

2021 Omaha Area Trauma Symposium

Creighton
UNIVERSITY
Center for Professional
and Corporate Excellence

Mass Casualty Incident: Lessons Learned from One October Shooting in LV: Preparing for the Future

October 8, 2021

Deborah A. Kuhls, MD FACS FCCM

Assistant Dean for Research

Professor of Surgery, Chief, Section of Critical Care

Kirk Kerkorian School of Medicine at UNLV

deborah.kuhls@unlv.edu

UNLV | School of
MEDICINE



1

Deborah A. Kuhls, MD FACS FCCM Disclosures

I do not have any relevant financial relationship(s) with any commercial interest that pertains to the content of this presentation.

Thank you for the opportunity to speak

Western Regional Alliance for Pediatric Emergency Management (WRAP-em). Subaward from the Regents of the University of California, San Francisco. Awarding Agency: HHS Assistant Secretary for Preparedness & Response. CFDA Title: National Bioterrorism Hospital Preparedness Program, 9/30/2019-12/31/2022, PTE Federal Award U3REP190616, Subaward 11611sc

UNLV | School of
MEDICINE



2

Learning Objectives

- Review the pre-hospital and hospital response to the 2017 One October Mass Shooting in Las Vegas.
- Review lessons learned to help communities prepare for a mass casualty event

3

3

9-11

- WTC, Pentagon, Pennsylvania
- 2,996 people were killed; firefighters & paramedics; 23 NYC police officers; 37 Port Authority police officers
- Disaster management planning
- Homeland Security
- Training Courses Abounded
- Las Vegas was always on the top 5-10 list of possible terrorist targets



4

4

Sandy Hook - 2012

- The Sandy Hook Elementary School shooting occurred on December 14, 2012, in Newtown, Connecticut, United States, when 20-year-old Adam Lanza fatally shot 20 children between six and seven years old, as well as six adult staff members. Prior to driving to the school, he shot and killed his mother at their Newtown home.

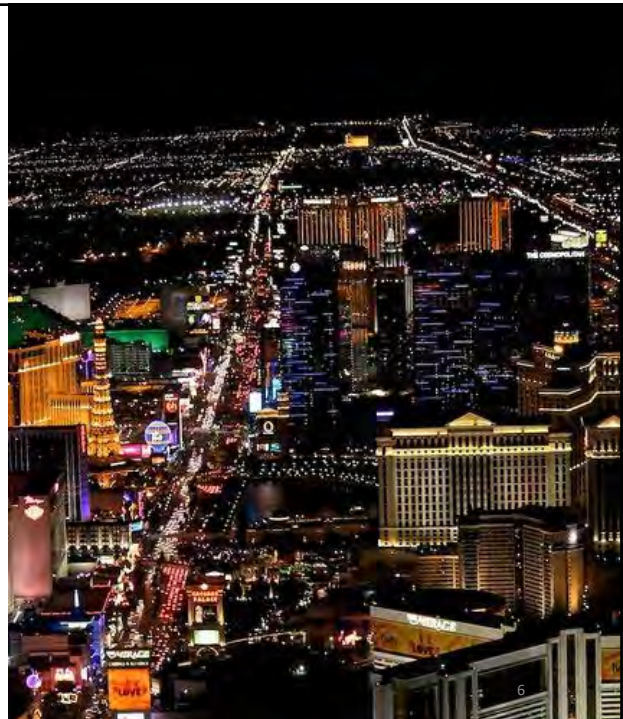


5

5

Las Vegas, Nevada

- “Entertainment Capital Of The World”
- 2.2 million metro population
- 150,000+ hotel rooms
- >40 million visitors per year pre-COVID
- Gaming Revenue \$35.5 Billion in 2018
- 44% of workforce supported by Tourism



6

Physically Isolated

- Las Vegas Valley
- 20 miles by 40 miles
- Geographically isolated
- Los Angeles, Phoenix, Tucson 4-5 hours away



7

Southern Nevada Trauma System



- A coordinated injury response network.
- Conducts daily operations to optimize patient outcome – many large events.
- Can readily adapt to manage an influx of injured patients resulting from a mass casualty incident.
- Practices Disaster Response



AMERICAN COLLEGE OF SURGEONS | DIVISION OF EDUCATION
Blended Surgical Education and Training for Life®

8

Prehospital System Assets:



- Six Public Fire Services for EMS
- Three Private Services for EMS
- One fixed wing aeromedical transport agency
- One rotor wing aeromedical transport agency



AMERICAN COLLEGE OF SURGEONS | DIVISION OF EDUCATION
Blended Surgical Education and Training for Life®

9

Hospital System Assets:

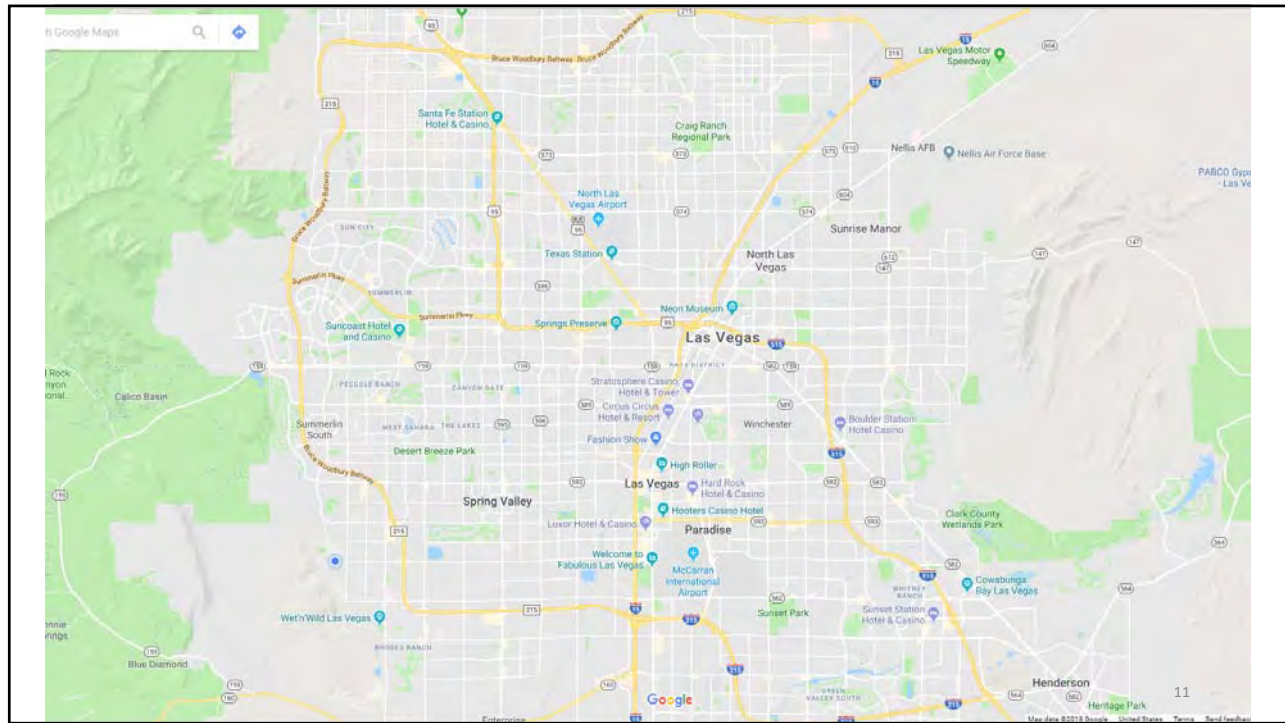


- 17 hospitals with emergency departments capable of caring for injured patients depending on the extent of the injuries
- 3 ACS-verified Trauma Centers:
 - **Level I: University Medical Center, Pediatric Level 2, and Burn Center**
 - **Level II: Sunrise Hospital Medical Center**
 - **Level III: St. Rose Dominican Hospital**

