



# Preparedness and Partnerships:

LESSONS LEARNED FROM THE MISSOURI DISASTERS OF 2011

*A Focus on Joplin*







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## LESSONS LEARNED FROM THE MISSOURI DISASTERS OF 2011

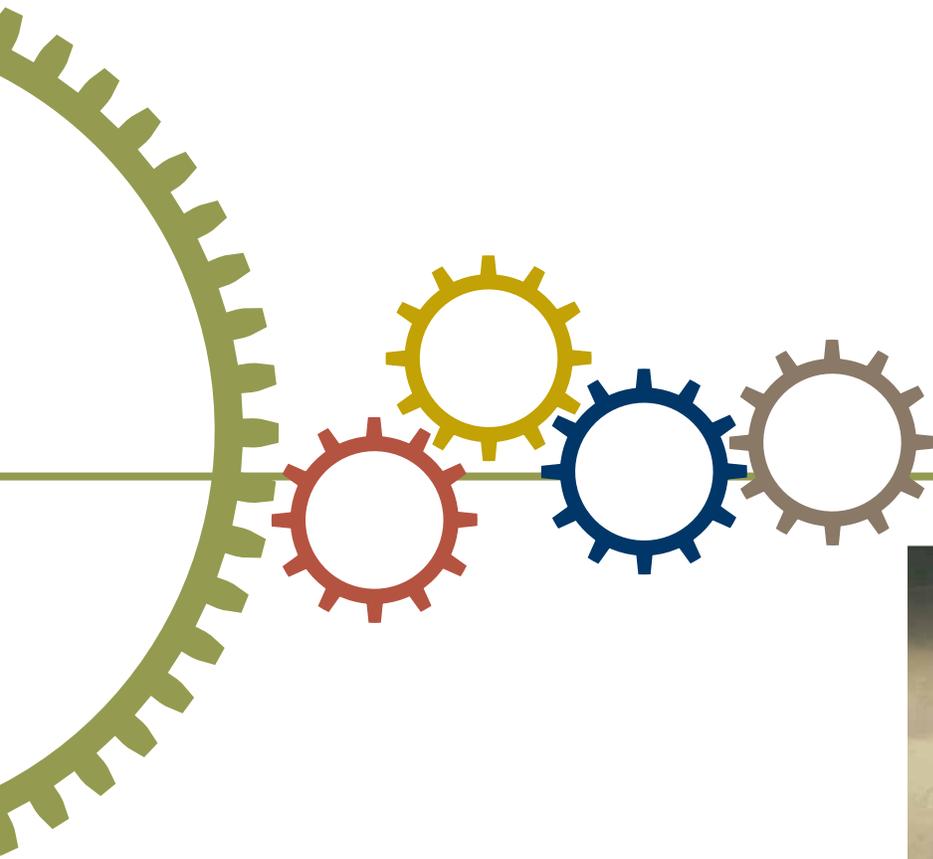
### *A Focus on Joplin*

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*Disclaimer: This report reflects information gathered from many hospital staff through surveys, interviews, presentations and individual and group discussions. The information relates individual and organization-specific identified lessons learned following the 2011 Missouri disasters. This report is intended to serve only as guidance to help other organizations strengthen their emergency preparedness plans. Because each hospital and community have different risks, resources and approaches, information in this report may not be appropriate or applicable in other hospitals, communities or circumstances.*

# *Executive Summary*



### *It pays to prepare.*

No one could have predicted the number and magnitude of the natural disasters that affected Missouri in 2011. But, such is the nature of disasters, and that is why planning and preparedness pays off.

Many hospitals throughout Missouri activated their emergency operations plans and the hospital command centers because of the 2011 disasters. In situations such as the January blizzard and the floods in southeast and northwest Missouri, the activation of both the emergency operations plan (EOP) and incident command (IC) were by all accounts very successful. There was adequate notice and time to prepare, and the communication systems were uninterrupted. Although the financial damage for all three events was substantial, the impact on the health care system was manageable.



Even the sudden and serious tornadoes that struck St. Louis on April 22 and Sedalia on May 24 were disasters that were managed effectively by using existing EOPs and incident command structures. Incident command also was used effectively to manage the response and recovery following an air ambulance crash in northwest Missouri. It is reasonable to state that the preparedness efforts of the past several years have resulted in hospitals being able to effectively activate EOPs and ICS to respond to noncatastrophic disasters.

However, plans and exercises did not fully address the devastation and overwhelming patient surge that resulted when an EF-5 tornado wiped out much of the Joplin community, including nearly one-half of the health care resources. Although

they did not have step-by-step instructions for a response of this magnitude, the EOPs and exercises provided staff with the skills needed to critically think and react with calm, purposeful actions that saved lives.

*The lessons learned from 2011 related to emergency preparedness planning are extensive, including the following key lessons.*

#### **PLANNING**

It is unlikely that an EOP will ever provide exact response instructions, but it does provide staff the critical thinking skills needed to anticipate and respond to a disaster. Emergency preparedness planning must not be an exclusive process; all employees and medical staff must know and understand the EOP. Further, regional and state coordination are essential — know your partners. Plan and exercise together.

#### **COMMUNICATION**

The number one lesson learned always centers on communication. Strategic communication is necessary for coordination with employees, the public and the media, and social media must be part of this strategy. Tactical communication requires redundant forms of equipment that hospital employees are competent to use.

#### **RESOURCES AND ASSETS**

Just-in-time delivery systems are not reliable in disasters; blizzards, floods and catastrophic damage can prevent re-supply or quickly deplete resources. Establishing a dedicated person at the onset of a disaster to evaluate supply levels, monitor use and anticipate needs beyond supplies is a critical responsibility.

