supplies for MCI- tagging, documentation gaps

Notable Actions

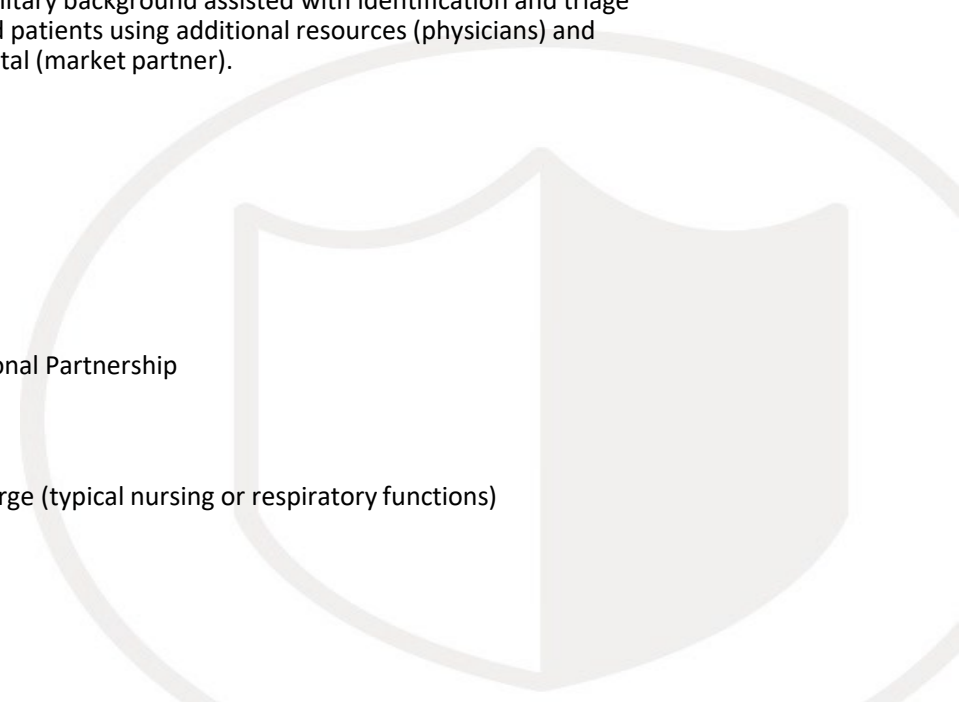
Trauma Services

Incident overview: Level II trauma team with full compliment of services in specialty care. Complete team response resulted in immediate availability. Surgeon on duty with military background assisted with identification and triage skill. See slides for further input. Trauma services managed patients using additional resources (physicians) and assistance from residency program at Mountain View Hospital (market partner).

Best Practices: see initial presentation

Areas to Improve: see opportunities- Communication, Regional Partnership

Notable Actions- Physicians took on support roles during surge (typical nursing or respiratory functions)



Registration

Incident overview: At the determination of the Mass Casualty event, registration processes were amended and our trauma alias system was used. Registration was overwhelmed and paper was used to capture information and then registration systems entered information that was available. Given the mass numbers without identification the trauma alias system had challenges with duplication. Also given the rapidity of triage of low acuity patients, some were cleared prior to registration occurring.

Best Practices: Cohorting and Labeling of patients to ensure all were registered with hours of presentation. Management of a master patient list that could be used to track all individuals that were treated. This allowed for accurate coding and data collection.

Areas to Improve: Trauma Alias system under evaluation for mass casualty events. More staff required.

Notable Actions: Use of separate lists of alias for each registrar to avoid duplication.

Radiology / Imaging

Incident overview: During event all imaging technologies were available for MCI. Modalities utilized were X-ray and CT scan. Additional staff called in and current staff from all Imaging areas supported X-ray and CT Scan. Flexed up teleradiography capabilities for faster exam interpretation. IR teams ready on call to respond but were not utilized during the event.

Best Practices:

Radiologist, ED physician and Imaging Technologist rounding patient to patient with Digital portable and radiologist completing real time exam interpretations immediately after X-ray was taken.

Trauma surgeon located in the main CT and immediately looking at CT exams on monitor to assist with prioritizing care.

Areas to Improve:

Getting images into PACS quicker so they were available for surgeons in the OR. Due to initial registration issues, some delays experienced with getting images into PACS.

Notable Actions

Support from nursing to monitor patients that were lined up outside of CT Scan in the main department.