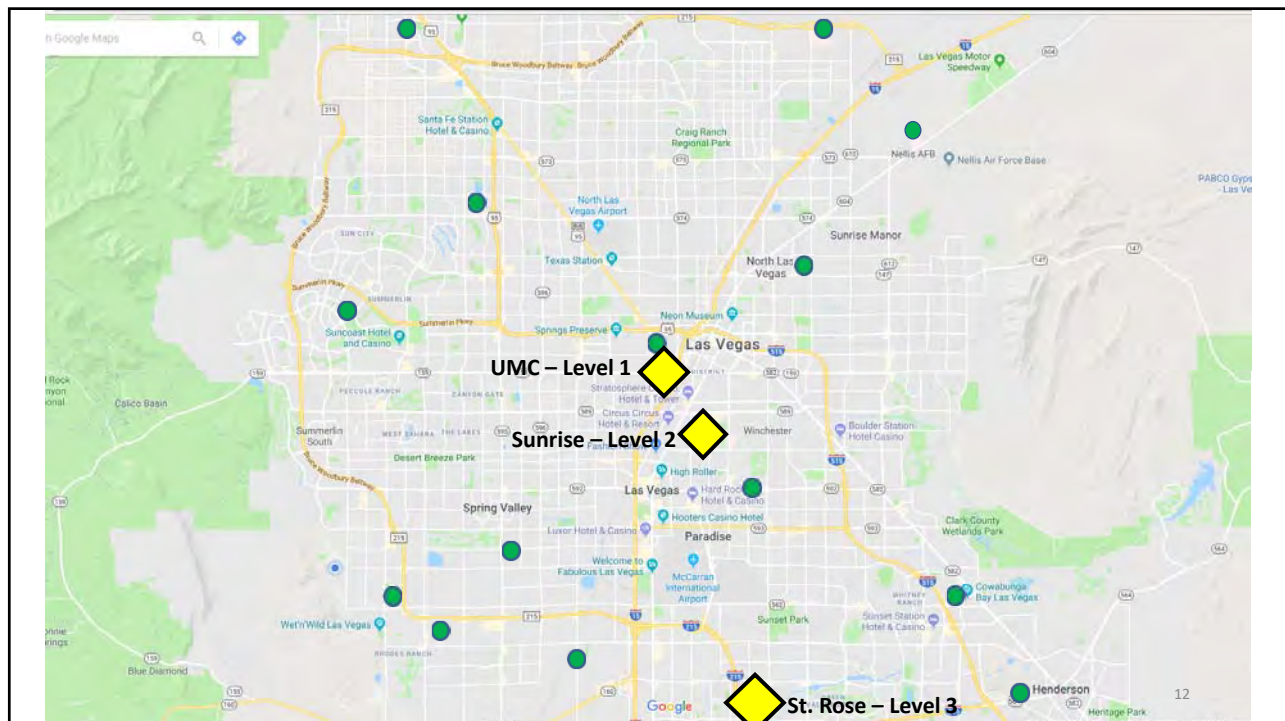


AMERICAN COLLEGE OF SURGEONS | DIVISION OF EDUCATION
Blended Surgical Education and Training for Life®

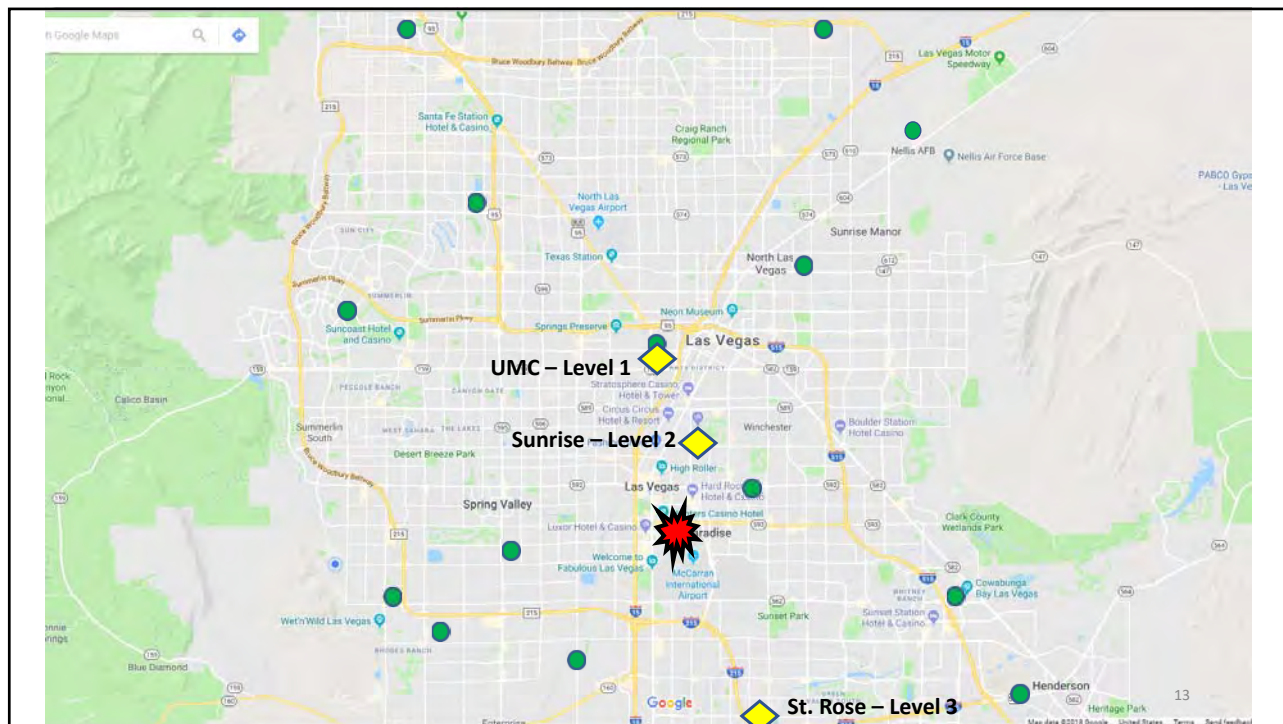
10



11



12



13

Timeline of events on One October

- 17 acre site in the middle of the Strip
- 22,000 people; 50 Metro Officers with Command Post
- 3 ambulances, 16 EMS personnel
- 10:08 pm automatic weapons fire began
- 10:21 pm the shooting stopped
- 13 minutes more than 1,100 rounds of military grade ammunition were expended
- The crowd evacuated on their own
- 10:25 pm – 1st patients arrives at Sunrise (II)
- 10:28 pm 1st patients arrives at UMC (I)
- 639 treated at area hospitals; 58 deaths
- 80% were 'self-directed' to medical care
- More than half were visitors



14

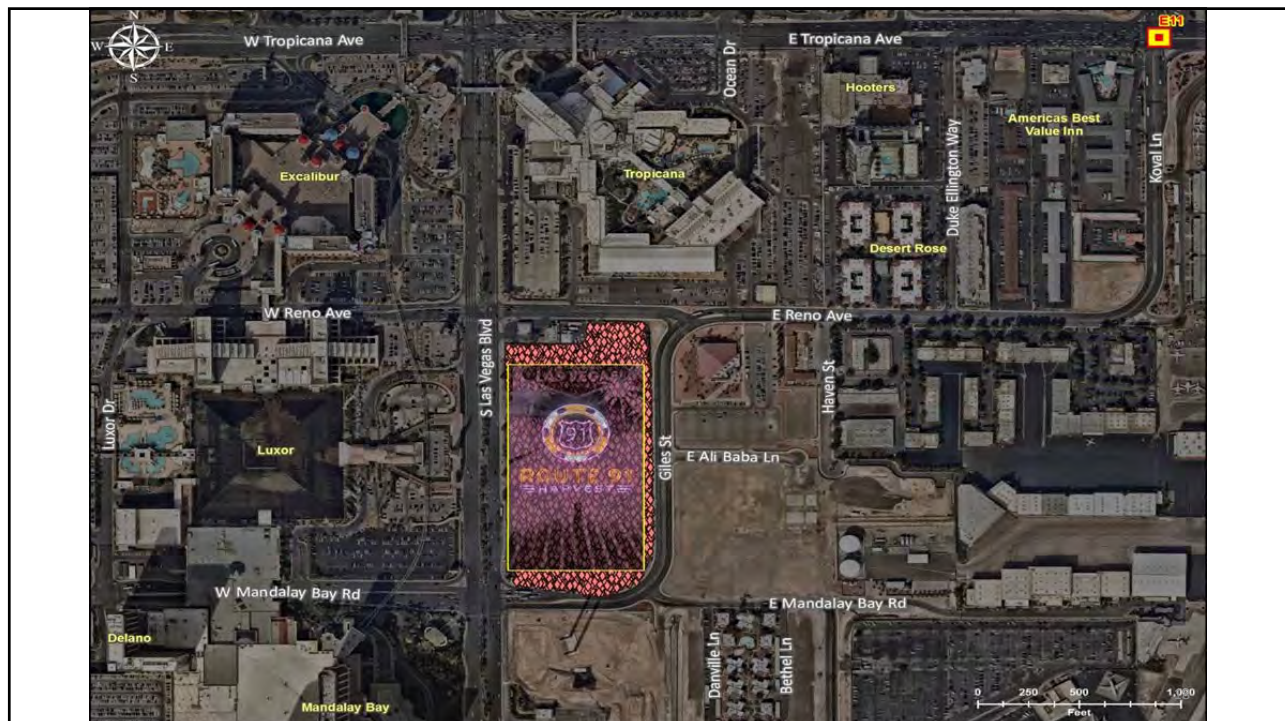
A large crowd of people is gathered at night, many sitting on the ground covered in confetti. In the background, a bright blue neon sign is visible, and the scene is illuminated by warm, yellow lights. The atmosphere appears festive and crowded.

