Counter-Terrorism Medicine

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Pre-Event 50%

- Map All Hazards and prevent them
- Measures all risks and minimize
- Move risk index to Zero (manmade)
- Maximize Safety Measures
- Monetary Fund Allocation
- Monitor Land use risk, policies and procedures
- Manage structural and nonstructural facilities
- Maintain public awareness on disaster

During Event 25%

- Situational Awareness
- Activate ERP
- Geographic Mapping
- Setup Communication Center
- Field Team Deployment
- Setup EOC/ICS/HICS
- Implement Safety Strategy
- Prevent Damage
- Evacuation and Search and Rescue

Post-Event 50%

- Rehabilitation (Physical, Mental, Social)
- Reconstruction and Rebuild
- Repair Damages
- Resources Provisions
- Replace Supplies
- Recover Vital Services
- Reinforce Safety
- Resume life back to norm

Preparedness

Response

Recovery
Terrorist attacks

- *Intentional* incident
- Inflict as much death, destruction, and suffering as possible
- Goal= create widespread public fear
- Achieve political/ideological aims
- Rarely require exit strategy
The Economic Cost of Terrorism

- 2011 $12B
- 2012 $16B
- 2013 $34B
- 2014 $51B
- The future???
Rising Death Toll

Terrorist incidents worldwide

- Injuries
- Deaths
- Number of incidents

Graph showing the increase in terrorist incidents worldwide from 1970 to 2016, with a significant increase in the number of deaths and injuries in recent years.
A Global Problem

2017 Terrorist Attacks

1,041 attacks, 6,501 fatalities
Terrorism in the Literature
What do these attacks have in Common:

- Paris
- Madrid
- Berlin
- Nice
- Boston
- Mumbai
- Las Vegas
Soft Targets, Asymmetry
<table>
<thead>
<tr>
<th></th>
<th>Tokyo</th>
<th>Madrid</th>
<th>London</th>
<th>Mumbai</th>
<th>Moscow/St Petersburg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fatalities</strong></td>
<td>12</td>
<td>191</td>
<td>56</td>
<td>187</td>
<td>27</td>
</tr>
<tr>
<td><strong>Injured</strong></td>
<td>5500</td>
<td>1800</td>
<td>700</td>
<td>871</td>
<td>132</td>
</tr>
<tr>
<td><strong>Time of attack</strong></td>
<td>07.48-08.00</td>
<td>07.39-07.42</td>
<td>08.50 (trains)</td>
<td>09.47 (bus)</td>
<td>18.24 – 18.35</td>
</tr>
<tr>
<td><strong>Number of attack sites</strong></td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td><strong>Initial confusion over the cause of the attack</strong></td>
<td>Yes – during the first hour, calls came from all 15 affected stations, at the time TMACC did not realize it was one cause. (Okumura 1998)</td>
<td>No indication of competing views, it was quickly confirmed that there were four sites caused by terrorism. (Gomez 2007)</td>
<td>Yes - Initially, an electrical power surge was reported, also a train derailment was reported (Lockey 2005)</td>
<td>Yes – confusion over cause remained, villagers reported a loud slap, indicating an explosion (Reuters 2009) also speculations over an electrical fault.</td>
<td></td>
</tr>
<tr>
<td><strong>Ambulances</strong></td>
<td>131 (Okumura 1998)</td>
<td>291 (Ceb 2004)</td>
<td>200 vehicles, 400 staff (eyerman &amp; strom 2008)</td>
<td>Except ambulances going to S.t Petersburg, there were 40-50 ambulances at a collection point in Novgorod.</td>
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<td><strong>Firefighters</strong></td>
<td>Fire department responsible for 182 emergency medical teams and 1,650 emergency medical technicians (Okumura 1998)</td>
<td>200 (Ceb 2004)</td>
<td>250 (eyerman &amp; strom 2008)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Volunteers</strong></td>
<td>500 (Ceb 2004)</td>
<td>Played an important role (LRRR:3)</td>
<td>1000 volunteers turned up at the main hospital</td>
<td>Not in an organized way due to the location, nearby villagers performed the initial response</td>
<td></td>
</tr>
<tr>
<td><strong>Prehospital triage</strong></td>
<td>Triage was done by emergency medical services (under responsibility of the fire department) however a large number victims went to hospitals (Bolling 2007)</td>
<td>No form of triage system using for example color markings was used (Bolling 2007)</td>
<td>Yes, Edgware Road and Tavistock by ambulance service and medically trained bystanders, Aldgate and King’s Cross by London HEMS staff</td>
<td>Villagers became first responders, had to sort out the dead from the living (the New York Times 2009-09-28) No systematic approach seemed to be in place in the later rescue</td>
<td></td>
</tr>
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<td></td>
<td>themselves (Okumura 1998)</td>
<td>68% (at GMUGH (frykberg 2005))</td>
<td>63% (Aylwin 2006)</td>
<td>8% (at King Edward VII Memorial Hospital (lancet))</td>
<td>work (interview)</td>
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<tr>
<td><strong>Over triage</strong></td>
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<td><strong>Field hospitals</strong></td>
<td>Emergency rescue quarters were established at the sites, no decontamination of victims on site (Okumura 1998)</td>
<td>Within 30 min at the four incident sites (Gomez 2007)</td>
<td>Lightly injured persons were taken to hospitals by bus, stopped when the bus bomb took place (fors 2006)</td>
<td>No</td>
<td>A mobile hospital was set up close to the scene</td>
</tr>
<tr>
<td><strong>Immediately dead at scene</strong></td>
<td>177 (9%) (Fuentes 2008)</td>
<td>53 (7%) (Aylwin 2006)</td>
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<td><strong>Critical mortality rate</strong></td>
<td>19.5% (Fuentes 2008)</td>
<td>15% (Aylwin 2006)</td>
<td></td>
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<tr>
<td><strong>“Immediate fatalities + non critical injuries”</strong></td>
<td>82.5% as mild cases, 16.7 moderately 0.78, 5 patients – severely</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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<tr>
<td><strong>Waited for cbre experts to arrive</strong></td>
<td>No</td>
<td>No</td>
<td>No (fors 35)</td>
<td>No</td>
<td>No</td>
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<td><strong>Articulated strategy to avoid overstretching of resources</strong></td>
<td>No, instead all available resources were sent to the first incident site</td>
<td>Yes (Fors 2006)</td>
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<td><strong>Evacuation of commuters</strong></td>
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<td><strong>Total time for evacuation of all commuter</strong></td>
<td>In 2.39 hours (Gomez 2007)</td>
<td>Within 3 hours (home office 2006)</td>
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21st Century Asymmetric Attacks

