Disaster and Mass Casualty Training at a Community Hospital in Israel

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Objectives

• Identify level of security at learner’s institution
• Create a low cost disaster/mass casualty scenario

Introduction (Case Study)

• It is approximately 9 am on a Monday morning
• You are the medical director of a large pediatric trauma center that is affiliated with a large state university (but your hospital is off campus – several miles away)
• You are about to start an outpatient hernia repair
• Your phone receives the following text message from “Buckeye Alert” (university emergency information system):

What are the first questions?

• Is my hospital secure?
• Who (in the hospital) should I notify?
• What information do I need right away?
  – How many victims? (multiple vs. mass casualty)
  – How many perpetrators?
  – How many victims can we (pediatric trauma center) accommodate?
• Should I proceed with the hernia repair?

Multiple vs. Mass Casualty

• Multiple Casualty
  – Activate hospital disaster plan
  – Possibly suspend some normal activities temporarily
  – Manage all patients locally
• Mass Casualty
  – number of casualties exceeds the resources of the local trauma centers
  – Usual standards of care no longer apply
What is the definition of Domestic Terrorism?

- A violent incident perpetrated by someone with a specific ideology
- The perpetrator is typically a “home grown extremist” (HGE)
- There may be multiple perpetrators
- **The hospital’s security may be at risk**

What is an “active shooter incident?”

- Multiple or mass casualties
- Perpetrator still at large when the trauma center begins receiving victims
- There may be multiple perpetrators
- **The hospital’s security may be at risk**

How does a pediatric trauma center prepare for a mass casualty terrorism incident?

- Security Engineering
- Security Personnel
- Disaster Plan
- Look for best practices from places with more experience
- Practice your plan as if you intend to use it

How does a pediatric trauma center prepare for a mass casualty terrorism incident?

- Security Engineering (construction and design)
- Security Personnel (training for disaster/terrorism)
- Disaster Plan (regional trauma system)
- Look for best practices from places with more experience
- Practice your plan as if you intend to use it

Do you see any security issues in this photo?
A health care system with experience…

**General Statistics**

<table>
<thead>
<tr>
<th></th>
<th>Israel</th>
<th>Ohio</th>
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<tbody>
<tr>
<td>Population</td>
<td>8 million</td>
<td>11.5 million</td>
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<tr>
<td>Size</td>
<td>8000 square miles</td>
<td>45,000 square miles</td>
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<tr>
<td>Health Care System</td>
<td>Universal coverage</td>
<td>No military or VA system</td>
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<tr>
<td>Recent conflicts</td>
<td>Local</td>
<td>distant</td>
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<td>Mass Casualty threats</td>
<td>Military conflicts</td>
<td>Weather (tornadoes, floods)</td>
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<tr>
<td></td>
<td>Terrorist attacks</td>
<td>Fires</td>
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<td>Terrorist attacks</td>
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<td>wildfires</td>
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Military Checkpoint east of Kfar Saba

Military Checkpoint

Tanks on Syrian Border, 2013
Meir Hospital, Kfar Saba, Israel

Pedestrian Entrance to Hospital

Decontamination Trolleys

Military Liaison officer with Smart Triage Tags (in Hebrew)
Disaster identification vests

Hazmat gear for decon team members (note water supply)

Emergency Room driveway on a normal day

Dr. Lin (trauma surgeon) explains triage procedure for a mass casualty disaster scenario
ED nursing staff prepares to receive mock trauma victims

Transport staff prepares victims for disaster drill

Disaster victim awaiting triage outside emergency dept.

Orange Dummy + Disaster Scenario = Disaster Victim

Disaster briefing prior to arrival of patients

A nurse checks on a patient in the emergency department.
Severely injured patient undergoing resuscitation by residents and nurses.

“Walking wounded” patient being sent to clinic for treatment.

Severely injured patient heads to OR.

Disaster victim with respiratory distress.

Therapeutic interventions recorded with stickers.