8

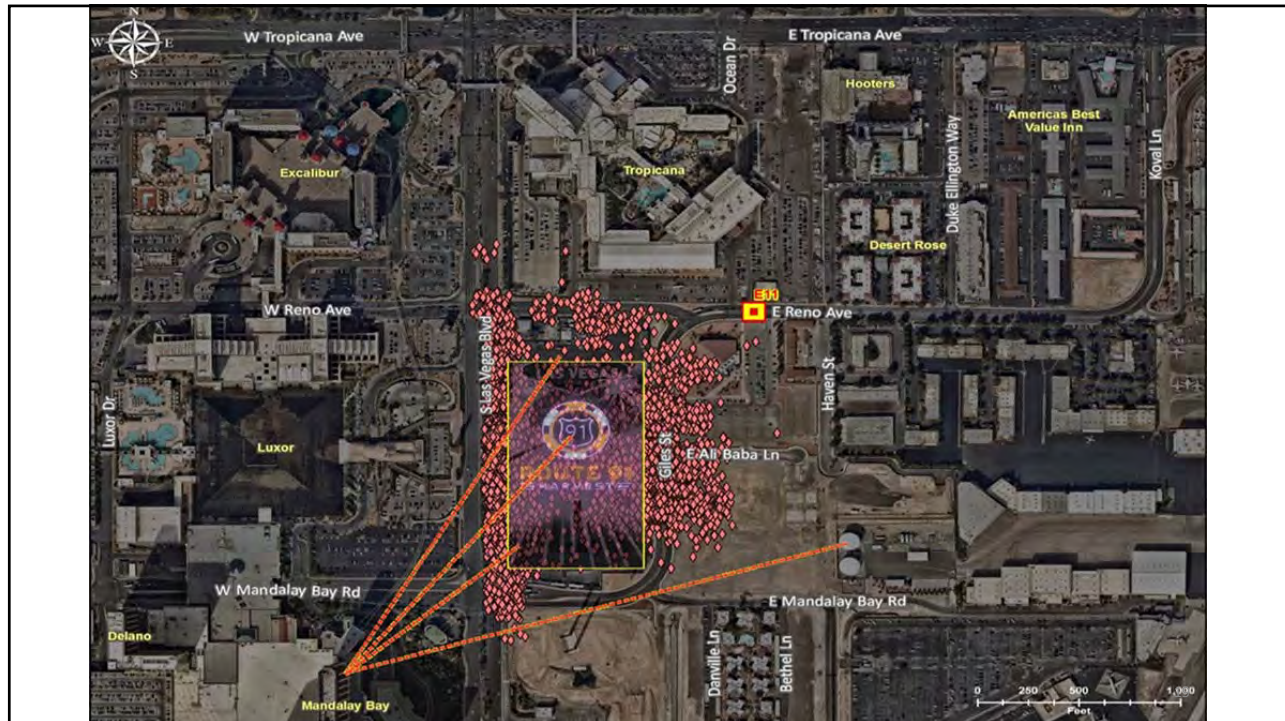


17

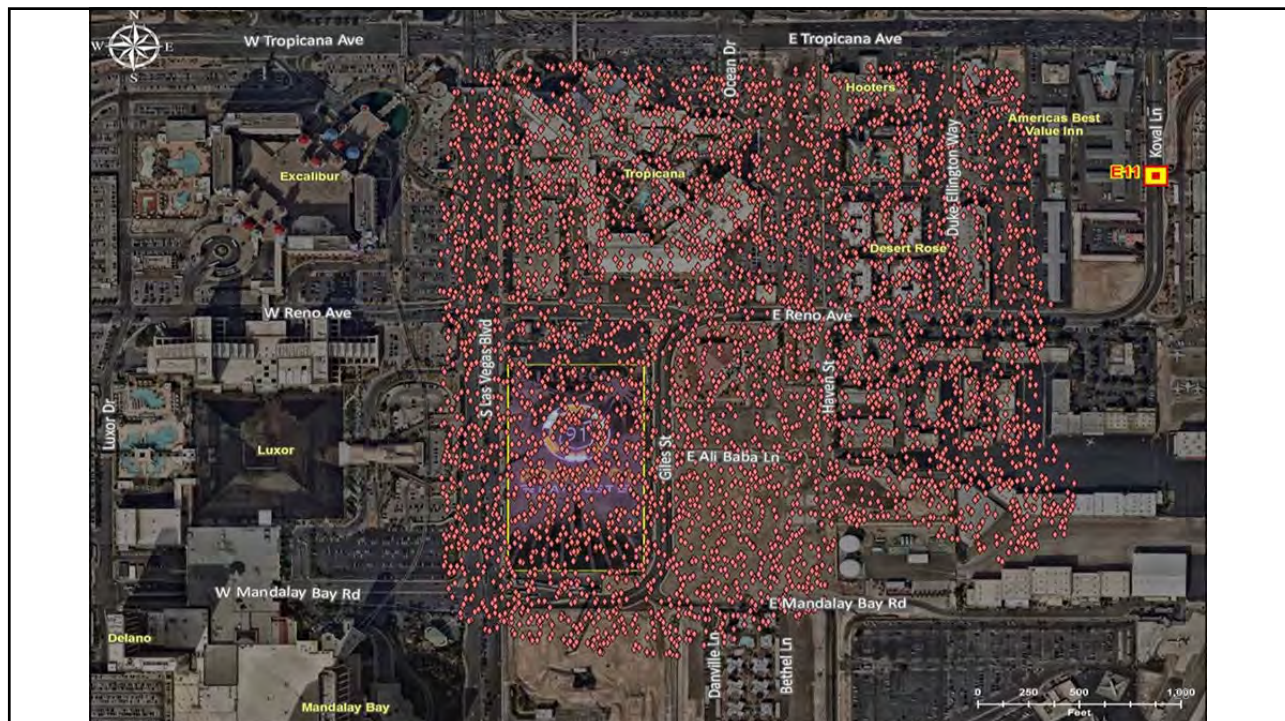
17



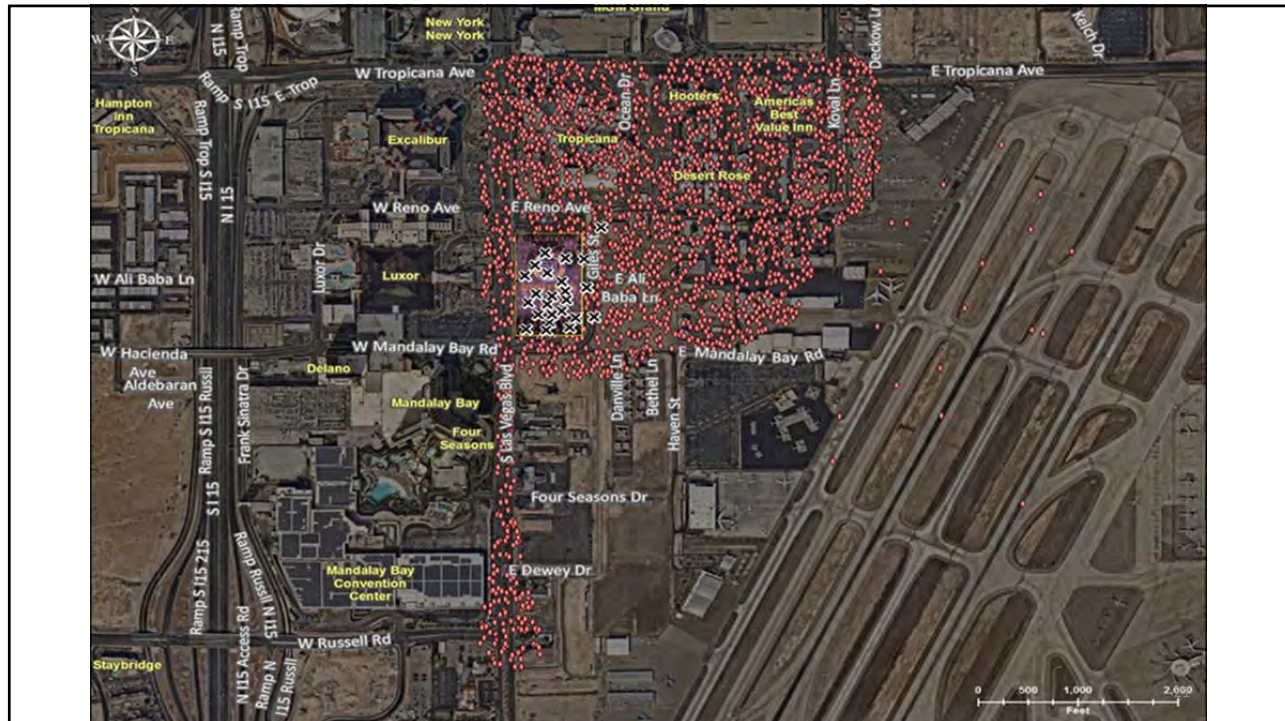
18



19



20



21



22

22

Level I Trauma Center – UMC of Southern Nevada

- “Hospital within a Hospital”
- Only stand-alone trauma center in west
- Adult Level I, Pediatric Level II
- 24 hr Trauma Surgeon & ED Physician
- Treat ~ 12,000 patients annually
- Admit ~ 3,400 annually
- Joint training and readiness program with Nellis AFB “Smart Program”