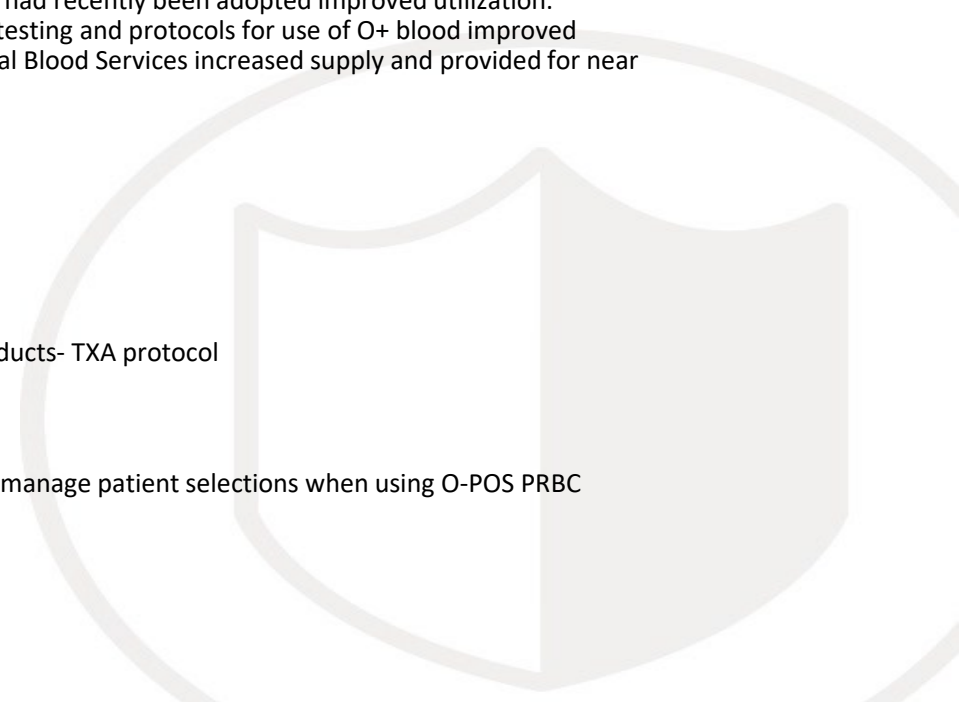
Blood Bank

Incident overview: Blood bank managed over 500 units during the initial phase. Location adjacent to the ED enhanced communication and well developed TEP/TXA protocols that had recently been adopted improved utilization. Additional staffing provided for quick turn around of blood testing and protocols for use of O+ blood improved outcomes. Coordination of local leadership with the regional Blood Services increased supply and provided for near seamless transfusions.

Best Practices: Local Coordination, Strong Documentation

Areas to Improve: Patient Registration, Use of Non RBC products- TXA protocol

Notable Actions: Work by blood back to realign supply and manage patient selections when using O-POS PRBC products.



Laboratory

Incident overview: Laboratory Services managed challenges with specimen labeling due to paper processes and trauma alias utilization. Addition of resources and well trained technologists provided for prompt responses. POC tested was used when appropriate.

Best Practices: Appropriate Use of Imaging Technologies

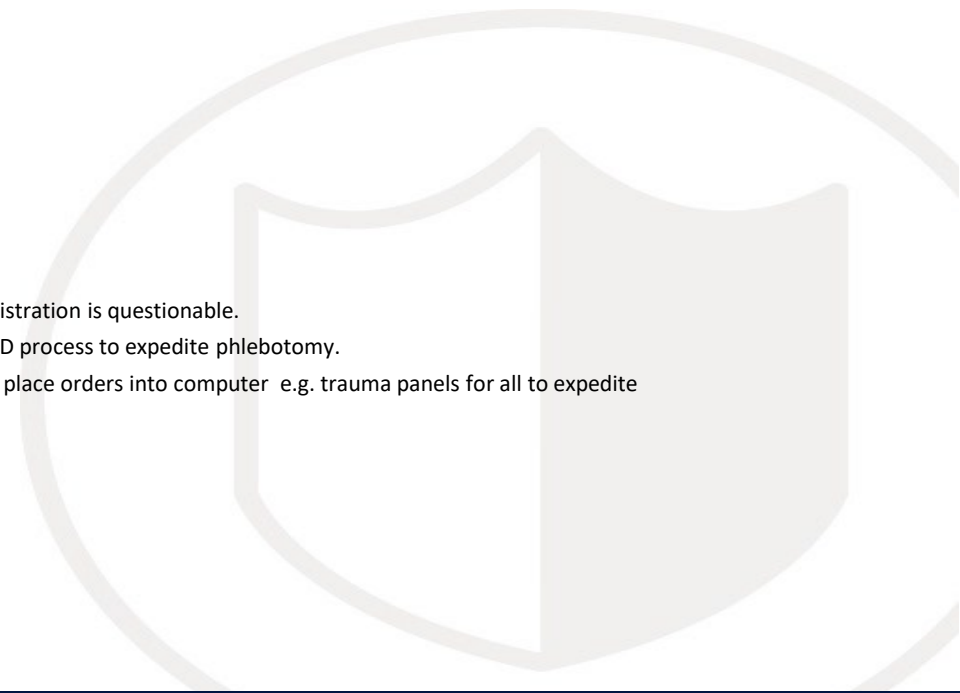
Areas to Improve:

- Rapid Scanning Communication and Documentation when registration is questionable.

