

# **UNDERSTANDING TERROR MEDICINE**

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# Essential Elements of Terrorism

1. Violence or threat of violence
2. Aimed at noncombatants
3. Intended to influence beliefs, policies, or behavior

**There is no “good” terrorism vs. “bad” terrorism**

# Which Event Prompted More Public Interest and Media Coverage?

- **April 15, 2013—Boston Marathon Bombings:**  
3 killed, many injured. Minimal property damage.
- **April 17, 2013—Texas Fertilizer Plant Explosion:** 15 killed, many injured. 350 buildings damaged or destroyed.

Which Event Prompted More Public Interest and Media Coverage?

**Google Results Compiled Feb. 2017**

**Boston Marathon Bombing: 2,370,000**

**Texas Fertilizer Plant Explosion: 384,000**

# Terror Medicine

Includes aspects of emergency and disaster medicine as well as distinctive features regarding:

- **Preparedness**
- **Incident management**
- **Nature of Injuries**
- **Psychological effects**

# Terror Medicine encompasses

- **Preparedness**

# Oklahoma City: Federal Building Bombing

April 19, 1995 (168 killed, 800 injured)



# Nearby Hospital Received 153 Victims

Nurses run to scene from St. Anthony Hospital, 8 Blocks Away





# Madrid: 4 Trains, 10 Simultaneous Bombs

March 11, 2004 (191 killed, 1,500 injured)



# Nearby Hospital Received 312 Victims



# London: Underground/Bus Bombings

July 7, 2005 (56 killed, 700 injured)



# Nearby Hospital Received 200 Victims



# NEARBY HOSPITAL

<b>EVENT LOCATION</b>	<b>RECEIVING HOSPITAL</b>	<b>PATIENTS RECEIVED</b>
Oklahoma City, 1995	St. Anthony	153
Madrid, 2004	Gregorio Marañon	312
London, 2005	Royal London	200
Mumbai, 2011	Sir JJ	134

# Boston Marathon Bombings, April 15, 2013

## 3 Killed, >200 Injured



# Boston Marathon Bombings Patient Distribution

<b>RECEIVING HOSPITALS</b>	<b>PATIENTS RECEIVED</b>
Massachusetts General	46
Brigham and Women's	38
Beth Israel Deaconess	30
Tufts Medical Center	28
Boston Medical Center	27
Faulkner Hospital	18
Massachusetts Eye and Ear	18
St. Elizabeth's	16
17 Others (each received 1-9 patients)	60
<b>TOTAL</b>	<b>281</b>

# Signal Aspects of Preparedness

- Supplies (type, quantity)
- Equipment
- Structural enhancements (surge capacity, walls/windows, ventilation systems, protected/underground areas)
- Plans/Rehearsals/Exercises



# Terror Medicine encompasses

- Preparedness
- **Incident Management**

# Initial Triage--Scoop and Run (minimal onsite treatment)



**Beware Second or Third  
Device (or More)**

# Missile Hit on Ophthalmology Department

Western Galilee Hospital, July 28, 2006



# Ophthalmology Department

Western Galilee Hospital, July 2006



# 400 Emergency Beds Underground

Western Galilee Hospital, July-August 2006



# Rambam Hospital, Haifa



# Rambam Underground Parking Garage

Completed 2012





# Converted to 2,000 Bed Underground Hospital



# Signal Aspects of Incident Management

- Triage—
  - at scene of incident
  - at hospital entry
- Ambulance inspection at hospital perimeter
- Cellphone lines blocked
- Communications capability between—
  - hospitals
  - hospitals, law enforcement, other authorities
  - hospitals and inquiring families

# Terror Medicine encompasses

- Preparedness
- Incident Management
- **Injuries and Responses**

# Penetrations from Nails/Screws during Terror Attack (14-year old girl at Sbarro's, Aug. 9, 2001)



19



# Cutaneous Anthrax



# Polonium Radiation Poisoning

Alexander Litvinenko

London: Suddenly Ill November 1, 2006, Died 4 Weeks Later



# Signal Aspects of Injuries

- Numerous penetration wounds
- Blast injuries
- Blunt trauma
- Inhalation injuries
- Crush
- Burns
- Effects of biological, chemical, or radiological agents



# Terror Medicine Encompasses

- Preparedness
- Incident Management
- Injuries and Responses
- **Psychological Effects**

# Panel on Terror-Related Stress

## May 30, 2005

Intensity of initial psychological reaction from a terror attack is much higher than from other traumatic events like road accidents.

Dr. Arik Shalev, Director of Psychiatry,  
Hadassah



# Long Term Psycho-Physical Care



# Societal Resilience

Bombing of Café Hillel, Jerusalem, September 2003



# Societal Resilience

Café Hillel Reopened October 2003



# Signal Psychological Issues

- Unusually intense early reaction by people who experience a terror event
- Immediate psychological intervention essential
- Availability of long-term care (psycho-physical)
- Societal resilience

# Terror Medicine: Key Aspects (1)

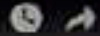
1. After an initial terror attack, beware of second or third follow-up attack.
2. If many casualties, be wary of sending large numbers of patients to one (usually the nearest) hospital.
3. If an event is thought to be deliberate, best to evacuate patients from the area, not to treat on site. Quick evacuation (“Scoop and Run”) means less chance of exposure to follow-up terror attacks. Also, more treatment capabilities are available in a hospital.
4. Consider inspection of all arriving ambulances at perimeter of hospital grounds.
5. If more than one person collapses, convulsing and foaming at mouth, consider an organophosphate exposure (eg., sarin). Unless wearing PPE, moving close to a victim risks responders’ safety.

## Terror Medicine: Key Aspects (2)

6. Close quarter suicide bombing may cause combinations of injuries (penetration, blast, blunt, inhalation, crush, burn) rarely otherwise seen in a single patient.
7. If a hospital receives an imminent bomb threat, consider shutting electronic communication since cellphones may be used to detonate a bomb.
8. Commonly experienced symptoms (fatigue, fever, certain cutaneous lesions, chest pain) may also be signs of a biological or chemical attack.
9. Terror attacks generate more intense fear and anxiety than natural or accidental events. Eg.: suicide bombing vs. automobile accident.
10. Psychologically traumatized victims of terror require immediate treatment to minimize long-term effects.



WARNING Graphic Content: US releases disturbing footage of Syrian nerve gas attacks



Senate Intelligence Committee



Questions?