## Executive Summary

### SAFETY AND SECURITY

In every Missouri disaster in 2011, the safety of staff, patients and visitors and securing critical resources were urgent needs requiring immediate action. Be aware of imposters and opportunists.

### STAFFING

Perhaps the single most important planning consideration is how to manage and support hospital staff during a response and throughout the recovery. Take care of your staff.

### VOLUNTEERS

During a disaster, people and volunteers will self-present. Have a plan to divert or accept, credential and use volunteers who arrive on scene without basic lodging and food accommodations. The plan should include situations without a coordinating agency to verify individuals' names, credentials and competencies.

Hospital emergency preparedness plans should provide for the following.

- a safe environment
- continuity of operations
- management of a sudden or sustained influx of patients requiring medical assessment and care
- identification of the organization's capabilities and limitations
- coordination with other community and regional partners

### UTILITIES

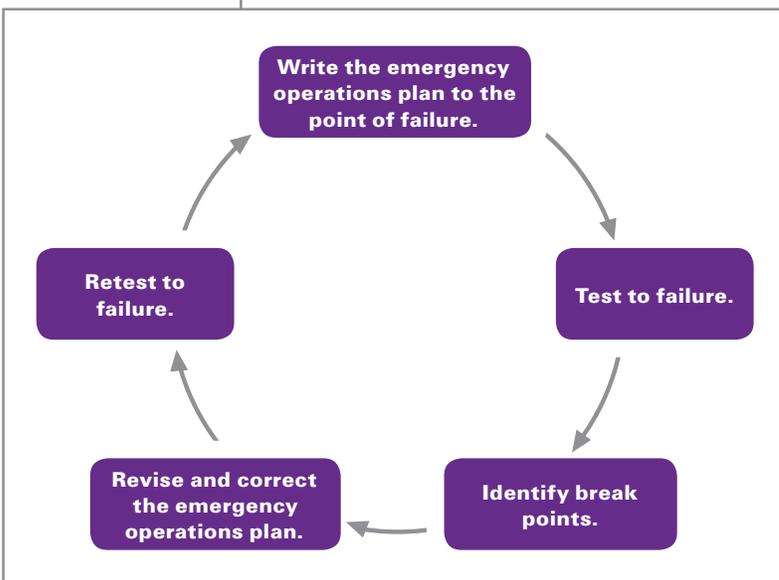
The requirement of a hospital to plan for a safe environment and manage a sudden or sustained influx of patients is not dependent on utilities. Consider redundant systems and agreements for auxiliary sources of water and power.

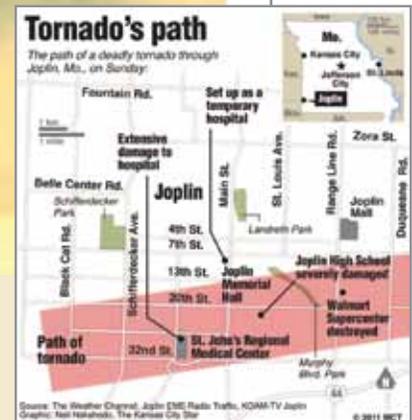
### MEDICAL SURGE

The need to understand the balance between managing a surge of patients and recognizing the need for regional, state or federal resources or support is critical to ensuring patient safety. EOPs must establish detailed procedures for providing patient care in conventional, contingency or crisis settings, and transition plans must be clearly delineated. Planning for medical surge requires innovative solutions to the inherent limitations of staff, supplies and space.

### EVALUATION

Plan for failure! Test to failure! Identify break points. Revise and correct the plan. Retest to failure!





## The Federal Emergency Management Agency Summary of the Joplin Tornado

“On Sunday, May 22, 2011, a catastrophic Enhanced Fujita-5 (EF-5) tornado struck the City of Joplin, Jasper County, and Newton County in southwest Missouri in the late afternoon. With winds in excess of 200 miles per hour (mph), the  $\frac{3}{4}$ -mile-wide tornado cut a 6-mile path of destruction through central Joplin. The tornado caused 161 fatalities and approximately 1,371 injuries as of May 27, 2011, making it the single deadliest U.S. tornado since 1947. Thousands of structures were destroyed or damaged, from single family homes to apartment buildings to large retail and public buildings, including St. John’s Regional Medical Center, the Home Depot, and Wal-Mart.

In the aftermath of the tornado, emergency responders and the public began conducting search and rescue operations in damaged buildings and provided medical care and shelter for survivors. The tornado overwhelmed the capabilities of the City of Joplin, Jasper County, and Newton County, requiring a massive response from Federal, State, county, local, private sector, non-profit, and voluntary organizations. Personnel from more than 400 public safety organizations deployed to Joplin to assist with response and recovery operations.”

*Source: Federal Emergency Management Agency (2011). The response to the 2011 Joplin, Missouri, tornado: lessons learned study. Retrieved April 12, 2012, from <http://kyem.ky.gov/teams/Documents/JoplinTornadoResponseLessonsLearnedReportFEMADecember202011.pdf>*





## Executive Summary

2011 Federal Declarations for Missouri Disasters			
	Severe Winter Storm and Snowstorm	Tornadoes and Spring Storms	Missouri Summer Flooding
Date Disaster Declared	March 23, 2011	May 9, 2011	Aug. 12, 2011
Total Individual Applications Approved	—	6,444	457
Total Individual and Household Dollars Approved	—	\$36,609,085	\$3,100,007
Total Housing Dollars Approved	—	\$22,164,947	\$3,034,439
Total Other Needs — Dollars Approved	—	\$14,444,138	\$65,567
Total Public Assistance Grants — Dollars Obligated	\$9,582,951	\$144,438,174	\$23,794,987
Emergency Work (Categories A-B) — Dollars Obligated	\$6,947,964	\$85,351,894	\$9,273,381
Permanent Work (Categories C-G) — Dollars Obligated	\$2,552,009	\$59,086,280	\$14,521,506
<b>Total Federal Funding Approved or Obligated</b>	<b>\$19,082,924</b>	<b>\$362,094,519</b>	<b>\$53,789,988</b>

Source: Federal Emergency Management Agency (n.d.) Retrieved April 26, 2012, from <http://www.fema.gov/news/event.fema?id=14395>

“In April 2011, two major storm systems deposited record levels of rainfall on the Mississippi River watershed in southeast Missouri. This additional rainfall, combined with the springtime snowmelt, caused the river and many of its tributaries to rise to record levels by early May. The flooding that resulted created the need for a region-wide Tier II Level (health care coalition) coordinated response to the incident. Several hospitals and health care organizations were severely impacted and had to shelter-in-place or evacuate their facilities.”