- Work with admitting to admitting to improve patient trauma ID process to expedite phlebotomy.

- Consider algorithm to eliminate need for already busy docs to place orders into computer e.g. trauma panels for all to expedite initial testing.

Notable Actions: Improved paper documentation forms.



Surgical Services

Incident overview: Over 100 physicians responded to the initial call out. All trauma support liaisons (ortho, urology, ENT, plastics, CV, Neurosurgery, general surgery) provided response. On site team managed initial influx and arrival of management support created system to use room and rotate to additional space to allow for turn around. Management tracked each patients using manual “board” documentation to avoid any duplication or inaccuracy in the computerized system- due to registration challenges. OR Staff flexed up to run up to 20 rooms simultaneously. Surgeons provided assistance in all types of cases and OR teams worked across specialties.

Best Practices:

- Teamwork of surgeons and staff to move patients quickly through the system

- Centralized communication on operational management with lead Anesthesiologist (Stephanie Davidson) and VP Surgical Services (Mike Kelly) between the ER and OR.

- Room turnover support from surgical technologist, EVS, anesthesia technologist and surgeons within 5 minutes or less.

Areas to Improve:

- Call back system to manage staff response.

- Development of a specific Trauma Pack to allow for quick set up of disposable items

- Identifying specimens collected from cases from patients without identification

- Radiology techs for intraoperative fluoroscopy – short supply initially

- Confirming physician privileges before surgery

Notable Actions

- Pediatric general and CV surgeons responding and intervening in adult trauma procedures.

- Surgical staff from sister facilities responding without being called

Anesthesia Services

Incident overview: After identification of need, on site trauma team and backup activated call tree and USAP Anesthesia team responded with over 30 anesthesiologists. These physicians assisted in the Operating Rooms, in the ICU and in PACU. They also provided stocking and transportation assistance. The providers also were integral in the support of the OR team and ED teams as they flexed to assist ICU physicians in managing vents on ICU patients.

Best Practices:

- Immediate response in force to assist physician workforce, supported in all facets including transportation and other critical care assistance.

- Anesthesiologists worked with pre and post op staff to write pain medication orders on a rotating basis

- Assisted with distributing pharmaceuticals to the correct locations to ensure providers had all the meds they needed

Areas to Improve: Over response to Sunrise by physicians

Notable Actions: USAP has new coordination process for market and proactively cancelled elective cases

Pre-Op / Post-Op Services

Incident overview: During Event, Pre-Op and Post-Op services were repurposed for ED patients and to assist in recovery and continued treatment of patients post surgery. Use of these locations expanded ED capability for those patients with controlled orthopedic or non traumatic moderate injuries. Staff also flexed PACU into ICU level care for immediate post operative patients who were waiting for ICU assignment. Anesthesia staff augmented management.

Best Practices:

- Use of pre-op area for patients awaiting surgical treatment of moderate orthopedic injuries in first few hours.

- Identification system of patients and medications given Site for triaging moderate injuries was controlled and orderly

- Constant communication and engagement with physicians to ensure all patient care needs were met

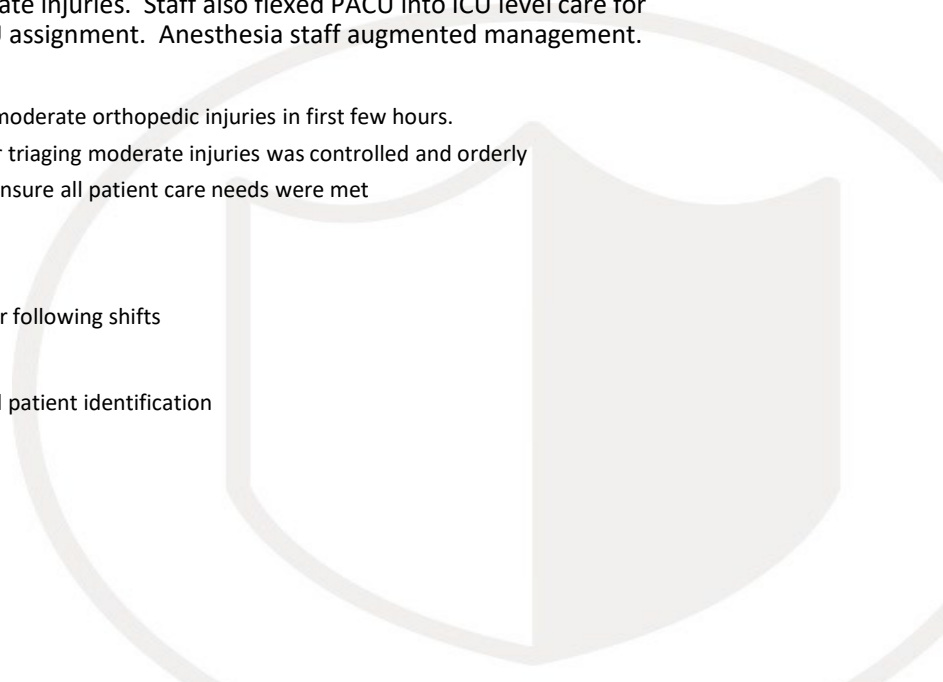
Areas to Improve

- Need trauma trifolds in PACU

- Call system needed to phase in staff and retain some for following shifts

Notable Actions

- Early collaboration with admitting to align accounts and patient identification