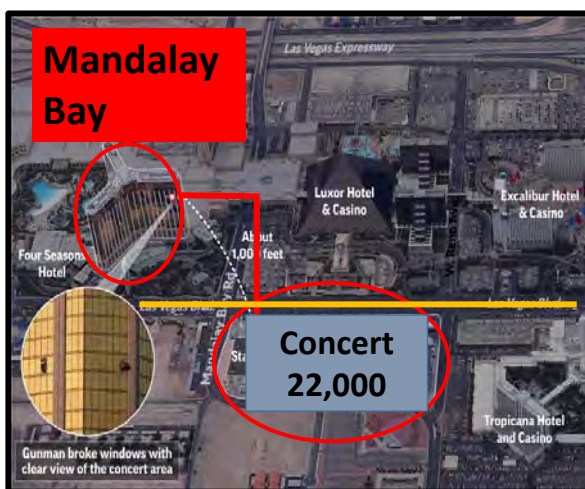


UNLV School of MEDICINE

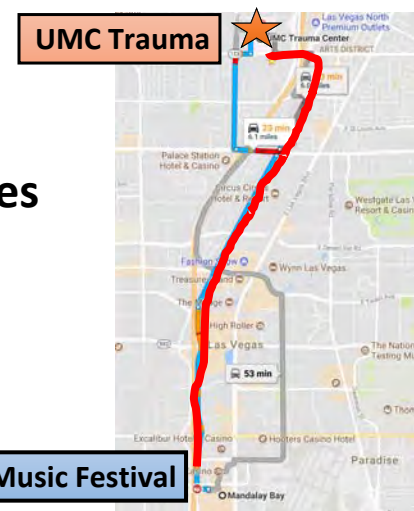


23

Access to UMC Level I Trauma Center



6 Miles



UNLV School of MEDICINE



24

ED and "Main" Operating Rooms

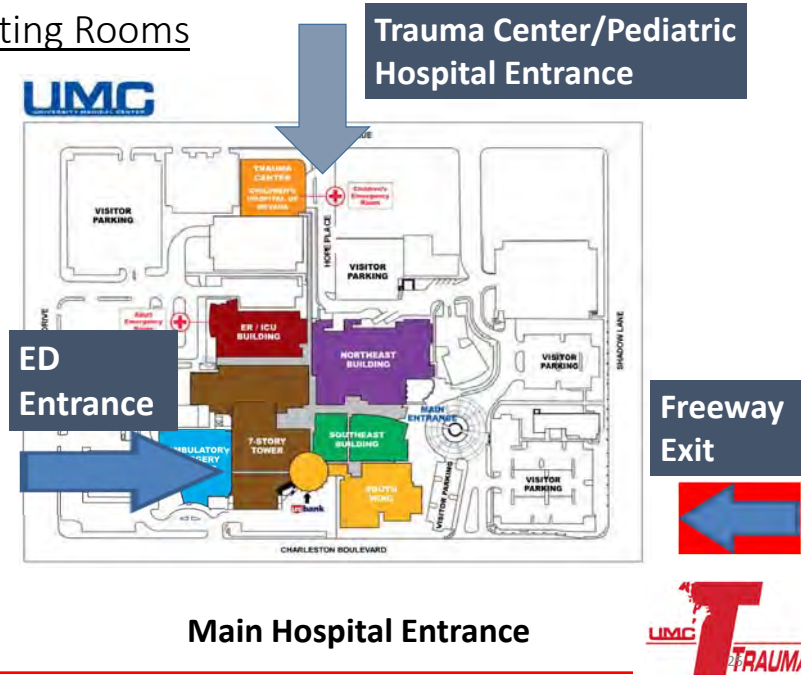
541 Beds Total

Adult Emergency Dept

- 59 Beds
- Triage Area
- Multiple EM Physicians, EM Residents, PA's

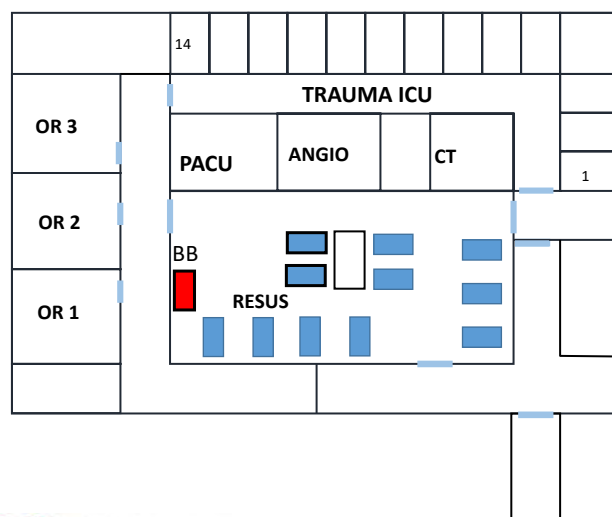
Main Operating Rooms

- 20 Rooms
- Endoscopy/Procedure Suites



25

UMC Trauma Center



Distinct and separate from ED

EM and Trauma Teams

Dedicated Resources

- 11 Resuscitation Beds
- 14 Trauma ICU Beds
- 3 Trauma OR's
- 4 PACU Beds
- CT Scanner
- Angio Suite

26

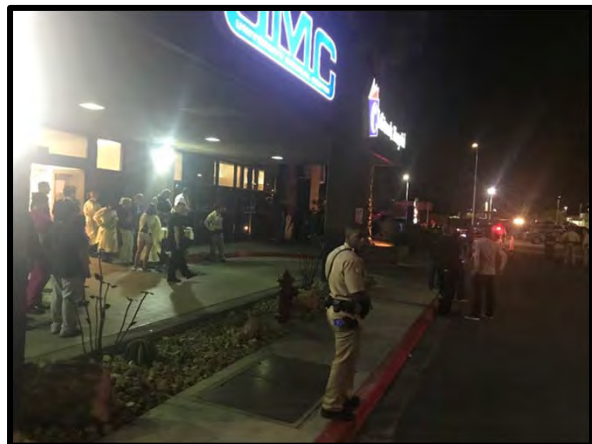
October 1, 2017

- A very busy Sunday already with multiple activations
- All providers are on 12 hour shift schedule (attendings, residents, fellows, nurses)
- At 10 pm, day team still present and finishing up patient care
- 9 of 11 trauma resuscitation beds already occupied
- "No Notice" Mass Casualty

27

Early Notifications & Response

- **"10:15 pm Active Shooter on the Strip"**
 - Night & Day Trauma Teams in House & Stayed
- **First Notification**
 - 5-10, then 20 patients enroute
 - Back Up Surgeon & Anesthesia Called
 - Opened OR's
- **Second Notification**
 - 50-100 patients or more
 - Activated Disaster Plan

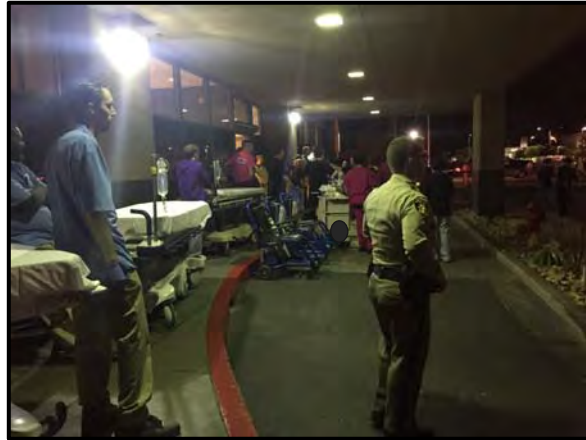


28

Initial Wave of Patients/3rd Notification

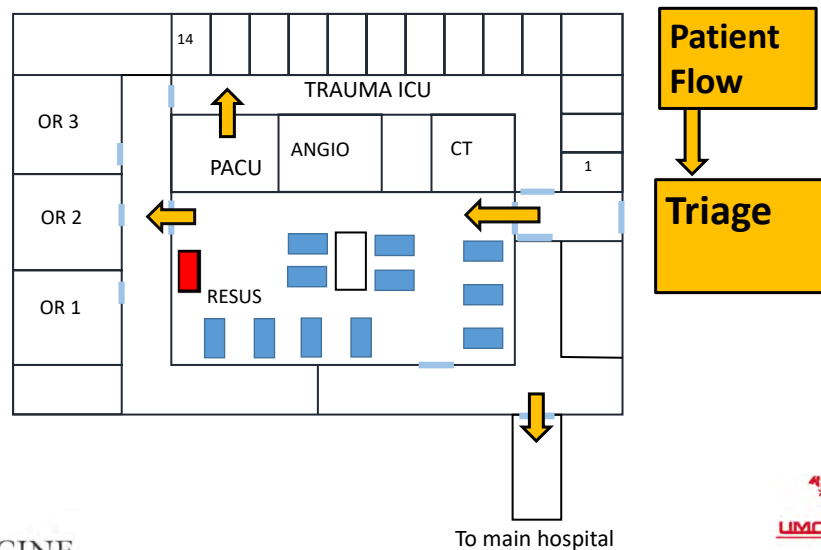


- Nurse Manager moved 9 Trauma Resus patients to Trauma PACU
- Opened 3 Trauma ORs & Main ORs
- 20+ Self-transports to Trauma & ED
- 0-->40 patients in 5 minutes
- Triaged outside Trauma Center
- False notification of 2nd Strip Shooter
- False notification of active shooter in hospital when mayor arrived