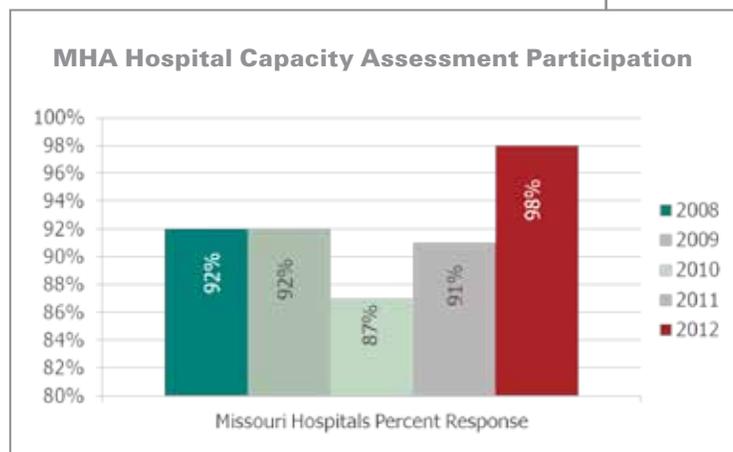
Joy Cauthorn, MSHS, R.N.  
 Safety, Infection Control & Emergency Management Coordinator, Missouri Delta Regional Medical Center  
 Sikeston, Mo.

Hospital leadership and management and emergency planners must continue to make emergency preparedness a top priority within their organizations. The principles of emergency preparedness must be integrated into all aspects of patient care and business operations. The critical roles and responsibilities needed during disaster responses must be thoroughly understood and routinely practiced by those who may assume such roles. Failure to plan and prepare and failure to execute EOPs are the basis for a strong case for litigation against hospitals and their leaders.

This report is a compilation and synthesis of group debriefings, presentations, surveys and interviews from hospital staff involved with the 2011 Missouri disasters, especially Joplin. It is intended to provide further reflection and synthesis while identifying the key lessons learned based on the Joint Commission's categories for hospital and health care system emergency preparedness. The lessons learned already have been broadly shared throughout the state and nation, and work is well under way to strengthen organizational and regional emergency operations planning



in health care facilities. The results of the annual Missouri Hospital Association hospital capacity assessment conducted in February 2012 document significant improvements for Missouri hospitals.



This information specifically is focused on hospitals and does not include the extensive lessons learned from key partner agencies and organizations such as the Missouri State Emergency Management Agency, the Missouri Department of Health and Senior Services, the Missouri Disaster Response System and numerous local and regional organizations. The overall effective responses to each 2011 disaster can be attributed to a strong partnership with many organizations at the local, regional and state levels. Coordination among these partners is the cornerstone for effective emergency preparedness planning, response, recovery and mitigation. This report, coupled with lessons learned from other agencies, will guide further planning and preparedness for hospitals and the communities they serve.

# *The Missouri Hospital Association as a Response Organization*



## *Hospital Employee Relief Operation*

Helping Missouri hospital  
employees recover from disaster

In an act of compassion, many Missouri hospitals and organizations throughout the nation contributed to relief efforts for hospital employees personally affected by the blizzard, floods and tornadoes in 2011. The Hospital Employee Relief Operation™ was developed and managed by the MHA Center for Education staff. All contributions received for the HERO™ fund were distributed to affected employees.

- Nearly \$500,000 was donated to the HERO™ fund from 39 hospitals, 338 individuals, 30 health care associations and 13 vendors.
- Payments were disbursed to 730 employees at 15 MHA-member hospitals who personally were victims of a 2011 Missouri disaster.



***In 2002, MHA assumed a leadership role in hospital emergency preparedness.***

As a result of the 9/11 terrorist attack on the United States and the 2005 Gulf Coast hurricanes, federal grant funding provided an unprecedented opportunity for MHA to help hospitals invest in preparedness. However, in 2011, MHA assumed a new role as a response organization. During the year's floods and blizzards, MHA provided situational awareness, consultation and support to responding hospitals. The Joplin tornado required MHA to assume a primary and ongoing role in advocating for hospital needs and serving as a liaison to coordinate resources, staffing and response.



The Missouri hospital mutual aid agreement, facilitated by MHA and signed by nearly all Missouri hospitals, provided an established legal and financial framework for hospitals to quickly send or receive resources and staff. MHA used the EMResource® for response-related alerts and queries to provide information to assist in coordinating resources deployed through the mutual aid agreement. As a result, the response among hospitals was more efficient and effective and did not depend on state or federal disaster declarations. The resources sent to the Joplin area through MHA's mutual aid agreement were among the

first resources on the scene to support the medical response.



Two key lessons resulted from the activation of MHA's mutual aid agreement. First, there is a need and plan to develop an electronic process, with a redundant printed document, to formally release and accept all resources among the lending and receiving hospitals. This process will increase documentation for reimbursement, including possible reimbursement from the Federal Emergency Management Agency (FEMA). The second lesson is recognizing that the mutual aid agreement is intended for immediate response coordination only and not sustained recovery efforts.