Sterile Supply

Incident overview: During event, most supplies had already been reprocessed for the day. Staff focused on thoracotomy tray and on vascular trays. SPD manager used robotic trays to back up others as they share the same core equipment. Use of IUSS remained very low and all reprocessing was monitored. Cancellation of usual scheduled allowed for time to reset and resume normal operations on 3 October.

Best Practices:

- Knowledge and use of alternate trays

- Constant communication with room staff to ensure trays were turned over and reprocessed without delay

Areas to Improve:

- More thoracotomy trays, chest trays, glide scopes, pulse ox, monitors, suction

Notable Actions

- First day for newly recruited SPD Manager who jumped in to help staff reprocess trays without formal orientation.

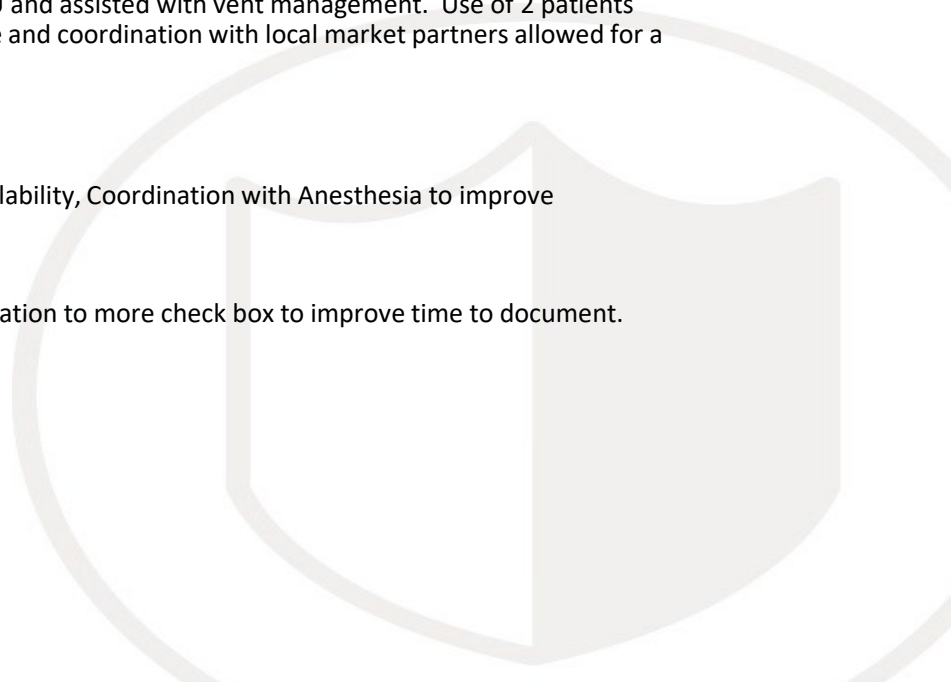
Respiratory Services

Incident overview: Respiratory services adjusted staffing model and utilized additional staff and nursing support to move respiratory therapists into ED to support all 4 pods of care and to support ED physician intubation. Support from anesthesia augmented response and addressed needs in ICU and assisted with vent management. Use of 2 patients per vent with setting adjustments increased supply available and coordination with local market partners allowed for a rapid response with additional ventilators.

Best Practices: Regional Coordination to enhance Vent availability, Coordination with Anesthesia to improve management, use of 2:1 vents.

Areas to Improve: Improve paper MCI respiratory documentation to more check box to improve time to document.

Notable Actions



Pharmacy Services

Incident overview: To support needs, pharmacy usually has 24/7 ED presence, this was augmented by call in staff within 1 hour. Additional Technicians were also called up. Supplies were maintained using the ED pharmacist to identify need and in house technologies (iMobile) communicated this. Pyxis units were placed in override to ensure basic supplies were present. Standardization of intubation medications improved supply management. Staff also developed geographic patterns for restocking and leadership focused on moving supplies from alternate sites within the local market. This maintained all critical medications throughout the response and limited any loss of controlled substances.

Pharmacy also managed resuscitation carts and turned over 100 in the additional hours. The usual volumes handed daily readied the team to have an assembly process to quickly return carts to service. Floor based carts were deployed and replaced to keep focus on ED/OR/ICU.

