Sudden Impact Mass Casualty Incidents Response and Planning

Charles M. Little, DO FACEP
University of Colorado Denver
Can Multiple Untriaged/Untreated “Battlefield” Casualties Happen Here?

Fort Hood, TX

Joplin, MO

Aurora, CO
0039: First 911 call

0041: First officers on scene

0049: First patients to Aurora South

0054: Request to transport victims by police car

0055: Request notification of all hospitals

0056: Notified of 3-5 GSW victims likely to ED

0057: Dr Kim notifies General Surgery of likely GSW victims

0100: First patient arrives at University Hospital

Assemble Pts
Situational Awareness

• Police initially unaware of patient numbers

• EMS unaware of numbers of patients
  – Low response level
  – This triggers police transport

• Hospitals expecting 1-2 victims initially
Fire Course

• 1st response unit, ambulance, chief, engine
• Later report added 2\textsuperscript{nd} ambulance and 3\textsuperscript{rd} routine
• Attempted to set up staging area with casualty officer and run divisions
• These individuals not “chosen” and not on radio net
• No unified command until over 30 minutes
UCH Facility Information

• Current facility is Level 2 Trauma center
• Currently licensed for 407 beds
• Major teaching institution
  – Many residents in hospital

• Older ED built for lower volume

• Capacity problems with admissions leading to ED boarding
The University of Colorado Hospital
Emergency Department- Active Area

- 1 STARR room with two beds
- 34 rooms (red, green, yellow)
- 10 regular hall beds
- 1 ENT room
- 2 minor casualty rooms
The State of the Department at 0100 on 7/20/12

- 49 patients in the emergency department
- 25 patients currently admitted without an available bed in the hospital (“boarders”)
- 11 patients in the waiting room
  - 2 patients ESI level 2
  - 8 patients ESI level 3
  - 1 patient ESI level 4
- On divert (placed on divert at 1900 on 7/19/12)
Incident Timeline

01:01  First patient is taken from private car

- Patient describes the scene in Theater 9:
  - “gas canisters” – “black clad gunman” – “shooting”
  - “screaming”
- Nine APD cars, several private vehicles, and one ambulance arrived at ED doors
- Many patrol cars had 3 victims slumped inside
- One and only ambulance had 3 victims
- Patients arrived as “war casualties” instead of usual ambulance condition
Organized Chaos
MCI preparation begins:
- Call for blood
- Prep STARR rooms
- Call by Dr. Kim to general surgery of possible MCI
- Dr. Kim (R2) to STARR B
- Dr. Mackenzie (R1) to STARR A
- Dr. Johnson (R3) to doorway of STARR rooms

Emergency Department Course

0100
- 4mM, private vehicle, dropped, hall 1

0110
- 20’s F, ran, GSW ext triage
- 20’s F, private vehicle, GSW ext, hall 1
- Teenage F, police, GSW to torso ext, STARR B
- Teenage M, police, GSW to head, STARR A
- Teenage F, police, GSW to head, disaster area
- 30’s M, police, GSW to torso ext, STARR B
- 20’s M, police, GSW to head, disaster area
- Teenage M, police, GSW torso/abdomen, STARR B1
- Teenage F, police, GSW head
- 20’s M, police, GSW upper and lower ext, hall room 4
- 30’s M, police, GSW bil ext and face, hall 6
- 18F, police, GSW LLE, hall 3b

0120
- 40’s F, police, GSW upper and low ext, no pulse ext, hall room 4
- Teenage F, police, triage, mult abrasions
- 20’s M, police, eviscerated abdomen, STARR A2
- 14 M, EMS, GSW lumbar back, hall at room 15
- 20’s M, police, GSW R chest, hall 6

0130
- 30’s, police, GSW R chest, hall 6
- 20’s M, EMS, GSW upper and lower ext, hall 3a
## Incident Timeline

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01:05</td>
<td>Administrator on-call, CNO and CEO notified and en route to hospital</td>
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<tr>
<td>01:30</td>
<td>Hospital incident commander position filled; initial coordination done from the ED</td>
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<tr>
<td>01:30</td>
<td>House manager alerted OR and PACU</td>
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<tr>
<td>01:31</td>
<td>Internal call-down lists activated in OR, PACU, inpatient units and support departments</td>
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Emergency Department Course

18 y/o M GSW to head, CT

- Plan-D initiated
  - internal disaster command center
  - departmental call downs begin
  - additional nurses called in
  - ICU and floor nurses to ED
  - initiation of admitted patients transported to PACA, floors, hallways
Teen M GSW to head, CT

30’s M, private vehicle, with GSW hand, hip pain, triage

30’s F, private vehicle, GSW to lower ext and lac R foot

Teen M, chest tube to L chest

30’s M, GSW chest, chest tube to chest, MICU attending

20’s F, evisceration, intubated Dr Johnson

20’s M GSW to R chest/abdomen, CXR

30’s M GSW to chest/abd, CXR

30’s M GSW to R chest/abdomen, CXR

Plan-D initiated
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30’s M, GSW chest, obtunded, decreased BP and 70% NRB, to STARR A