29

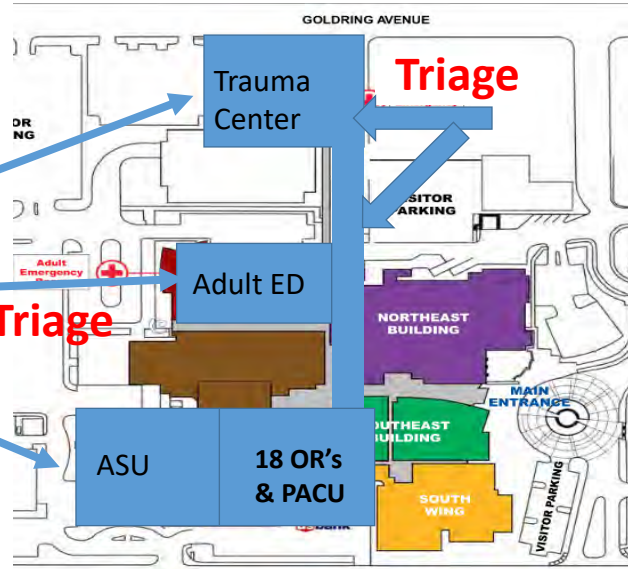
UMC Trauma Center



30

Created more ER Beds

- Trauma Resus 11 Beds
- Adult ED – 59 Beds
- PACU & ASU - 46 Beds
- TOTAL = 116 (+ 66%) Resuscitation/ER beds



31

Incident Command Center

- Initiated immediately after first patients arrived
- Team leaders across hospital to identify and respond to challenges as they arose
- Central location to disseminate information
- Operational 24/7 for several days



32

Disaster Plan: Mobilization of Nursing & Staff

- TR Charge nurse called clinical supervisor (off-site)
- Clinical supervisor called in 3 additional nurses, all of whom came in
- Nurses and PA's who were in-house came to TR and the clinical supervisor put them all to work establishing IV's and connecting them to one bag of IVF, treated pain
- Pharmacists, environmental services, administrators in-house came to TR
- **Great collaboration**
- Mobilized in-house supplies



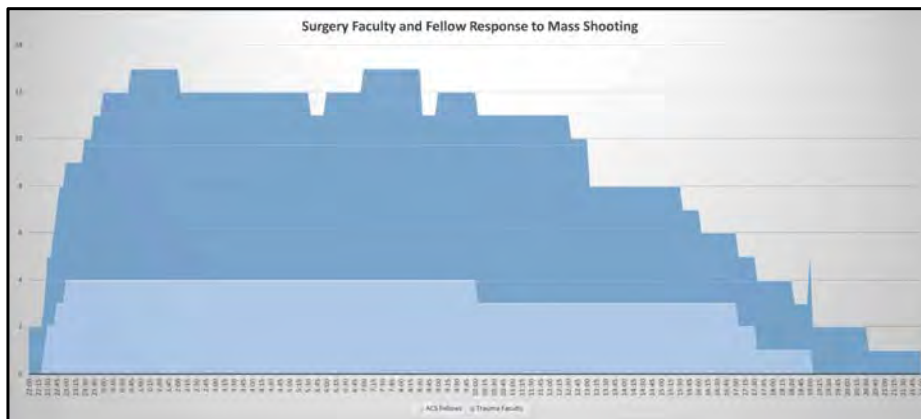
UNLV School of MEDICINE



33

Surgeon Resident & Fellow Arrival Time

- 0 mins - 2 faculty in house plus 7 Surgery, 1 Ortho & multiple EM Residents
- 30 mins - 4 faculty (1 Nellis AFB) plus 2 ACS fellows (6 total) plus residents
- 1 hour - 5 faculty plus 4 ACS fellows (9 total) plus residents
- 2 hours - 8 faculty plus 4 ACS fellows (12 total) plus residents



Later sent folks home

Mayor, Governor, Hospital Board visited in the "wee" hours of the morning

34

34

Mobilization of Resources

- **EM physician** triaged the most critical to Trauma Resus
- Trauma - assessed and triaged to:
 - OR +/- Blood
 - Work-up in resus
- Opened Main + Trauma ORs
- Eight ORs concurrently
- Ortho, Cardiovascular, Neurosurg
- SMART program personnel
- Non-surgical services volunteered



35

Mobilization of Additional Spaces



- The Hall, Main PACU and ASU were set up for less critical patients & Expectant Patients
 - **“Mini-Teams”**
 1. Trauma Resuscitation
 2. Main PACU area
 3. Same Day Surgery area
 - **Leader:** Trauma Surgeon, EM attending, Anesthesiologist, Pharmacist, Nurses, Respiratory Therapist, residents
- Families went to cafeteria
- Social Services, chaplain, TIP

36

Surgical Procedures

- 20+ OR's overnight
 - **Damage Control** Ex Laps
 - Thoracic Surgery
 - Vascular/Ortho
 - Neurosurgery/OMFS
- Chest tubes, IO, Lines, Cric
- 8 Operating Rooms
- A dozen in the ICU
- All Monday 10/2 elective cases cancelled



UNLV School of MEDICINE



37

The Value of Military Providers Imbedded in Trauma Center – the SMART Program

- Sustained Medical and Readiness Trained Program (SMART)
- 6 Military surgeons part of response
- Specialty Surgeons
- Nurses, surgical techs, others
- Anesthesia, EM physicians
- Every type of healthcare provider & administrator
- Hospital CEO is USAF Reserve

Dr. Snook SMART Program Director

Dr. Fildes Trauma Medical Director



UNLV School of MEDICINE

38



Military-Civilian Relationships

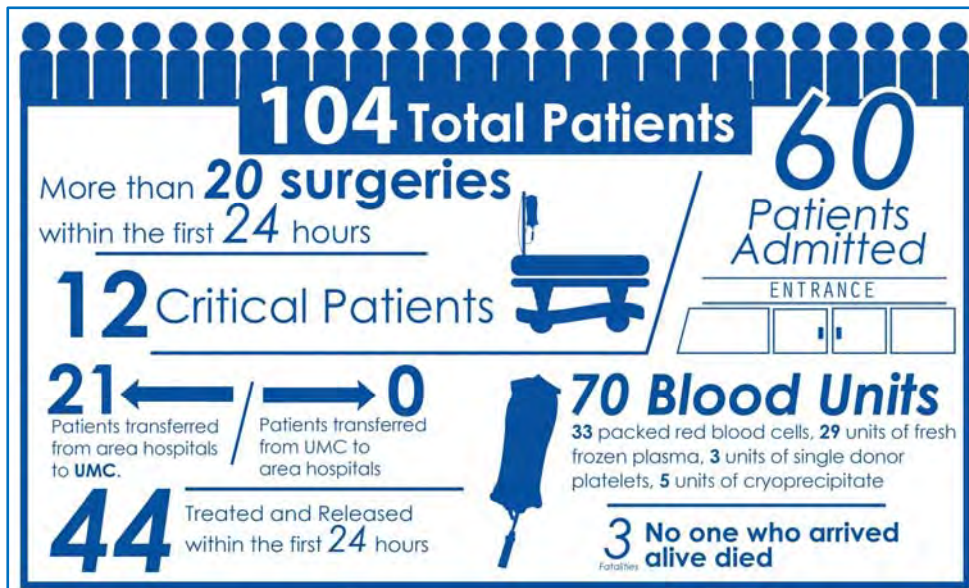


UNCLASSIFIED

"That Others May Live"

19

39



UNLV | School of MEDICINE



40

264 patients transported via 128 ambulances More than 600 patients were treated

- Centennial Hills Hospital (23 mi away)
 - 5 patients
- Desert Springs (4 miles away) not a trauma center
 - 93 patients
- Spring Valley (4 miles)- 53 patients
- Summerlin Hospital (19 miles)
 - 10 patients
- Sunrise Hospital (Level II) (4.8 miles)
 - 212 patients; 125 crash carts
- Valley Hospital (7 miles)
 - 30 patients
- St. Rose – Siena (Level 3 Trauma)
 - 58 patients
- St. Rose – San Martin (8.6 miles)
 - 23 patients
- St. Rose – de Lima (15 miles)
 - 5 patients
- UMC (Level I) (6 miles)– 104 patients
- VA – 0 patients
- Nellis AFB – 0 patients
- North Vista – 0 patients



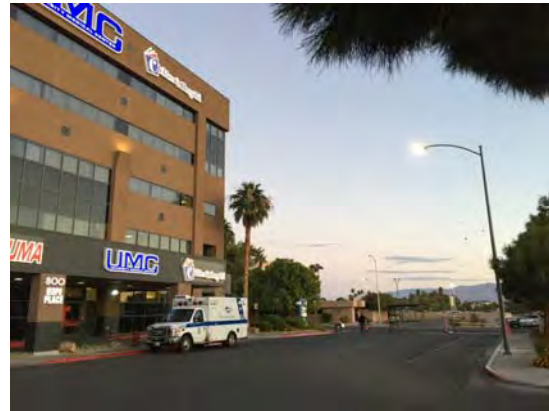
Medical Response



- Sunrise – Level 2 Trauma
 - 212 patients
 - 64 admitted
 - 31 admitted to ICU
 - 16 deaths, 10 on arrival
 - 58 operations in 24 hrs
 - 500 units of blood products

