



The Joplin Tornado: The Hospital Story and Lessons Learned

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Learning Objectives

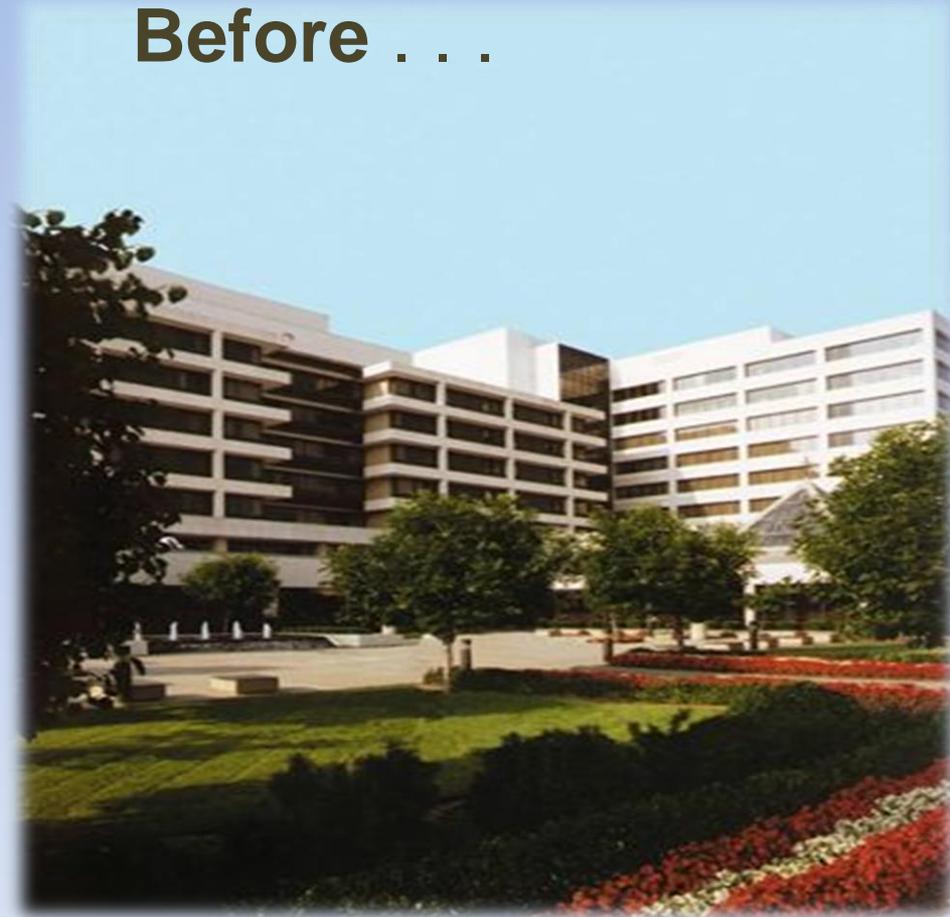
- Participants will gain an understanding of the aftermath of an unexpected natural disaster and impact on health care services
- Participants will learn how an entire nation responded to the community's health care needs
- Participants will receive lessons learned to enhance risk management assessment 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