MHA also served as the primary avenue for general tornado-related information and updates to member hospitals. Members depended on daily updates from MHA President Herb Kuhn to provide the most current situational information. Members came to depend on MHA for information and trust MHA's calls for assistance during a disaster.



# *Lessons Learned*



# The Planning Process and Development of the Emergency Operations Plan

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## JOINT COMMISSION EMERGENCY MANAGEMENT STANDARDS

**EM.01.01.01** The hospital engages in **planning** activities prior to developing its written Emergency Operations Plan.

**EM.02.01.01** The hospital has an Emergency Operations **Plan**.

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Governmental entities use the National Incident Management System (NIMS) to provide an overarching structure to unify local, state and federal responses. As defined by FEMA, “NIMS is a set of principles that provides a systematic, proactive approach guiding government agencies at all levels, nongovernmental organizations and the private sector to work seamlessly to prevent, protect against, respond to, recover from and mitigate the effects of incidents, regardless of cause, size, location or complexity, in order to reduce the loss of life or property and harm to the environment.”

Within the NIMS is the Incident Command System (ICS), an integrated management structure established to respond to emergencies of any size and complexity. It is designed to be a flexible and scalable system that must be incorporated into the

EOP. Hospitals may choose to adopt the NIMS — ICS process or a variation of ICS, the Hospital Incident Command System, developed specifically for health care organizations.

It is unlikely that an EOP will ever provide exact response instructions, but it does provide staff with the critical thinking skills needed to anticipate and respond to a disaster. Emergency preparedness planning must not be restricted to a subset of employees and medical staff; all employees must know and understand the emergency operations plan. In addition, regional and state coordination is essential; partners must plan together and exercise together.

In interviews with the hospital CEOs and incident commanders of the three Joplin hospitals following the May 2011 tornado, key successes, observations and lessons learned were identified. Each hospital had a unique experience and structured IC differently based on their required duties, size and impact from the storm. The following are key highlights from each of the three hospitals.



## Lessons Learned

Sunday, May 22, 2011

### PRE-TORNADO STRIKE

Although no hospital in Joplin activated its ICS before the tornado struck, hospital severe weather plans were successfully executed, including a watch status at approximately 1:35 p.m. When the status was elevated to a warning at 5:11 p.m., all three hospitals moved patients into safer, pre-established areas such as hallways. EOPs were implemented as written.

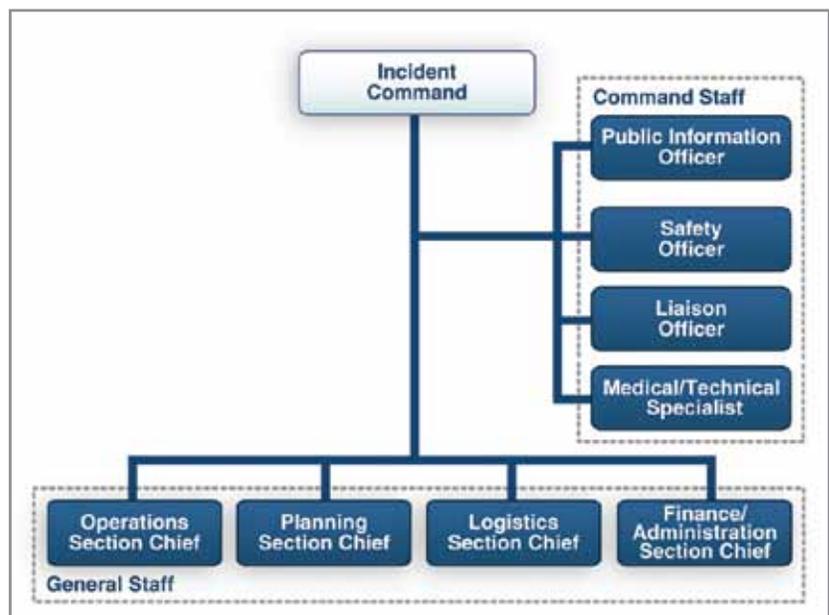
### IMMEDIATELY FOLLOWING THE TORNADO STRIKE: IC RESPONSIBILITIES

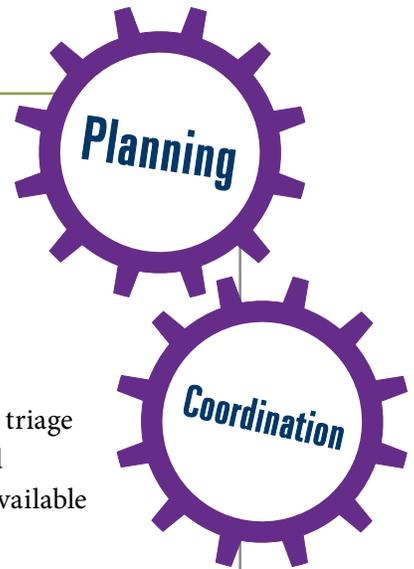
*St. John's Regional Medical Center (hereafter referred to as Mercy Hospital Joplin) — Employee, patient and visitor safety was the absolute priority.*

The initial priority and response was hospital evacuation. The decision to evacuate was indisputable and made immediately at the patient-unit levels. At the time of impact, clinical and nonclinical staff knew to immediately begin evacuation procedures. Previous training with equipment provided the staff with the skills to ensure calm, decisive action.

Because of the urgency for evacuation and need for all staff to be participating in this function, IC duties initially were led by two designated incident commanders on the east and west sides of the hospital where evacuated patients and staff were gathered. The coordination between the two evacuation points was managed by the sheriff's department because the agency had more information on intact structures and could assist with the coordination of patient movement to established off-site areas for continued safe care and treatment.