The Next Day

- Fresh Day Team (critical!)
- IM, FM, Hospitalists, MICU Service
 - Accepted non-critical patients
 - Transferred 12 ICU level patients
- Multiple active duty surgeons and non-surgeons
- Comprehensive Sign Out
 - Ensure that patient injuries were not missed
 - Tertiary survey and documentation
- Media, Community Response
- Call for Interviews, Public Officials



43

Media Relations

Media Relations Team



- Media interviews began almost immediately
- Brief team members on best protocol
- Prior media experience helped
- Plenty of media opportunities to go around – for many days

44

Community, Outreach, Donations



- Blood donations
- Water donations
- Food donations continued for 2+ weeks; schedule
- #VEGASSTRONG



UNLV | School of
MEDICINE

UMC **T**RAUMA

45

Emotional Impact – Crisis Support

- Start crisis support right away
 - Available 24/7
 - Patients, families, anyone
 - Residents, hospital staff, physicians
- Resident protected time - debrief
- Prepare to be affected
- Realize that this changes everyone permanently
- Crisis support continues today
- Coroner's office received a grant that provides support to the medical community

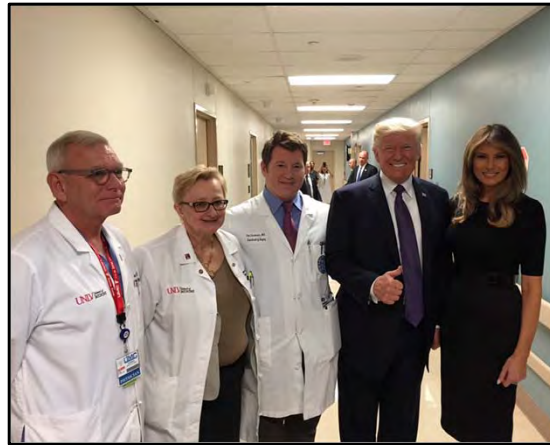


UNLV | School of
MEDICINE

UMC **T**RAUMA

46

Three days later – White House Visit



UNLV | School of
MEDICINE



47

Las Vegas Healing Gardens Opened 5 days after the Shooting



UNLV | School of
MEDICINE

48

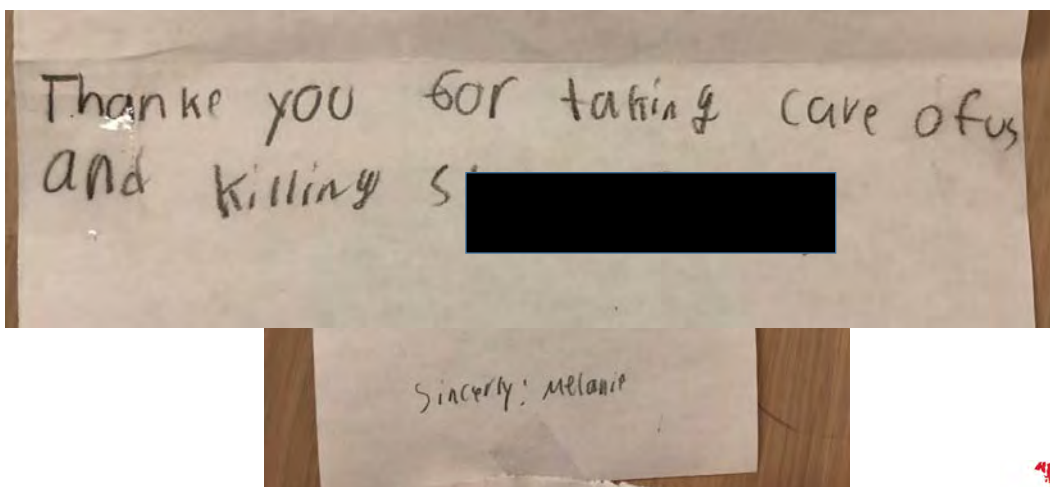
6 Days Later Stop The Bleed Training



- Nevada ACS Meeting Oct 7, 2017
- Brought surgeons together
- Stop the Bleed
- Over 13,000 trained by UMC since One October
- 2-10 classes/week
- Incorporated Stop the Bleed into ATLS refresher course



Hundreds of Notes from School Children



Dozens of Banners



51

A Team Effort – Recovery & Resilience



52

Remembering Those Who Did Not Survive



53

Recovery

- 10,000 square feet of LV Convention Center rented as a family reunification center
- Onsite counseling
- Recovery center set up for anyone to access and still offers free services
- Hospitals brought additional resources to offer 24/7
- All patients were visited by mental health professionals

Coroner opens up about office's role after Las Vegas shooting



54

Lessons Learned



55

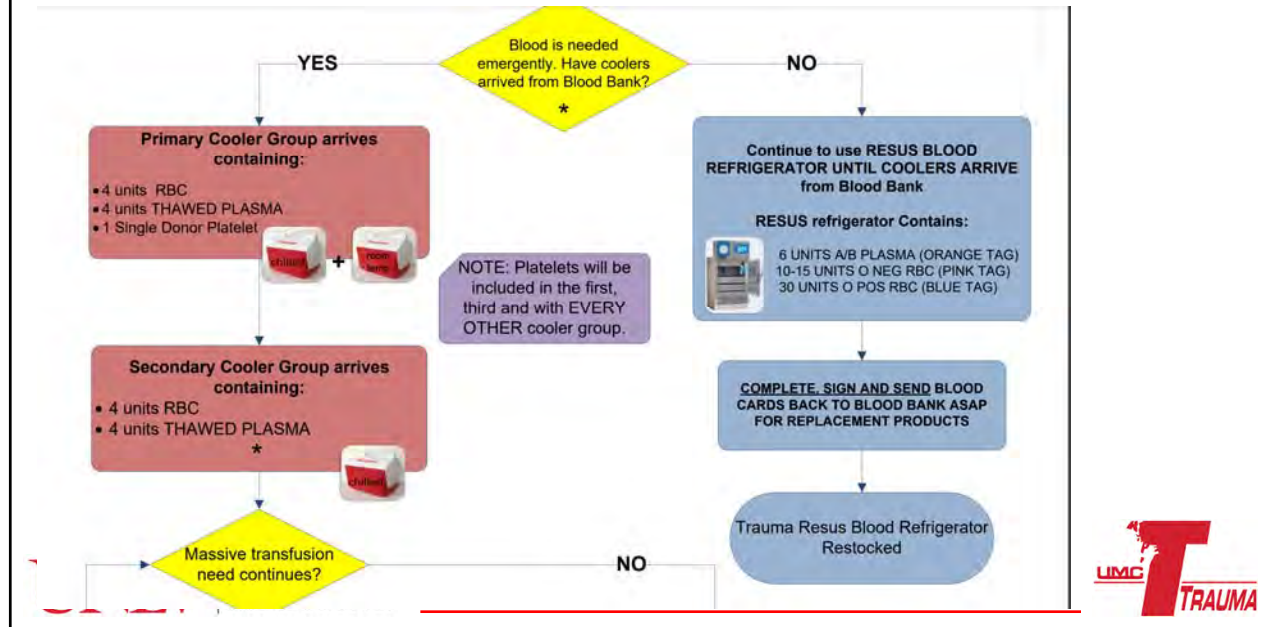
55

264 patients transported via 128 ambulances
More than 600 patients were treated

- Centennial Hills Hospital (23 mi away)
 - 5 patients
- Desert Springs (4 miles away) not a trauma center
 - 93 patients
- Spring Valley (4 miles)- 53 patients
- Summerlin Hospital (19 miles)
 - 10 patients
- Sunrise Hospital (Level II) (4.8 miles)
 - 212 patients; 125 crash carts
- Valley Hospital (7 miles)
 - 30 patients
- St. Rose – Siena (Level 3 Trauma)
 - 58 patients
- St. Rose – San Martin (8.6 miles)
 - 23 patients
- St. Rose – de Lima (15 miles)
 - 5 patients
- UMC (Level I) – 104 patients
- VA – 0 patients
- Nellis AFB – 0 patients
- North Vista – 0 patients

56

Massive Transfusion Protocol



57



58

Lessons Learned – LV Hospitals

- Every hospital is involved
- Triage outside of hospital – EM physician with trauma training
- Re-triage to **and from** trauma centers
- Security/Safety plan at every hospital
- Space plan for large # patients; repurpose space
- Communication – clear, redundant
- Tags weren't used; single page paper; EMR was not used
- Naming of unnamed patients – have enough names!!
- Staying organized – Senior Surgeon
- Physicians of all specialties needed
- Surgeons can operate or assist outside their specialty field

Lessons Learned – Southern NV Trauma System

- Extensive disaster plan is crucial
- Realistic drills
- Planning for event coverage by EMS – valley-wide schedule
- Emergently credential all healthcare providers in state for any hospital
- Triage less injured who arrive by private transport from trauma centers to non-trauma center hospitals
- Prepare for multiple day mass casualty incidents
- Mobilize all surgeons