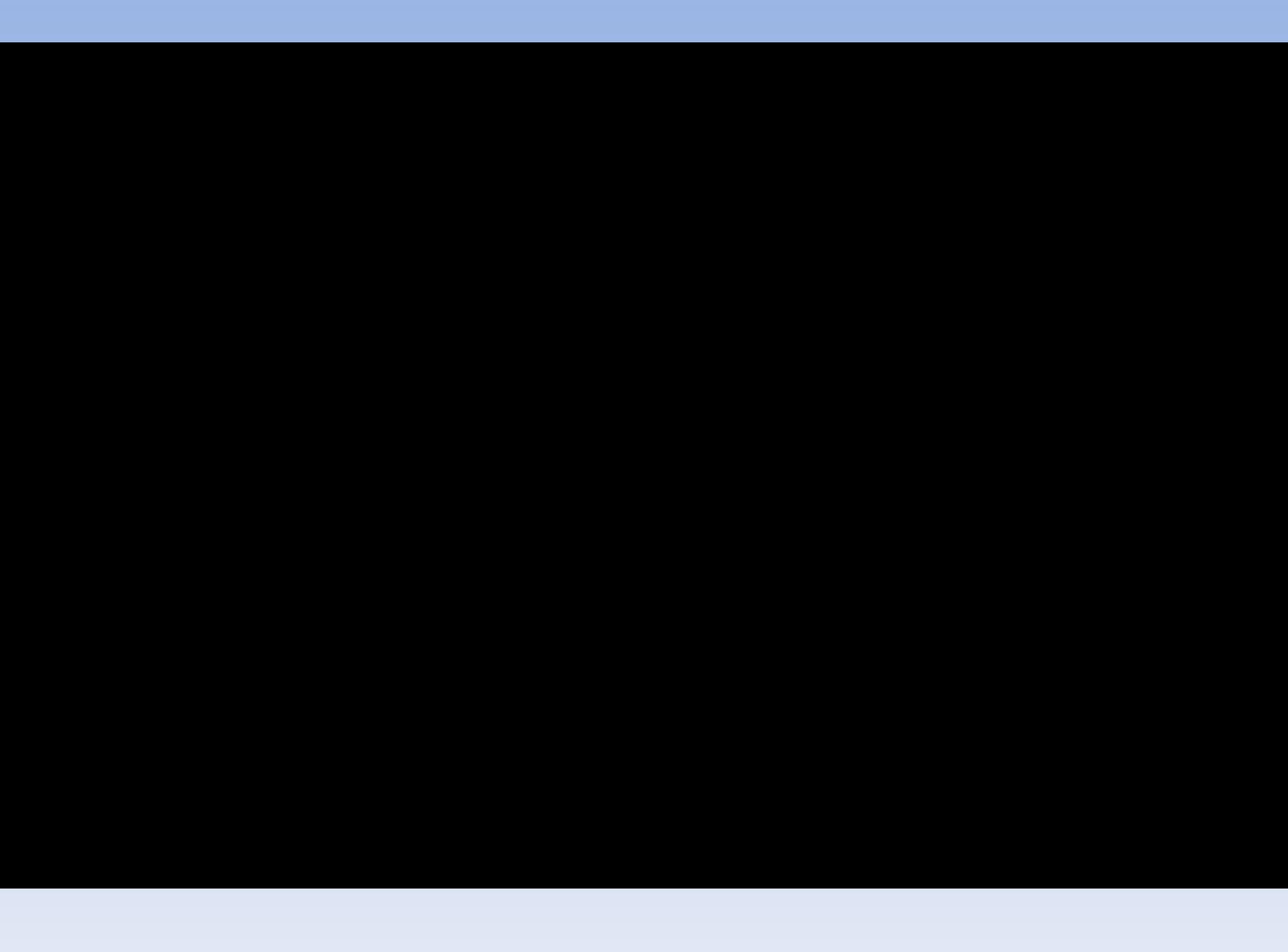












EF5 Tornado Impact on St. Johns-Mercy

- 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









05/24/2011





Tornado Waiting Room.wmv

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

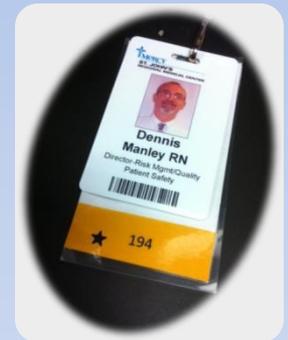
Lessons Learned - *Continued*

- **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?





St. John's
Mercy Hospital



Mobile Medical Unit

Open 7 days after Tornado





OxBlueTM
Construction Camera Service





St. John's
Mercy
Hospital

Registration
Waiting

MERCY
**St. John's
Mercy Hospital**
2817 ST. JOHN'S BOULEV

NO
PARKING
HERE
SECURITY





Main Entrance

Mercy

Mercy



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)







Mercy Hospital – Joplin

(Completion – Spring, 2015)