Mercy Hospital Joplin is part of a multi-state health care system, Mercy. A sister hospital, Mercy Hospital Springfield, as well as other system hospitals and the corporate office, immediately activated all levels of incident command to begin supporting the response using all available resources and staff.





*Landmark Hospital – Joplin — Staff was able to manage responsibilities without significant change of duties.*

The Landmark staff prepared for surge by immediately establishing the lobby as a triage area. Staff designated floor space, including the dialysis unit, for patient surge and recognized the possibility of doubling up patients in private rooms. In addition, available staff left on foot to provide evacuation assistance to Mercy Hospital Joplin.

For the first few hours, the chief operating officer served as the incident commander, which was the only designated position. By late evening, the chief financial officer also was on site and assumed responsibility for documentation.

The staff was able to accommodate a moderate level of surge through the first 24 hours following the tornado. Lessons learned reveal this facility was willing and able to receive more patients and provide additional support to both acute care facilities heavily affected by the tornado and subsequent medical surge.

*“Trust your staff, have confidence in them. An emergency operations plan cannot possibly include every contingency for a disaster. Your staff, if trained, will be calm and will create solutions on the fly. They will do what is humanly impossible, and they will do it with compassion.”*

*Jeff Carrier, R.N., MSM, NE-BC,  
FACHE, Chief Clinical Officer,  
Freeman Health System  
Joplin, Mo.*

*Freeman Health System — The need for incident command was critical and immediate.*

Although the EOP for medical surge did not consider this catastrophic level of surge, the incident commander knew the critical decisions and actions necessary to manage the patient surge. The chief clinical officer, expertly trained in ICS, arrived within minutes and identified the most critical incident command roles and duties, including safety and security, logistics and medical operations. The decision to immediately assess the structural integrity of Freeman West and assign one person the sole responsibility of tracking and requesting critical supplies prevented further complications from the disaster.

The incident commander addressed new problems every few minutes for the first 16 hours, including catastrophic surge and acuity levels, continued lack of communication, the critical need for supplies such as ventilators, lack of water pressure and potable water, decreasing fuel while still on generator power and inadequate morgue space.

## Lessons Learned

### Freeman Health System: Responding to a Catastrophic Medical Surge Incident

The following provides a detailed, but not complete, list of the specific issues and actions identified by the Freeman Health System incident command center during the first 12 hours following the tornado.

#### IMMEDIATE TO FIRST TWO HOURS

##### Situation

- The hospital is on complete generator power.
- Within minutes, approximately 180 patients presented to the emergency department by any and all modes of possible transport with very serious and critical injuries.
- No operating staff or surgeons are on site.
- The hospital is unable to activate staff notification procedures because of a massive power and communications failure; all staff are needed.
- The level of damage to any of the Freeman Health System facilities is unknown.
- The level of damage to Mercy Hospital Joplin and the community is unknown.
- There is no contact with the system's other hospitals, Freeman East or Freeman Neosho.
- There is no contact with anyone outside the building.
- One critical care unit has extensive water leaks because of roof damage; patients are moved.



##### Actions

- *Medical Surge*
  - Request additional assistance for patient transports from area EMS providers.
  - Verify bed availability for system, local and regional health care facilities.
  - Open surgical suites for anticipated high volume of emergent cases.
- *Staffing*
  - Obtain current staffing levels for clinical and nonclinical staff.
- *Resources and Supplies*
  - Inventory current critical medical supplies on site.
  - Open the off-site warehouse and establish transport for needed resupply.

- *Utilities, Communication*

- Obtain structural assessment of main hospital receiving surge.
- Obtain structural assessment of all other system facilities.
- Inspect the facility and grounds for safety-related issues.
- Initiate inspection and provide status update for telecommunication outages.
- Try to establish contact with the local emergency operations center (LEOC).
- Obtain local and regional damage assessment.

## TWO TO FOUR HOURS POST-TORNADO

### Situation

- Estimated 400 patients are in triage areas, and 120 patients are in the emergency department.
- All surgical suites are at 100 percent capacity but fully staffed.
- Triage areas are overflowing.
- Patients present at outlying facilities.
- Nightfall: There is no lighting in parking lot and overflow spaces.
- Water pressure is dropping.
- Storm-related debris on grounds impedes traffic.
- Generators are fully operational.
- Some cellular text communication established, including with MHA.
- Experience infrequent communication with local emergency operations center; every responder and organization is overwhelmed.
- Estimated 70-100 ambulances have arrived in the area.

### Actions

- *Medical Surge*
  - Emergency department is stabilizing critical patients and transferring to regional facilities.
  - Alternative triage and emergency surge areas at main and secondary campus are established and staffed.
  - Stable but wounded patients are being transported on school buses provided by the LEOC to nearby university campus alternate care site.
  - Ventilators and patients requiring ventilators are being coordinated with the area long-term acute care facility.
  - Temporary morgue established.
- *Staffing*
  - Volunteer registration established.
  - Labor pool is prioritizing qualified staff to the emergency and critical care areas.

## Lessons Learned

### Freeman Health System: Responding to a Catastrophic Medical Surge Incident (continued)

#### ■ *Resources and Supplies*

- Request to MHA for additional support and resources.
- Supplies have been restocked from off-site location.
- Closely monitoring critical medical supplies, including ventilators, blood and cervical collars.

#### ■ *Utilities*

- Debris removal is under way, all areas open to emergency traffic.
- Contractor on site; roof repairs are under way.
- Back-up generator and tower lights are established.
- Vaccine inventories have been moved to ensure refrigeration.
- Nutrition and water stations opened throughout hospital for all staff, patients and visitors.