Best Practices: Stocking of areas using a rounding model and large supply drop offs.

Areas to Improve: Management of large volumes of controlled substances, medication documentation paper record enhancement required (more detail and specific locations)

Notable Actions: Addition of cameras over Pyxis stations to enhance visualization and documentation.

Inpatient Services – Med/Surg

Incident overview: As soon as event was identified, med/surg staff focused on immediate discharge of existing patients to accommodate alternate patients. House Supervisor identified that 2 units could surge to double capacity and additional nursing resources were aligned to allow for this doubling of patients in each room. Over 160 patients, in collaboration with the hospital medicine service, were discharged in the first 12 hours. This allowed for our ICU staff to downgrade to Med/Surg and optimize ICU patient capacity. Within 12 hours, all doubled rooms had been returned to single use only and all surge beds closed. Management with HCA bed management system improved coordination and use of a Nursing Operations Lead Separate from ED and OR maintained focus.

Best Practices: Doubling of AOS/ONTS, Assignment of ACNO to Bed Flow, Aggressive Discharge and Hospital Medicine Response.

Areas to Improve: Coordination of Services with OR to improve PACU to floor times

Notable Actions: Table Top Drills

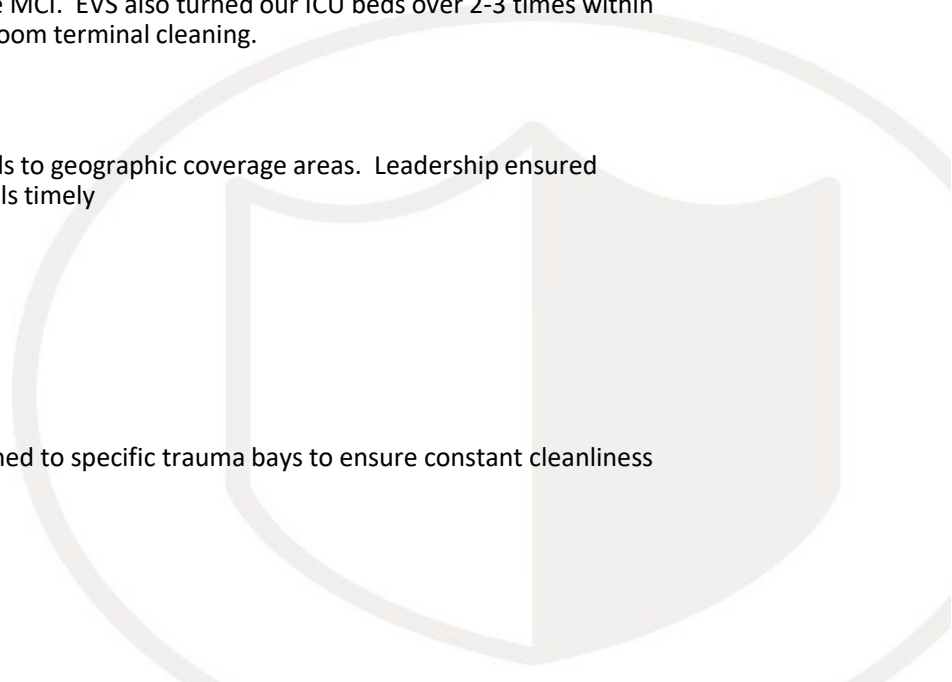
Environmental Services

Incident overview: EVS was on site and able to flex up to meet needs of managing ED, OR and patient bed turnover. All staff supported the team. Using location-based assignments and addition of resources, by 10am on October 2nd the ED returned to usual operations without any evidence of the MCI. EVS also turned over ICU beds 2-3 times within the trauma team and the OR Services flexed up to manage room terminal cleaning.

Best Practices: Strong local leadership to assigned individuals to geographic coverage areas. Leadership ensured supplies were available and backup teams relieved individuals timely

Areas to Improve

Notable Actions: Dedicated inpatient floor technicians assigned to specific trauma bays to ensure constant cleanliness of these key areas



