The Joplin Tornado: The Hospital Story and Lessons Learned

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Learning Objectives

- Participants will gain an understanding of the aftermath of an unexpected natural disaster and impact on health care services.
- Participants will learn how an entire nation responded to the community’s health care needs.
- Participants will receive lessons learned to enhance risk management assessment and safety program planning.
- Participants will receive information regarding building design enhancements to protect against future disasters.
St. John’s – Mercy

May 22, 2011

Before . . .

. . . and After
EF5 Tornado Impact on Joplin

- 13.8 mile long path – \( \frac{3}{4} \) to 1 mile wide
- 8,000 structures destroyed or severely damaged
- 400 business destroyed or severely damaged
- 8 school buildings destroyed or severely damaged
EF5 Tornado Impact on Joplin

- 18,000 vehicles destroyed or severely damaged
- 4,500 jobs displaced
- 161 deaths
EF5 Tornado Impact on St. Johns-Mercy

- Direct Hit
- Windows and Walls blown out
- Portions of roof pulled off
- Building infrastructure severely damaged
  - Generators destroyed
  - All communication lost
  - Water, sprinkler, gas and sewer pipes disrupted
  - Liquid O2 tanks damaged
- Massive debris throughout building
EF5 Tornado Impact on St. Johns-Mercy

- 86 Medical Staff Offices  
  - destroyed or severely damaged
- Medical Office building on property  
  - heavily damaged
- Rehab building heavily  
  - damaged (some generator power)
- Helicopter - destroyed
- Disaster trailer - destroyed
Evacuation

183 patients in hospital

- 1 surgery in progress
- 1 in PACU
- 24 ER
- 28 Critical Care
- 10 Labor/Delivery
Evacuation

Three Collection Points

- West side of building outside Emergency Department
- East side of building
- Conference Center – Later to Rehab Building
Evacuation

Methods of Evacuation

- Ambulatory and Wheel chairs
- Backboards
- Mattresses
- Doors
- Med Sleds
Triage

- Ambulatory and less critical to Rehab Building
- Wheel chairs to Rehab Building via parking lot and vehicles
- Critical to Freeman Health System Emergency Dept
- ED patients and injured to street outside Emergency Dept
Alternate Care Sites

- **Memorial Hall**
  - ED Care – operational for 1 week

- **McAuley High School** (near Memorial Hall)
  - Overflow – operational for 48 hours
Initial Supply Needs

- Memorial Hall
- McAuley High School
- Freeman Health System
Incident Command Centers

- ICC and Alternate ICC on campus both destroyed
- Temporary ICC at Rehab Building to complete patient evacuation
- Initial ICC at Clinic in Neosho, MO
- Hammon’s Convention Center

**Additional ICC Sites**
- Joplin EOC
- Mercy Hospital, Springfield, MO
- Freeman Health Systems

**Command Centers**
- Staging area on St. John’s Property
- Memorial Hall
Initial Challenges

Communication

- Texting and Social Media
- Between ICCs and Command Centers
- PBX – 2500 calls first day in Springfield, MO
- Information Technology needs for ICC
Health System - Response

- Patients
- Coworkers
- Community
Community - Response

- Emergency services mobilized
- University designated site – volunteer assignments
- Coordination with FEMA, US Army Corp of Engineers, Missouri Governor’s office, EPA, CDC, DHHS, CMS, Architects, and Mercy Health
- Town hall meetings - Community master planning
State and National - Response

- Emergency Response
  Missouri National Guard, Corps of Engineers, DMAT

- FEMA

- Missouri Hospital Association

- Volunteers/Donations
Lessons Learned

- You do what you practice/drill
  - Evaluate drills/responses to improve your plan
  - Drill until you fail
  - Add patient slippers/shoes to your weather plan

- When under storm watches, announce periodically to keep staff informed

- Know your contacts
  - Local EOC-Coalition
    Strong community group that plan and drill together
  - State level positions
  - Hospital Association
Lessons Learned - Continued

- Store emergency response supplies where you will need to use them
- Keep shut-off tools near equipment
- Make emergency supplies easily portable
- Grab bags at locations throughout facility
  - Paper and pen
    - Record where patients are evacuated
  - Gloves
  - Flashlights & batteries
- Consider marking rooms that have been searched and evacuated
Lessons Learned - Continued

- Establish communications as rapidly as possible – especially with other key sites
  - Cell phone # - texting

- Respond to disaster situations with ID/badge
  - Educate

- Security needs increase rapidly

- Take care of yourself, your staff and their families
  - Employee Assistant Program (EAP) – debriefing
  - Consider your staffing needs for Day #1 through?
Mobile Medical Unit
Open 7 days after Tornado
Construction Enhancements

- **Windows** with safety glass (withstand up to 250 mph)
- **Protective Zones** with barrier storm doors at hallway ends
- **Back-up Generators** buried underground with power tunneled to hospital
- **Power, Water & Data Communications** with 2 lines from different directions
- **Hallways & Stairwells** with automatic battery-operated lights
- **Ventilator & Newborn Bassinets** equipped with battery backup systems
- **Emergency Grab Bags** with flashlights, batteries, first aid and tools (gloves, crowbars, shovels)
- **Hardened Shell** of precast concrete, concrete roof, mechanical units housed with water-proof boards

Total cost to tornado-proof new facility = 2% of budget ($7 million)
Need picture of building site for new hospital

Mercy Hospital – Joplin

(Completion – Spring, 2015)