### FOUR TO 12 HOURS POST-TORNADO

#### Situation

- Twenty-two critical surgeries performed.
- Approximately 1,000 patients presented to the facility.
- All critical care, triage and overflow areas are full or over capacity.
- Multiple triage and alternate care site areas are established across the community.
- Clinical and nonclinical staff and volunteers arriving.
- Hospital morgue is at capacity.
- Radiology has limited operability; portable units need to recharge.
- Lab is fully operational.
- Water pressure is at minimal levels, must prepare for extended water outage.
- Full power is estimated to be re-established within 24 hours.
- Communication capabilities are very limited.

#### Actions

- Patients are being transferred as needed to regional facilities.
- Staffing is adequate.
- Volunteers are being credentialed.
- One external phone line is established.
- Amateur radio operations are on site, providing communication with Springfield.
- Water conservation is under way.
- Generator fuel levels are adequate.
- Critical supplies are adequate.

## Mercy: A Local and System Response

The decision to evacuate was evident and immediate. Mercy Hospital Joplin evacuated 183 patients, including 28 critical care patients, in addition to the numerous staff and visitors also in the facility within 90 minutes following the tornado strike. However, their responsibility for patient care did not stop once the patients were safely evacuated. The ICS unified command through Mercy Hospital Joplin and the Mercy system quickly established an alternate care site at Memorial Hall, shown at right, to receive and care for tornado victims. This site had been pre-identified as an alternate care site in the Mercy Hospital Joplin EOP. Mercy Hospital Joplin staff including nurses, health professionals and support staff joined the Mercy affiliated physicians at Memorial Hall to provide care in the hours and days immediately following the tornado.



Mercy Hospital Joplin also established incident command at the Joplin convention center to begin plans for establishing a temporary hospital. Coordinating this with the Missouri Disaster Response system (formerly the Missouri – 1 Disaster Medical Assistance Team), Mercy Hospital Joplin established a temporary hospital and began receiving patients exactly one week after the tornado.

This remarkable coordination required the assistance of the entire Mercy system. Seventeen work streams were developed to support the local and system response and coordinated through unified command at the system's headquarters in St. Louis. The Mercy system supported all of the critical decisions and back office functions needed to ensure a rapid return of health care services for Mercy Hospital Joplin. Key work streams and priorities included the following.



- provision and coordination of care through alternate care sites
- establishing contact with all staff
- confirming the destination of all patients
- security, management of supplies
- management of business interruption and insurance
- media relations
- continued surge at Mercy Hospital Springfield
- establishment of a mobile medical unit to serve as a temporary hospital

## Lessons Learned

*“As the community of Joplin responded and endured the traumatic events that were unfolding, the hospital community in Missouri and neighboring states were activated in a precise and eloquent manner, like the gears in a Rolex watch. Hospital incident commands were established across the region; conference calls between facilities both close and far away were immediately established. This complicated, yet collaborative network of regional response did not occur by chance — regional planning and preparedness was key to the Joplin response.”*

*Jason Henry, B.A., R.N., EMT, Emergency Management Officer, CoxHealth Springfield, Mo.*

### **HOSPITALS ACROSS MISSOURI: READY TO RESPOND**

Hospitals throughout the region and across Missouri and surrounding states quickly prepared to respond to ensure care for the overwhelming number of victims from the tornado. Both Mercy Hospital Springfield and CoxHealth activated their incident command and worked throughout the night with each hospital, receiving more than 100 patients and victims during the initial response phase. Many other acute care, trauma and pediatric hospitals in Missouri and surrounding states received patients from Joplin, easing the catastrophic burden on the local health care system.

Smaller hospitals throughout the region also provided resources and accepted patients into their facilities. Mercy McCune-Brooks and Freeman Neosho, both critical access hospitals, received 1135 waivers of the Social Security Act from the U.S. Secretary of Health and Human Services to temporarily expand capacity. Cox Monett, Mercy Hospital Aurora and Nevada Regional Medical Center all activated incident command, called in staff including physicians, planned for early dismissals and set-up areas to accept additional surge. Everyone was ready to respond.



### **LESSONS LEARNED: INCIDENT COMMAND**

The key incident command themes identified as lessons learned through review of the Joplin tornado include the following.

#### **ICS Staffing**

- The best and the brightest need to be assigned to incident command officer and chief positions. Train staff to be proficient with the expected duties of assigned roles. Have depth in these positions.
- It is essential to have the incident command area secure and not allow unauthorized individuals to enter. Vendors, imposters and media staff will try to enter.
- During initial ICS activation, consider assigning the financial section chief position the concurrent responsibility of scribe. Individuals serving in this role will need detailed information for records, and serving as scribe can assist in this process.
- Consider more than one liaison. Assign one to the local emergency operations center to formally request resources and support. Additional liaisons may be needed to coordinate patient movement and tracking with emergency medical services (EMS) while a liaison to regional health care coalitions and state organizations can request additional support and assistance.



### ICS Operations

- Take time to establish incident command planning meetings and operational periods. Establishing operational periods for one to two hours and stopping to review progress will increase the likelihood that critical issues will be quickly identified and addressed.
- Consider a partial activation of key ICS positions during the watch and warning phases of a weather incident. Determine which staff are available and assign the key ICS roles. If an incident command area requires physical set-up of equipment, consider setting up key pieces, including communication equipment, during the watch and warning phases of a weather incident.
- A health care system with multiple facilities will likely serve as the first line of support for a hospital within that system if additional resources and support are required for response. Hospitals without this organizational structure will likely depend on the regional health care coalition and statewide mutual aid agreement as the first line of support and resources.