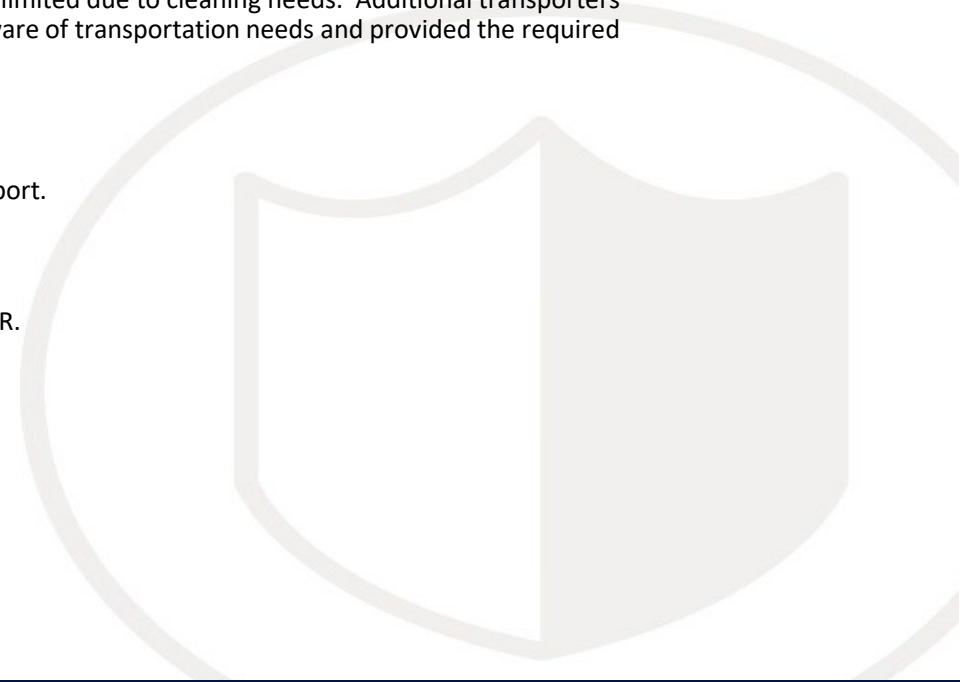
Patient Transport Services

Incident overview: During MCI transport services focused on movement from ED to OR, or ED to ICU, OR to ICU. All other transports were reassigned to additional nursing staff that responded to facility. Transport teams managed with available wheelchairs and gurneys; however, supplies were limited due to cleaning needs. Additional transporters responded by early AM and relieved staff. All staff were aware of transportation needs and provided the required backup services.

Best Practices: Teamwork of all employees providing transport.

Areas to Improve: Flex plan to surge wheelchairs to ED or OR.

Notable Actions



Hospital Wide Efforts

- Family/Staff Support
 - Assigned Chaplain and Social Worker Resources to manage concerned families
 - Created Dedicated Family Space allowing treatment space to not be disturbed
 - On Ward family brought to bedside
 - Staff to managed visits in the operative and trauma areas
 - Regular communications to update on status
 - Dedicated Nutrition Teams to keep staff hydrated and fed
 - Immediate Deployment of Crisis Counselors from HCA, Department of Veterans Affairs and Local Teams

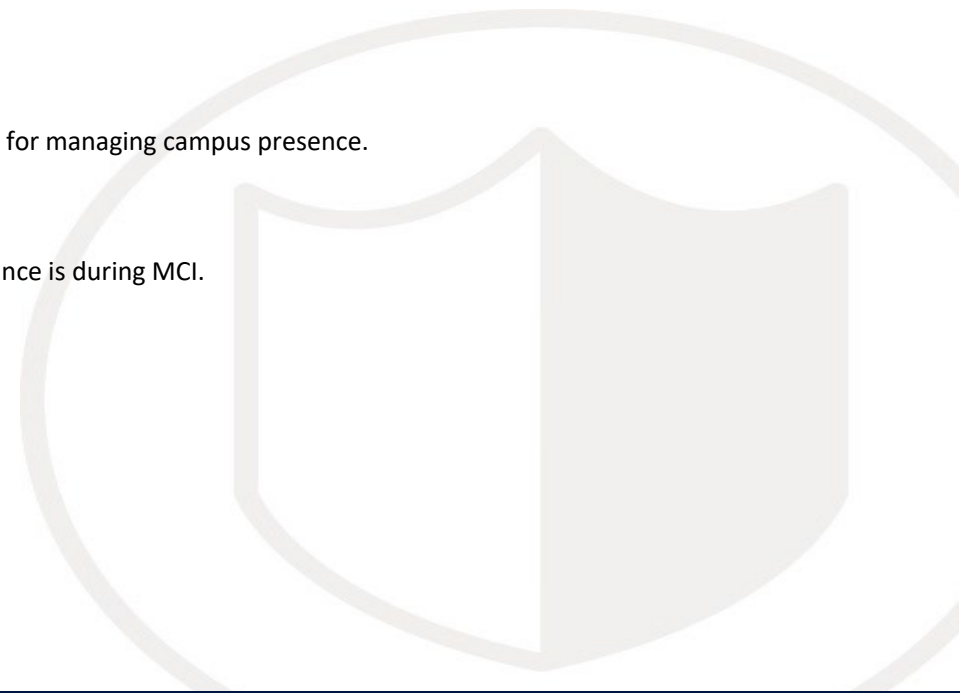
Public Safety – Security Operations

Incident overview: Immediately on notification of the MCI, security worked with our vendor support to secure campus. No incidents were noted of individuals on campus without a purpose. Families were escorted to the family management location in the auditorium.