<https://register.gotowebinar.com/recording/3579578141668518147?assets=true>

Speaker Bios: <https://asprtracie.s3.amazonaws.com/documents/healthcare-response-to-a-no-notice-incident-speaker-bios.pdf>

TRACIE
HEALTHCARE EMERGENCY PREPAREDNESS
INFORMATION GATEWAY

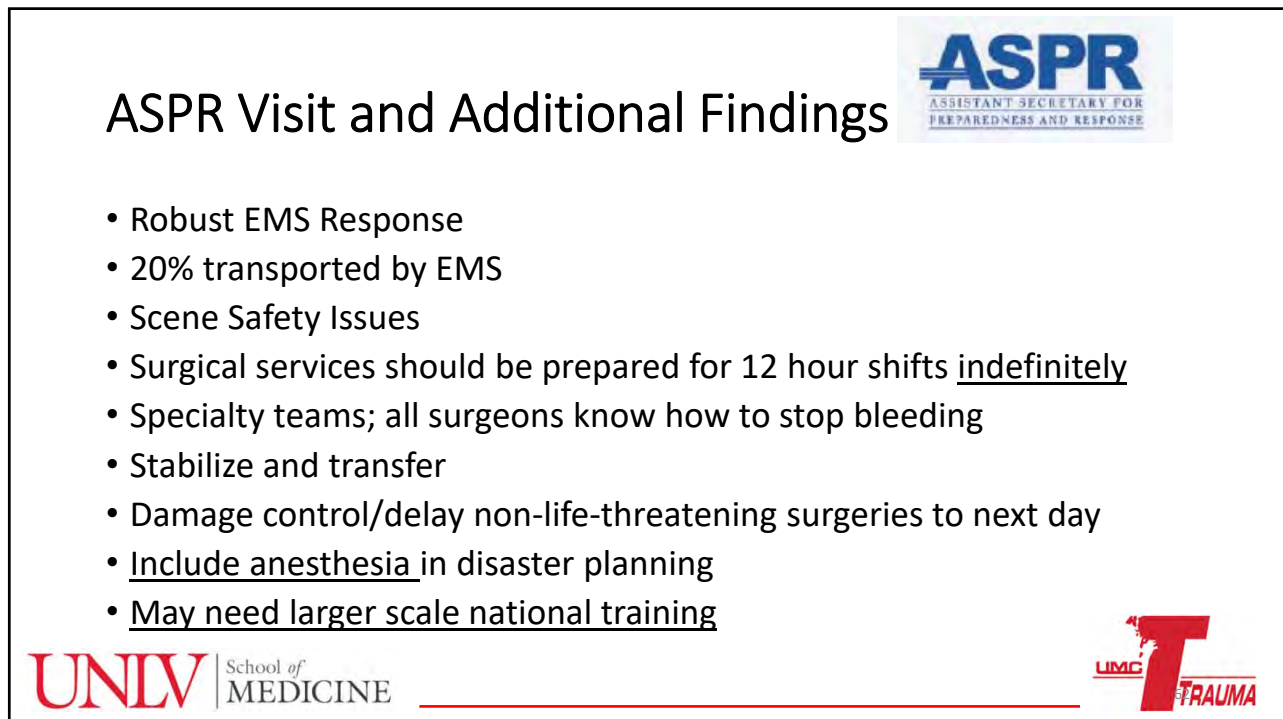
**Healthcare Response to a No-Notice Incident:
Las Vegas**

March 28, 2018

ASPR
ASSISTANT SECRETARY FOR
PREPAREDNESS AND RESPONSE

61

61



ASPR Visit and Additional Findings

- Robust EMS Response
- 20% transported by EMS
- Scene Safety Issues
- Surgical services should be prepared for 12 hour shifts indefinitely
- Specialty teams; all surgeons know how to stop bleeding
- Stabilize and transfer
- Damage control/delay non-life-threatening surgeries to next day
- Include anesthesia in disaster planning
- May need larger scale national training

UNLV | School of MEDICINE

ASPR
ASSISTANT SECRETARY FOR
PREPAREDNESS AND RESPONSE

UMC TRAUMA

62

1 October After-Action Report

August 24, 2018

- 61 Pages
- 72 observations and recommendations for each
- Communication theme
- Operations and size of Incident Command



FEMA



63

63



A DAY LIKE NO OTHER

A CASE STUDY OF THE LAS VEGAS MASS SHOOTING



<https://nvha.net/a-day-like-no-other-case-study-of-the-las-vegas-mass-shooting/>

UNLV | School of
MEDICINE



64

DMEP

Disaster Management & Emergency Preparedness

- Brought the course to LV in 2009
- Focuses on hospital preparedness



DISASTER MANAGEMENT &
EMERGENCY PREPAREDNESS

[← Back to Trauma Education](#)

Disaster Management and
Emergency Preparedness

[Scheduling a DMEP Course](#)

[DMEP Publications](#)

[DMEP Resources](#)

[Disaster and Mass Casualty
Incidents](#)

Disaster Management and Emergency Preparedness

The Disaster Management and Emergency Preparedness (DMEP) course teaches planning methods, preparedness, and medical management of trauma patients in mass casualty disaster situations. Through lecture and interactive scenarios, health care providers learn incident command terminology, principals of disaster triage, injury patterns, and availability of assets for support during the one-day program.

The American College of Surgeons Committee on Trauma (ACS COT) recognizes that a mass casualty event is not just another busy night in an urban trauma center. Most surgeons have little or no background or experience in such circumstances. To fill this gap, the Committee on Trauma has developed this course to help surgeons and "acute care pros" develop the necessary skills, understand the language, and appreciate the structural transformation for effective response to mass casualties in disasters. This program is designed to stimulate thinking about how to become better prepared as individuals, professionals, organizations, and health care systems. It represents a milestone on the path toward readiness, not a destination, and should lead to more clinical involvement in local disaster planning. As surgeons, we must be ever vigilant and ready for not just the isolated surgical emergency that may beset the critically ill or injured, but also for the masses requiring the special skills outlined in this course. For more course information, contact the Trauma Education Program office at 312-202-5538 or e-mail cotdisaster@facs.org.

[Order DMEP manual \(2nd Edition\)](#)

65

65

UMC Foundation Funded DMEP Courses



66



- Over 14,000 trained since 1 October
- All Clark County Schools
- Night Clubs
- Some Casinos
- Legislature
- Army of trainers



67

67

Anniston, Alabama Training Facility FEMA

- Hospital Training Facility
- December, 2018 visit



68

68

Anniston, Alabama Training Facility FEMA



- May 6,7 2019 visit to Las Vegas
- Designing “No notice mass casualty course” – penetrating trauma

69

69

What if more Victims Were
Children?

70


70

WRAP-EM-EM: PEDIATRIC All Hazards Preparedness

- Active Threats/MCI
- Burn
- CBRN/ID
- Deployable Assets
- Education/IS-IT
- EMSC/Peds Readiness
- Gap Analysis
- Mental Health
- Patient Movement/Tracking
- Surge
- Telemedicine
- Hospital Reception Site
- Public-Facing Website:
<https://wrap-em.org/index.php>