- Las Vegas Attack 2017
- Brussels Attacks 2016
- Iraq Stadium attack 2016
- Paris Attacks 2015
- Boston Marathon 2013
- Mumbai Attacks 2008
- Madrid Train Bombings 2004
- 9/11 Attacks 2001
WTC attack

- NYC 2001
- Unprecedented
- Total est. economic losses = 30-50 billion USD
- Over 3000 lives lost, 40 nations
- An anomaly…or the shape of things to come?
Madrid Train Bombings 2004
Madrid

- Ten explosions on four trains (13 IEDs)
- Triggered during rush hour
- Detonated near the stations
- Some bombs seemed aimed at rescuers
- 191 dead, 1800 injured
Mumbai Attacks-2008
Mumbai

- 10 attackers came-in by speedboat
- 12 coordinated attacks over 4 days
- Bombings and shootings, hostage-taking
- Police outgunned, city paralyzed
- Many foreigners caught-up in attacks
- Killed 164, Injured 308
Boston Marathon Bombing
Secondary Device
Boston Marathon Bombing

- Two detonations
- Staggered, ? Intended for those fleeing
- Finish line targeted
- 3 dead, 264 injured
Paris Attacks
Paris Attacks

- Three teams, six distinct attacks
- Three suicide bombings in 1 attack, a 4\textsuperscript{th} in another attack
- Shootings in 4 separate attacks
- Two shooters detonated suicide vests as police entered
- 130 killed, 368 injured
Brussels Attacks

- Two bomb attacks, airport and train station
- 30 killed, 260+ injured
Las Vegas-2017

Shooter in high-rise hotel
Attack type:
Mass shooting
Weapons:
AK-47 assault rifles
fully automatic
Armor-penetrating ammunition

Deaths: 58
400+ Non-fatal injuries

1 gunman
Unique Modalities........

- Nice
- Berlin
- London
- Barcelona
- Manchester
- Las Vegas
Commonalities

- Unprecedented
- Asymmetric
- Soft targets
- Multi-modality
- Responders targeted
- No exit strategy
How vulnerable are we?
A Study of 160 Active Shooter Incidents in the United States Between 2000 - 2013: Location Categories

EDUCATION
- Schools (Pre-K to 12), 16.9% (27)
- Institutions of Higher Education, 7.5% (12)

GOVERNMENT
- Other Government Properties, 6.9% (11)
- Military, 3.1% (5)

OPEN SPACE, 9.4% (15)

RESIDENCES, 4.4% (7)

HEALTH CARE FACILITIES, 2.5% (4)

HOUSES OF WORSHIP, 3.8% (6)

COMMERCIAL PROPERTIES, 45.6% (73)
- Businesses, Open to pedestrian traffic, 27.5% (44)
- Businesses, Closed to pedestrian traffic, 14.4% (23)
- Malls, 3.8% (6)

Source: Federal Bureau of Investigation, 2014
What is different about terrorism?

- Preventable (counter-terrorism)
- Risk/vulnerability assessment
  - target selection
- Response (roles)
  - Security
  - Law enforcement
  - Intelligence
Questions for Policy Makers:

- What targets should we worry about?
- How should we prepare?
- What strategies should we adopt?
- How should these be organized?
- Is this different from other types of disasters?
Counter-Terrorism Medicine

- Acts of terrorism should be considered an emerging healthcare crisis
- Mitigation, Preparedness, and Response
- Same principles of Disaster Management apply to terrorist attacks: Scene Safety!
- Think Outside the Box and prepare for asymmetry, multi-modality
Response Strategy

- Identification of a terrorist event (CBRNE)
- Scene Safety- Still active?
- Staggered attack
- Dismantling event
- Patient care
- Remember secondary targeting
Scene Safety: always a priority
Reactive or Proactive?
Counter-Terrorism Medicine

- Target Hardening-EMS, hospitals
- Proactive
- Perform an AVA along with your HVA
- Response “Time Out”
- CBRNE