20’s M GSW to head, CT

20’s M, GSW head, R femoral line, Dr. Kim and Dr. Johnson

20’s M, GSW head, intubated by anesthesia
Emergency Department Course

Teen M GSW to head, CT

30’s F, private vehicle, GSW to lower ext and lac R foot

30’s M, private vehicle, with GSW hand, hip pain, triage

Teen M, chest tube to L chest

20’s M GSW to head, CT

30’s M GSW to R chest/ abdomen, CXR

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- Teen M, chest tube to chest
- 30’s M, GSW chest, chest tube to chest, MICU attending
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- 30’s M GSW to R chest/abdomen, CXR
- 30’s M, GSW chest, obtunded, decreased BP and intubated STARR A
- 23M GSW to head, CT
- 20’s M, GSW head, R femoral line, Dr. Kim and Dr. Johnson
- 20’s M, GSW head, intubated by anesthesia

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  - internal disaster command center
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Emergency Department Course

0130 0140 0200

Teen M GSW head, CT

30's M, private vehicle, GSW hand, hip pain, triage

Teen M, chest tube to chest

30's M GSW to chest/abd, CXR

30’s F, private vehicle, GSW to lower ext and lac foot

Teen F, expanding neck hematoma

23M GSW to head, CT

30’s M GSW chest, chest tube to chest, MICU attending

30’s M GSW to R chest/abdomen, CXR

20’s F, evisceration, intubated Dr Johnson

30’s M, GSW chest, obtunded, decreased BP and intubated STARR A

20’s M, GSW head, R femoral line, Dr. Kim and Dr. Johnson

20’s M, GSW head, intubated by anesthesia

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-additional nurses called in
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Teen M GSW head, CT

Teen M, chest tube to chest

30’s M, GSW hand, hip pain, triage

30’s F, private vehicle, GSW lower ext and lac foot

30’s M, GSW chest, chest tube to chest, MICU attending

Teen F, expanding neck hematoma, intubated by MICU attending fiberoptic scope

Teen M GSW to chest/abd, CXR

30’s M GSW chest, abdomen, CXR

23M GSW to head, CT

20’s M, GSW head, R femoral line, Dr. Kim and Dr. Johnson

20’s M, GSW head, intubated by anesthesia

20’s F, evisceration, intubated Dr Johnson
ED Response

• No time for planned response
  – Normal triage and disaster carts not out
  – CS depo pushes some material up

• Nursing administration arrived early
  – Triggered by EMSSystems alert
  – Did not call in nurses

• ED Physicians
  – Relied on internal hospital resources
  – Did not initiated physician call down
  – ED physician admin unaware of event
Incident Timeline

02:00  Plan-D announced overhead and operations move to the hospital command center

02:10  Managers and directors from all departments begin arriving

02:30  Arrangements made to stand up PACU as inpatient unit; open as many ICU beds as possible
Hospital Priorities

• Initial Priorities
  – OR/PACU/ICU/ED Staffing
  – Off-load ED to PACU
  – Augment ED Staffing
  – Medical supplies
  – Patient families
  – Behavioral Health
  – Security
  – Hot Line
Emergency Department Course

30's M, intubated, Dr Johnson

40's M, private vehicle, R eye pain, hall 1

40's F, GSW upper and lower ext, to CT scanner for run off
30’s M, intubated, by Dr Johnson

Teen M, GSW lower back to CT scanner for abdomen/ pelvis

30’s M, chest, CT scanner for chest

Teen F, GSW to neck and chest, chest tube placed by Dr Vandivier

20’s M, GSW head, OR

Teen M, GSW chest/ abd

30’s M, GSW chest, 2nd chest tube placed by Dr Kim and Dr Johnson

40’s M, private vehicle, R eye pain, hall 1

20’s F, private vehicle, abrasions to ribs, triage

60’s M, EMS, hypoglycemic and altered mental status, hall 5

20’s M, status epilepticus, intubated, Dr Johnson

20’s M, private vehicle, 11 seizures throughout day, not clearing, room 3.

30’s M, GSW chest, CT C/A/P

40’s F, GSW upper and lower ext, to CT scanner for run off
Emergency Department Course

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40’s M, private vehicle, R eye pain, hall 1

20’s F, private vehicle, abrasions to ribs, triage

60’s M, EMS, hypoglycemic and altered mental status, hall 5

20’s M, status epilepticus, intubated, Dr Johnson

20’s M, seizures, 6 mg of ativan with continued seizure activity.

20’s M, private vehicle, 11 seizures throughout day, not clearing, room 3.