71








WRAP-EM
Western Regional Alliance for
Pediatric Emergency Management

Pediatric MCI Preparedness Survey

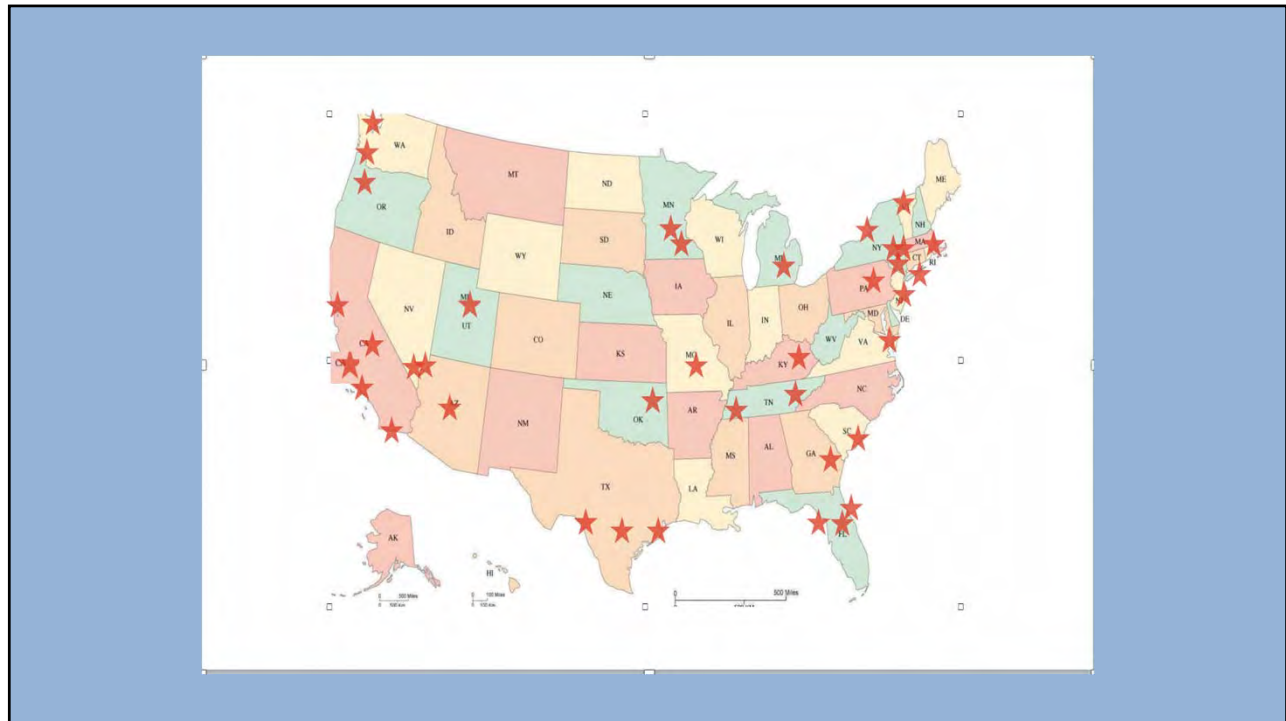
PEMNAC EM Directors

Jay Fisher, MD, Pediatric Emergency Medicine

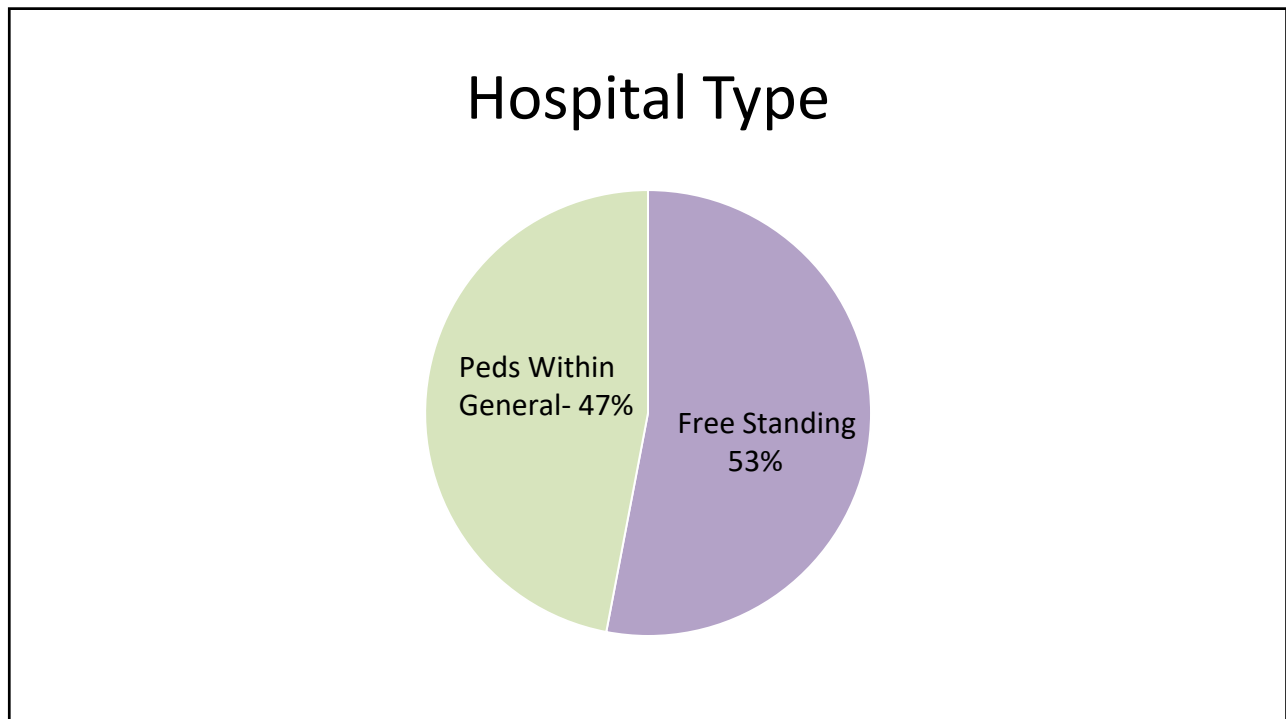




72

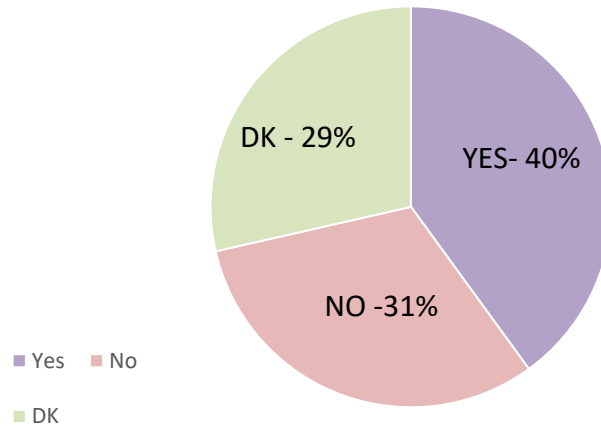


73



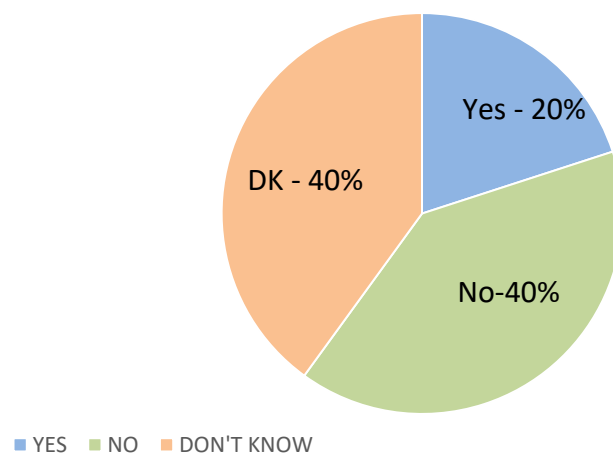
74

CAT Tourniquets – Only Size Available



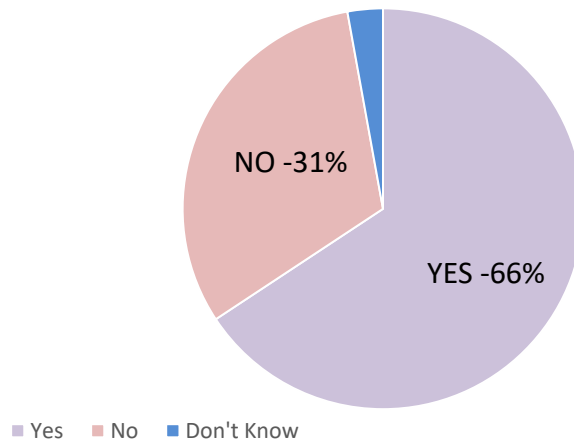
75

“SWAT-T” (pediatric size)



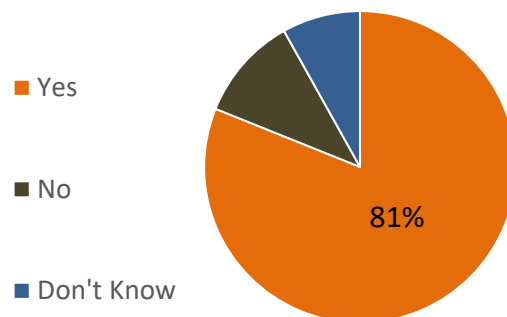
76

10 Peds Intubation Kits



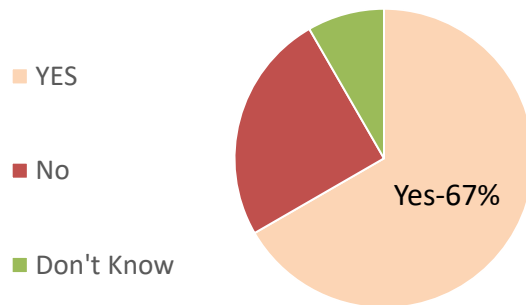
77

Table Top In Last 24 Months that includes Pediatric Patients



78

Full Scale Exercise for Pediatric Disasters



79

Best Practices

- Several centers - “Collaborate with County/Govt Organizations”
- Pediatric Disaster charting in the EMR
- Separate ‘cach’ of specific equipment
 - Endotracheal tubes
 - Laryngoscopy blades
 - Chest tubes
 - SWAT-T (Pediatric Tourniquet)
 - Broselow Tapes
- Massive Transfusion Protocols that include pediatric patients
- Specialized course/incorporation in other disaster training courses?

80

2021 Omaha Area
Trauma Symposium

Creighton
UNIVERSITY
Center for Professional
and Corporate Excellence

Mass Casualty Incident: Lessons Learned from One October Shooting in LV: Preparing for the Future

QUESTIONS?

deborah.kuhls@unlv.edu

UNLV | School of
MEDICINE