Imaging results for disaster victim (chest film and FAST exam).
ED Resident (left) and nurse assess trauma victim

Dr. Lin redirects residents to penetrating trauma victim

Chest film result for patient with femoral artery injury

Penetrating Trauma to extremity treated with tourniquet

Blood Bank Boss

Post Disaster debriefing
A brief history of pediatric disasters (USA)

- Triangle Shirtwaist Factory Fire – March 25, 1911
- Halifax Explosion – December 6, 1917
- Murrah building bombing – April 19, 1995
- Columbine shooting – April 20, 1999
- Newtown shooting – December 14, 2012
- April 15, 2013 – Boston Marathon Bombing

Triangle Shirtwaist Factory Fire
March 25, 1911

- Location: eighth, ninth, and tenth floors of the 10-story Asch Building in New York City
- Cause: flammable materials in factory, inadequate fire suppression, faulty fire escapes
- Casualties: 146 deaths and 71 non-fatal injuries, mostly immigrant women, but youngest victims were 14 years old
- Cause of death: burns, smoke inhalation, blunt trauma (62 died by jumping)

Halifax Explosion – December 6, 1917

- Location: Halifax, Nova Scotia
- Cause: collision, fire, and explosion involving munitions ship Mont Blanc
- Casualties: 2000 deaths, 9000 injured. Unknown number of children died – but many ran down to the waterfront to watch the fire
- Cause of death: blunt trauma, penetrating trauma, thermal injuries
- Trivia: largest unintentional explosion (and loudest unintentional noise) in history

Murrah building bombing – April 19, 1995

- Location: Oklahoma City, Oklahoma
- Cause: Massive IED (truck bomb)
- Casualties: 168 deaths including 19 children of whom 15 were in daycare in the building. 680 injured
- Cause of Death – mostly blunt trauma
- Comment: worst domestic terrorism incident in USA prior to 9/11; worst perpetrated by home grown extremist

Murrah building bombing – April 19, 1995

- Comment: local pediatric trauma resources were not overburdened because most of the children died.

Columbine shooting – April 20, 1999

- Location: Denver suburbs
- Cause: multiple gunshot wounds
- Casualties: 13 homicides (only 1 adult), 2 suicides, 23 injured
- Cause of death: penetrating trauma
- Comment: most injured patients were taken to adult trauma centers
Newtown shooting – December 14, 2012

- Location: Sandyhook Elementary School in Newtown, CT
- Cause: multiple GSW
- Casualties: 28 total fatalities (20 children) including 1 adult killed outside the school and 1 suicide, 2 injuries (both adults)
- Cause of death: penetrating trauma
- Comment: very few children transported from scene. No child arrived to the ED with signs of life.

April 15, 2013 – Boston Marathon Bombing

- Location: Boston
- Cause: Terrorist Bombing
- Casualties: 3 killed, including 8 year old boy. Several hundred injured, including many who lost limbs
- “At least 9” children injured
- “14-year-old boy with a head injury, a 10-year-old girl with a leg fracture, a 12-year-old with a broken femur, and a 7-year-old boy with a leg injury. Three other children were treated in the emergency room for minor injuries.” ED also cared for a 42 year old. (WaPo)

Regional Disaster Response

Central Ohio Trauma System
- Healthcare Incident Liaison (HIL) – 24/7 pager notification system
- Emergency operations center (EOC) – physical space at COTS with phones and computers
- Surgenet – website for bed status

Recent mass casualty event

2015 botulism outbreak
- April 21, 2015: HIL was paged by local hospital in Lancaster, OH
- Multiple patients with possible exposure to botulism at church pot-luck dinner
- Patient symptoms included slurred speech and drooping eyelids
- 3 admitted to ICU and 7 awaiting triage
- 50-60 people believe to have been exposed

Recent mass casualty event

- COTS HIL activated the Emergency Operations Center
- All hospitals in central Ohio immediately notified of the disaster
- Number of available ICU beds in central Ohio ascertained
- Surgenet (web-based tool) used to track ICU bed availability
- COTS contacted other regional systems outside central Ohio
Recent mass casualty event

• Ohtrac - statewide patient tracking tool used to track all patients involved in the incident
• COTS hosted daily conference calls with hospitals treating patients and state and national resources (CDC)
• A total of 59 patients were assessed or treated for botulism

Do you see any security issues in this photo?

• 17 external doors, only 3 have guards
• Glass walled lobby (no blast protection)
• No perimeter fence
• No guards at parking garages
• Unmarked vehicles allowed in front of building

MILWAUKEE — It was a shocking scene — police firing their guns inside the neonatal unit at Children's Hospital one year ago while new mothers hold with their babies.
Conclusions

- “children only” mass casualty events are rare – most attacks involve adult and pediatric victims
- In a mass casualty event, pediatric hospitals may care for adult patients and adult hospitals care for children
- In a terrorist attack or active shooter situation, hospital security is critical
- Regional trauma systems are crucial to assure the best outcomes in mass casualty events