Best Practices: Code Triage External Processes well defined for managing campus presence.

Areas to Improve: Tabletop drills on where employee entrance is during MCI.

Notable Actions



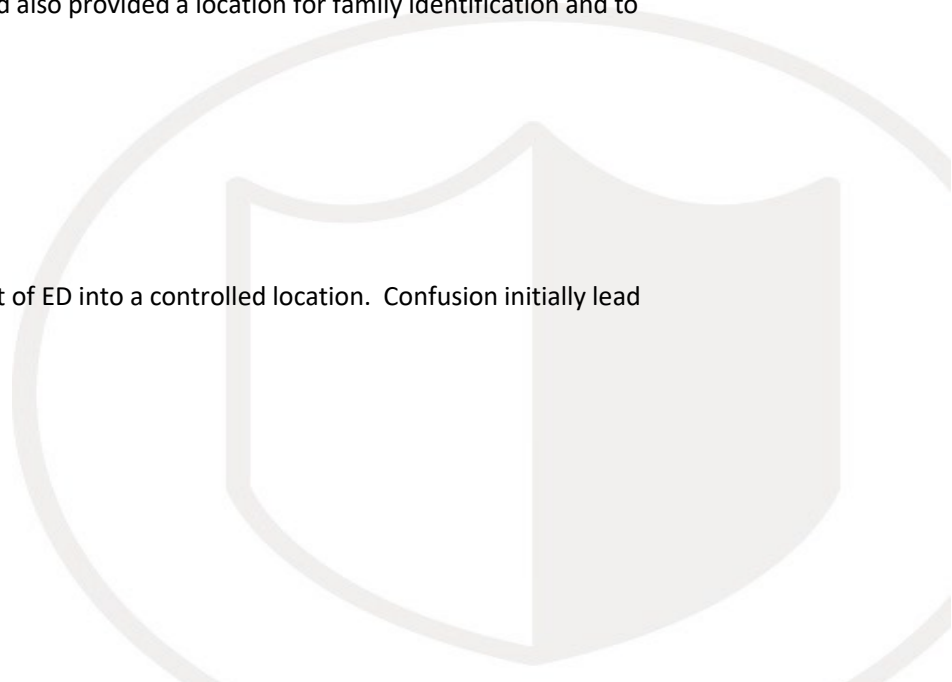
Mass Fatality Operations

Incident overview: Usual morgue holds only 4 bodies at a time optimally. A temporary location was designated by the ICS to house bodies. The endoscopy suite was not in use and located between the ED and the Operative Suites. This location was clean and large enough to handle all victims and also provided a location for family identification and to house the honor guard for a fallen police officer.

Best Practices: Temporary Location in Endoscopy optimal

Areas to Improve: Identification earlier to move fatalities out of ED into a controlled location. Confusion initially lead to less than optimal initial management.

Notable Actions: Location being integrated into MCI plans



Family Support Services and Family Reunification

Incident overview: Managed by HR and Case Management Services, families were located in our auditorium, and resources were dedicated to ensure that as conditions became stabilized, families were re-united within the inpatient and critical care units. Support services also managed families of patients who only received ED based care to reduce persons within the Emergency Room. Case Management and HR assisted with connection to Community Resources for Housing and with Volunteer services for clothing. Team assisted with identification of family, including use of descriptors (pictures), body art and body piercings to match given the high number of individuals without identification.

Best Practices: Clothing Closet to assist with fresh clothes. Coordination with community resources for housing. Use of body art to match patients and families.

Areas to Improve: Dedication of more case management resources as initial response was greater than anticipated.

Notable Actions

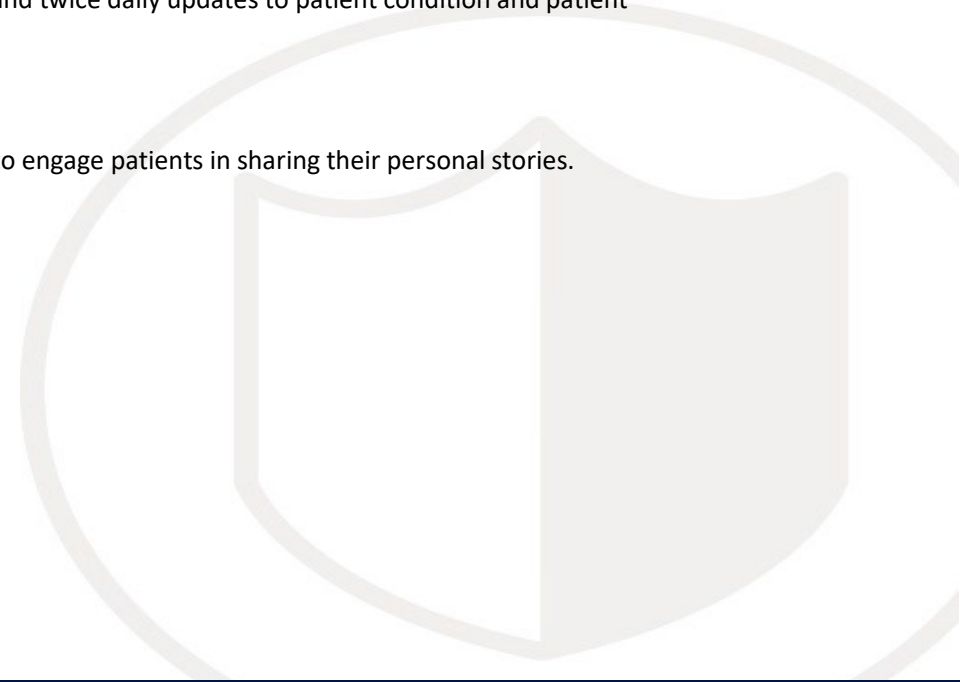
Public Information – Media Relations Management