### ICS Redundancy

- Consider a secure, off-site location for incident command and to store back-up communication supplies.
- Incident command and EOPs must consider austere conditions, including the need for basic provisions of communication, water, food, clothing, shelter and toilets.
- Maintain an ICS kit of essential printed contact lists, documents and forms. Also include basic supplies such as paper, pens, markers, tape, flashlights, radios and batteries.
- If the disaster response is in multiple locations, especially for one hospital or health care system, establish site-specific incident command that reports to a unified command structure for systemwide coordination. The health care coalitions may serve in this role for hospitals without system affiliation or in larger-scale disasters for all hospitals.

**HOSPITALS  
DEMONSTRATE  
PROGRESS!**

### Missouri Hospital Emergency Preparedness Assessment

Planning	2011	2012	
use a planning committee and formal process for emergency preparedness planning	96%	97%	✓
have a stand-alone emergency preparedness committee	40%	43%	
complete a hospital-specific hazard vulnerability assessment	91%	95%	✓
incorporated the hazard vulnerability assessment into their EOP	88%	98%	✓
activate ICS during the past 12 months	70%	80%	▲
report the EOP allows for a flexible and scalable activation	91%	93%	✓
participate in regional planning activities	95%	95%	✓
participate in a health care coalition	69%	85%	▲

Source: 2011 – 2012 MHA Emergency Preparedness Capacity Assessment

## Lessons Learned

**HOSPITALS  
DEMONSTRATE  
PROGRESS!**

### Missouri Hospital Emergency Preparedness Assessment

National Incident Management System	2009	2010	2011	2012	
adopt NIMS throughout the organization	94%	95%	93%	96%	✓
ensure federal awards (grant money) received support NIMS	100%*	100%*	100%*	100%*	✓
revise and update disaster plans and protocols to include NIMS and the National Response Framework components	92%	95%	95%	98%	✓
participate in interagency mutual aid agreements, including public health and nongovernmental agencies	87%	89%	90%	97%	✓
train appropriate personnel in ICS 100, 200, 700 or equivalent courses	94%	95%	93%	94%	✓
train leadership and disaster response staff in ICS 800 or an equivalent course	85%	87%	84%	86%**	▲
promote NIMS concepts in all organizational disaster-related trainings and exercises	95%	96%	94%	95%	✓
promote and ensure communication and data equipment purchased for the organization that strengthens and enhances interoperability	94%	93%	92%	99%	✓
apply common and consistent terminology in communication plans and standards	96%	97%	97%	99%	✓
use systems, tools and processes to collect and distribute accurate information during an incident or event	93%	92%	96%	99%	✓
manage all events and incidents in accordance with the ICS organizational structure and procedure	90%	93%	93%	96%	✓
include Incident Action Planning and common communication plans in the organizational ICS structure	89%	88%	94%	99%	✓
adopt public information principles, including joint information systems, during an incident or event	92%	91%	92%	97%	✓
ensure public information officer procedures gather, verify, coordinate and disseminate information during an event or incident	94%	92%	93%	98%	✓

\*MHA, Mid-America Regional Council and the St. Louis Area Regional Response System manage this NIMS element.

\*\*The ICS 800 course is now only recommended.

Source: 2009 – 2012 MHA Emergency Preparedness Capacity Assessment

# Communication

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## JOINT COMMISSION EMERGENCY MANAGEMENT STANDARDS

**EM.02.02.01** As part of its Emergency Operations Plan, the hospital prepares for how it will communicate during emergencies.

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Implementation of electronic medical records provides an essential source of redundancy for patient information. For Mercy Hospital Joplin, the implementation of an electronic health record system just weeks before the tornado proved to be essential for tracking patients and families, and it provided coordinated care with minimal interruption following the tornado.

Communication is both a strategic focus of emergency planning and a tactical means of promoting a coordinated regional plan and response during an emergency.

In every disaster, the number one lesson learned centers on communication. Even with disasters such as floods and blizzards that unfold slowly and often times maintain reliable methods of communication, the strategic communication necessary for coordination can become challenging. Who needs to know what? When do they need to know it? Who is going to tell them?

In this era of social media and immediate global dissemination of information, the message conveyed during a disaster is immediately two-directional. The message can no longer be controlled by the organizations and entities responding to the disaster. This requires hospitals to be prepared to respond immediately and coordinate information with others through a joint information center.

As a tactical component of planning and response, the ability to establish communication with other entities is the leading indicator of the success or failure of an EOP. Emergency communications protocols should be well-defined for all staff and regional partners. The redundant forms of communication equipment should be tested and used regularly to increase staff competence. The communication trailers purchased through the federally-funded Hospital Preparedness Program grant and deployed for the Joplin response through MHA's mutual aid agreement provided reliable access to Internet, radio and phone for Freeman Health System, Freeman Neosho and Landmark Hospital - Joplin. These and other regional communication resources should be incorporated into organizational and regional planning.

## Lessons Learned



### LESSONS LEARNED: COMMUNICATION

#### Loss of Information Technology and Phone Systems

- Computers may be lost. Print and store key information in multiple locations throughout the building, including the disaster recall list.
- Text messaging should be included as a redundant form of communication with staff. Include this in the EOP and store all disaster contacts in your phone, as well as in your computer.
- Create grab bags with paper, pencils, printed forms, flashlights and batteries, gloves and masks. Place these throughout the hospital.
- Establish a hotline or billboard system to provide additional communication with staff.



#### Strategic Communications

- Assign a public information officer (PIO) immediately. If the event is communitywide, ensure the PIO is coordinating the messages and media with other PIOs through a joint information center (JIC).
- Social media is both a burden and a tool. Incorporate it as a strategy into your EOP.

- Try to manage expectations among the public, elected officials and media. Have a plan that outlines what information can and cannot be shared and why. Ensure consistency among all PIOs and liaisons.
- Develop a process to receive, validate and disseminate information.
- Meet with local radio and TV stations to establish plans for mass notification of the public or staff.
- Leverage tools such as GIS mapping in your plans. Use GPS systems in your response.

