Lessons Learned from Two Disasters: 9/11 and Super Storm Sandy

Mark A Adelman, MD
Frank J Vahl Professor and Chief, Division of Vascular and Endovascular Surgery
Vice Chairman, Department of Surgery
NYU Langone School of Medicine

Disclosures

- None

September 11, 2001

08:46

- Prepping first case (8 cm proximal pseudoaneurysm-TAA)
- 0846 FIRE at WTC
- 0850 helicopter struck one WTC tower
- 0855 not helicopter-small propeller plane
- 0900 not small propeller plane but commercial jet
- 0905 told second jet struck second WTC tower!!!!
- Patient taken to recovery room
- 0920 established surgical presence in Emergency Dept.
- 0950 Two F-15’s roar directly overhead Bellevue Hosp.
Exodus from downtown

NYU Downtown
1000-1400
Ground Zero
2330-0400
• Team of 20-surgical extraction of rescue teams
  • Surgeons
  • Nurses
  • Anesthesiologists
  • Students
  • Residents

Return to NYU
0400 9/12/01 - 9/14/01
• Virtually no additional recovery
• Medical examiner at NYU
• Shrine to the lost lives
September 11, 2001 Terrorist Attack in NYC: Lessons Learned

- Communication
  - Emergency Radio Network
- Collaboration
  - No unified effort
- Appropriate management of resources
  - STAY HOME
- Rehearse

Hurricane Irene
August 28, 2011

NYU Hospital FULLY EVACUATED

- 12 ft. seawall
- 16 ft. surge predicted
- 8 ft. surge
Superstorm Sandy

- 12 ft. sea wall
- 8 ft. surge predicted
- August of 2011—Hurricane Irene—EVACUATED
- Now sheltered in place
- 14 ft. storm surge combines with up to 90 MPH winds to create massive flooding and disruption

Superstorm Sandy
The Prelude

- Both Bellevue Hospital and Tisch Hospital began preparations
- Pts that could be D/C’d, were D/C’d
- All elective surgeries cancelled
- Over the prior 48hrs, “high risk” pts where transferred from Bellevues’ ICU’s
- Tisch (won’t get fooled again) hunkers down

NYU Langone Medical Center Preparation

- NYU’s Tisch Hospital has 705 beds and 66 operating rooms
- August of 2011—Hurricane Irene—EVACUATED
- Now sheltered in place
- Fair warning-Focused Rapid Discharge Event
Lesson Learned (Communications)

- Email may not be reliable - server went down
- Backup LOCAL!!
- More (decentralized) backup

Are you OK? I'm watching your hospital being evacuated on CNN.
The Move

- Midnight
- 90 minutes of battery power (fuel tanks breached)
- NYFD, experts in rescue, engaged
- At 1AM 10/30 started moving 22 critically ill pts down 15 stories

Questions

- Who travels with the pt?
- Who cares for the pt when the pt gets to the new hospital?
- Do you send staff with the pt? If so, how will they care for the pt?
- Who will write orders?
- How to you learn to navigate an unknown EMR?
- Can there be volunteers to act as a digital scribe for you?
What Do You Do With The Residents? (9 Weeks!)

- Daily lectures
- ACGME and RRC approval
- Created rotations at multiple hospitals
- Constant contact with ACGME and RRC

The Cost - NYU

- Estimated loss >$1 billion+

Lesson Learned

(Planned disaster/Unplanned disaster)

- Communication
- Redundancy (Phone, email, text, RADIO)
- Redundancy (Geographic backup)
- Collaboration
- Command Center (DEMCOH)
- Unified approach
- Allocation of resources
- STAY HOME
- Training/education
- Regulatory
- Credentialing
- Power
- Generators
- Fuel
- Backup Battery
LESSONS—Prepare for the UNIMAGINABLE

“It does not do to leave a dragon out of your calculations, if you live near him.”
—J.R.R. Tolkien

New Emergency Management Team

• Working with NYC DOHMH and NYS DOH on Critical Care planning needs covering:
  • Tripled size of EM and ER team (enterprise wide)
  • Increased depth of leadership
    • Added:
      ▶ Vice President/Incident Commander
      ▶ Two Directors

City Engagement

• Working with NYC DOHMH and NYS DOH on Critical Care planning needs covering:
  • Patient evacuation and tracking
  • Citywide Coastal Storm Planning
  • Periodic surveys on available beds

New Communications Process

• First Call
  • ~300 leadership from all mission areas at Medical Center
  • First notification from Emergency Management + Enterprise Resilience team within 15 minutes of incident

• NYULMC Alert
  • Used in emergencies only
  • Messages can be sent via phone, text, and e-mail
  • Automatically pulls contact information from Human Resources database

Flood Mitigation

• Flood Mitigation around entire Superblock
  • Series of:
    ▶ Tiger Dams
    ▶ Submarine doors
    ▶ Gates
Hospital Response to Disaster: Lessons Learned from 9/11 and Super Storm Sandy
Mark A. Adelman, MD
Frank J. Veith Professor and Chief
Division of Vascular and Endovascular Surgery
Vice Chairman, Department of Surgery
NYU Langone School of Medicine