Incident overview: During event, briefings were provided by Media Team. However, with delayed coroner response, ability to update on death toll was hindered for 6 hours. Media response continued to be coordinated with division resources over the next 2 weeks with a 24/7 media center and twice daily updates to patient condition and patient counts.

Best Practices: Provision of expert staff for interviews and to engage patients in sharing their personal stories.

Areas to Improve: Local Coverage bias

Notable Actions



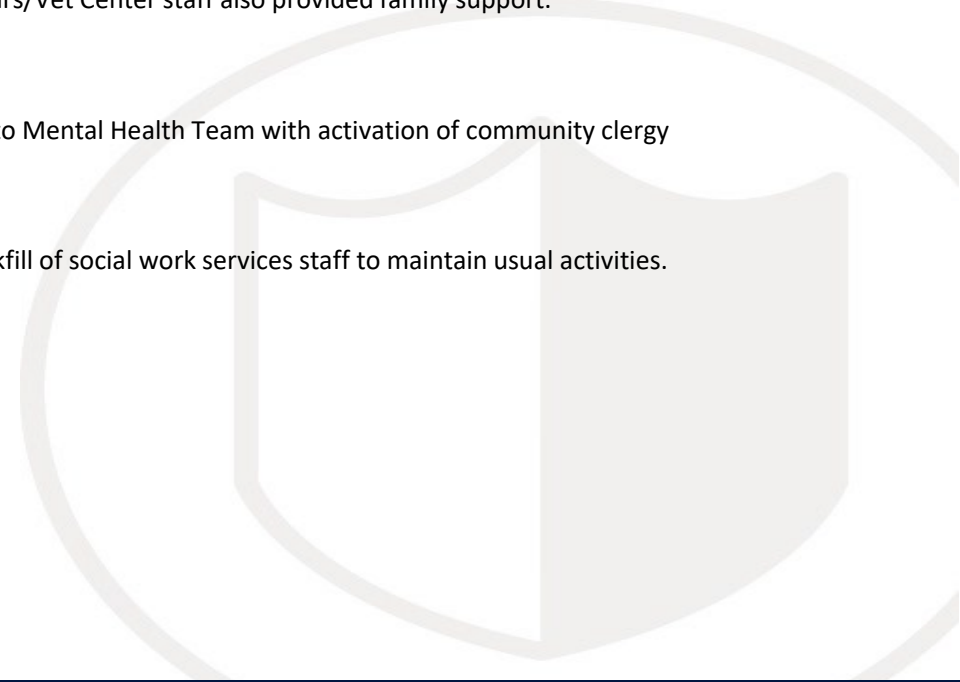
Behavioral Health Services / Mental Health

Incident overview: Given event, mental health services were provided to patients from resources within the medical staff. Hospital based social workers and psychologists adjusted duties from usual substance use disorder focus to grief response and family support. Department of Veterans Affairs/Vet Center staff also provided family support.

Best Practices: Integration of Pastoral Services into Mental Health Team with activation of community clergy

Areas to Improve: Earlier Identification of Need, Backfill of social work services staff to maintain usual activities.

Notable Actions



Volunteer & Donation Management

Incident overview: During and for a period of 2 weeks after the event, donations were being offered to both staff and patients within the hospital. Immediately on activation of the command center, a role was identified to manage this influx. Coordination with volunteer services ensured no interference with hospital operations. A separate location was created from conference space to manage perishable and non-perishable gifts and to coordinate cards and other recognition.

Best Practices: Identification of space and resources early in the process to manage

Areas to Improve: Enhanced communication with the community to clarify what is needed and what is not.

Notable Actions: Coordination with regional trauma system on Victims Assistance Center activation earlier in Mass Casualty Response to accept these donations and unburden local teams.

Sunrise Hospital & Medical Center

Response to October 1 Mass Casualty Event



#VegasSTRONG