30’s M, GSW chest, CT C/A/P

40’s F, GSW upper and lower ext, to CT scanner for run off
Casualties Treated

• Total Citywide
  – 58 victims treated in local hospitals
  – 11 dead at scene

• UCH
  – 23 patients would arrive
  – 22 treated (38% of total alive); 1 DOA
    • Of the 22 patients treated:
      – 10 were “treat and release”
      – 12 were hospitalized
      – 8 ICU including 6 trauma surgery
      – 4 Med/Surg
Hospital Response

- Nurses came from inpatient units floors to assist in decompressing ED
  - Many inpatient units doubled RN-to-patient ratios
- Clinical and support departments called in extra personnel
  - Coordinated delivery of 150+ units of blood
  - Supported OR lab
- The words “that is not my job” were never heard
Information Technology/EMR

- Essentially failed initially due to rapid influx of patients with limited ability to input patients
- Pharmacy dispensers opened
- Notes begun on paper on each bed
  - Previous extensive paper disaster process had been dropped with new EMR
  - New process of paper on the bed chart resumed
Hospital Response

• Hospital switchboard handled all incoming calls until hotline could be set up

• The hotline had been in planning stages
  – Went “live” this night

• Purpose of hotline: Answer calls from families and friends searching for victims
  – Hospital Command Center coordinated with APD in getting the names of all the victims at all local hospitals
Hospital Response

• Operating Room
  – Difficult pump case in progress at the time of the event
  – Activated internal call-down list very rapidly
  – 9 operating rooms stood up in <2 hours
    • 4 ORs ready within 30 minutes
    • 6 cases that night

• PACU
  – Off-loaded entire ED yellow zone and ICU patients (14 beds) within 45 minutes
Hospital Response

• Radiology
  – Patients going to OR required scans; staff stayed over; radiologists called in to read
  – Teamwork between ED and Radiology never better
  – >100 studies performed in under 1 hour

• Lab
  – Staff stayed over; others called in to ensure STAT labs performed and reported expeditiously
Hospital Response

- Security
  - Secured entire hospital and maintained control throughout the event
  - Integrated with the numerous law enforcement agencies very effectively
  - Provided a great deal of assistance in managing the news media
  - Got great assistance from Campus Police
Hospital Response

• Media Team
  – Once initial patient care was being handled, quickly became the eye of the storm
  – Were dealing with both the UCH and UCD aspects of the incident throughout
  – Brought in some outside PIO assistance
Hospital Response

• Food and Nutrition
  – Contacted very early on to provide support for staff and victim families

• Supply Chain
  – Contacted early on to backfill medical supplies
  – Ordered disaster caches from Owens-Minor and had them delivered to the dock

• EVS
  – Were anywhere at anytime
Hospital Response

• Spiritual Care and Social Workers
  – Provided assistance to staff, victims and families
  – Conducted initial debrief for ED staff at shift change

• Engineering Services
  – On-duty staff assisted in bringing up stretchers, unloading patients and moving patients
Command Center Structure

The following standard HICS roles/functions were staffed either formally or informally during the incident:

**Command and General Staff**
- Incident Commander
- Operations Section Chief
- Planning Section Chief
- Logistics Section Chief
- Public Information Officer
- Liaison Officer
- Medical/Technical Specialist – Hospital Administration
- Medical/Technical Specialist – Privacy Officer

**Planning Section**
- Patient/Bed Tracking Unit Leader
- Personnel Tracking Unit Leader

**Logistics Section**
- Supply Unit Leader
- Food and Water Unit Leader
Command Center Structure

The following standard HICS roles/functions were staffed either formally or informally during the incident:

**Operations Section**
- Hospital Care Branch Director
- OR/PACU Unit Leader
- OR Team Leader
- PACU Team Leader
- ED Branch Director
- ED Triage Unit Leader
- ED Registration Team Leader
- ED Treatment Area Supervisor

**Operations Section**
- Security Branch Director
- Radiology Unit Leader
- Pharmacy Unit Leader
- Respiratory Therapy Unit Leader
- Clinical Lab Unit Leader
- EVS Unit Leader
- Mental Health Unit Leader
The Aftermath

- The President
- The press
- The investigation
- Ongoing emotional support for staff including debriefings
- Written communications to faculty and staff to keep all informed
- Rumor control – social media
Preparation Counts

• Monthly TTX with senior administrators
  – Induces flexible thinking in admin staff
• Senior staff sent to HCL course in Anniston, AL
• ED has separate planning process tied to the hospital plans
• Supplies rapid response planning
• PACU was cross trained for other roles
Implications For Health Care and Emergency Management

• You cannot train, exercise and drill too much
• Successful patient outcome is dependant on a complex system of direct clinical, clinical support, and non-clinical support activities
• The medical staff needs integrated into EOP
• Activation of ED and Hospital admin staff needs automated
• Activation of disaster supplies should be automated
Implications for Health Care and Emergency Management

- Hospitals will quickly become a major focus of media related activities
- This may require Public Information Officer and Joint Information Center support depending on capabilities
- Patient names/location information is not as easy as you may think – HIPPA
- Law Enforcement interface is critical – patient care/HIPPA issues are tricky
Questions?