#### Tactical Communications

- Work with regional and state partners to develop the sequential order that redundant forms of tactical communications should be used during an incident. If landlines and cellular phone systems and Internet are not functioning, every hospital responding to or assessing the disaster must move to the same operational mode of communication redundancy.



- If all forms of communication have been interrupted, what is your solution? Runners may not be effective within a facility or community response because they may not be able to reach the assigned designation or may be required to complete other tasks during the communication run.
- Mobile communication systems with satellite and radios provide basic communication and are located throughout Missouri. Become familiar with the regional communication and information technology resources available.
- Amateur radio operators were unable to get to the Joplin area hospitals to assist with communication. Establish agreements with multiple operators and consider a regional amateur radio “strike team.” Drill routinely.
- Request or assign a person with radio expertise to communicate on various radio systems if outside EMS respond to coordinate ambulance and patient movement.
- Ensure common radio frequencies among essential partners. Drill routinely.
- You cannot have too many radios.
- Purchase solar charging stations for cellular phones.

**HOSPITALS  
DEMONSTRATE  
PROGRESS!**

**Missouri Hospital Emergency Preparedness Assessment**

Communication	2009	2010	2011	2012
have dedicated and redundant communications capability	80%	81%	93%	95% ✓
demonstrate two-way communications capability between the incident command and the Tier 2 health care response partners during an exercise or incident	-	74%	80%	80% ▲

Source: 2009 – 2012 MHA Emergency Preparedness Capacity Assessment

## Lessons Learned

### Resources and Assets

#### JOINT COMMISSION EMERGENCY MANAGEMENT STANDARDS

**EM.02.02.03** As part of its Emergency Operations Plan, the hospital prepares for how it will manage resources and assets during emergencies.

Some vendors will seize the opportunity for business. Do not agree to use or accept any resource until the cost and payment is understood. Do not accept a vague reference of donation or delayed negotiation. The statement “we will work out the details later” will cost you money!

The recognition that resources and supplies are critical to response was evident in the review of all the information gathered from the 2011 disasters. Just-in-time delivery systems are not reliable in disasters. Floods, ice, damage or catastrophic medical surge can quickly prevent re-supply or deplete resources. Across Missouri, hospitals anticipated supply interruption before and during the February blizzard, and they made accommodations. Hospitals affected by floods had planned appropriately and did not require emergency support.

Likewise, effective planning was evident in the Joplin tornado response. The Freeman Health System incident commander immediately assigned responsibility to one individual to evaluate supply levels and monitor use. This action resulted in prompt resupply and acquisition of critical supplies. The unified command logistics branch for the Mercy system coordinated and delivered immediate and exact supplies for Mercy Hospital Joplin from their system warehouse in Springfield.



The use of mutual aid agreements, including the one coordinated by MHA, enabled resources from hospitals and other entities to be deployed immediately to the Joplin area. Hospitals were able to work quickly to request and receive needed resources. However, mutual aid and vendor agreements do not guarantee immediate delivery of resources and should not be considered a first-response resource.



## LESSONS LEARNED: RESOURCES AND ASSETS

- Disaster supplies stored away from patient care areas or incident command on heavy, wheeled carts do not move easily through debris or crowded hallways.
- Electronic locks need to have override capabilities that house supervisors or security can execute.
- Identify sources for heavy-duty modes of transportation for supplies and possibly patients through debris fields.
- Debris removal takes time and money.

### **Agreements and memorandums of understanding to provide back-up systems should be considered for:**

- water
- food and meal service for staff, visitors and family; consider mobile kitchens
- fuel
- waste and trash removal
- laundry services
- portable toilet systems
- pharmacies
- radiology supplies

### **Develop To-Go Disaster Kits: These kits should be lightweight totes for easy portability. They should be placed throughout the facility and include the following.**

- paper
- pencils/pens
- markers
- duct tape
- NOAA weather radio
- flashlight
- nutritional bars or MREs
- bottled water
- batteries
- solar chargers for cell phones
- You can never have too many flashlights, batteries, portable radios, headlamps, reflective tape or portable light systems.



## Lessons Learned



### Safety and Security

#### JOINT COMMISSION EMERGENCY MANAGEMENT STANDARDS

**EM.02.02.05** As part of its Emergency Operations Plan, the hospital prepares for how it will manage security and safety during an emergency.

Safety and security are a critical component to any disaster plan and a key priority during response. In every Missouri disaster in 2011, the safety of staff, patients and visitors and securing critical resources were urgent needs requiring immediate action.

Immediately following a significant incident, a surge of media, community citizens or others may likely present to the hospital. Incidents that are of immediate community interest will likely be shared on social networking forums, and people may begin arriving at the hospital in droves. Anticipate the safety and security issues resulting from a surge of the curious and concerned. Build measures into your EOP, including a trigger for immediate activation of security and safety. **Be aware of imposters and opportunists.**

It also is important to regularly communicate any mitigation of safety or security issues during a period of elevated risk. Communication of emergency codes or protocols activated during potential weather events should be repeated at regular intervals to ensure staff beginning new shifts and newly arriving visitors and patients know the current situation. Consider using the code notification as a facilitywide screensaver if the hospital computer systems can be modified for messaging.

**HOSPITALS  
DEMONSTRATE  
PROGRESS!**

#### Missouri Hospital Emergency Preparedness Assessment

Safety and Security	2011	2012	
completed a hospital-specific hazard vulnerability analysis	91%	95%	✓
incorporated the hazard vulnerability assessment into the EOP	88%	98%	✓
have a structured decontamination program	39%	42%	!
hospital-based lab staff are trained in the protocols for referral of clinical samples and associated information to public health labs	71%	72%	▲

Source: 2011 – 2012 MHA Emergency Preparedness Capacity Assessment

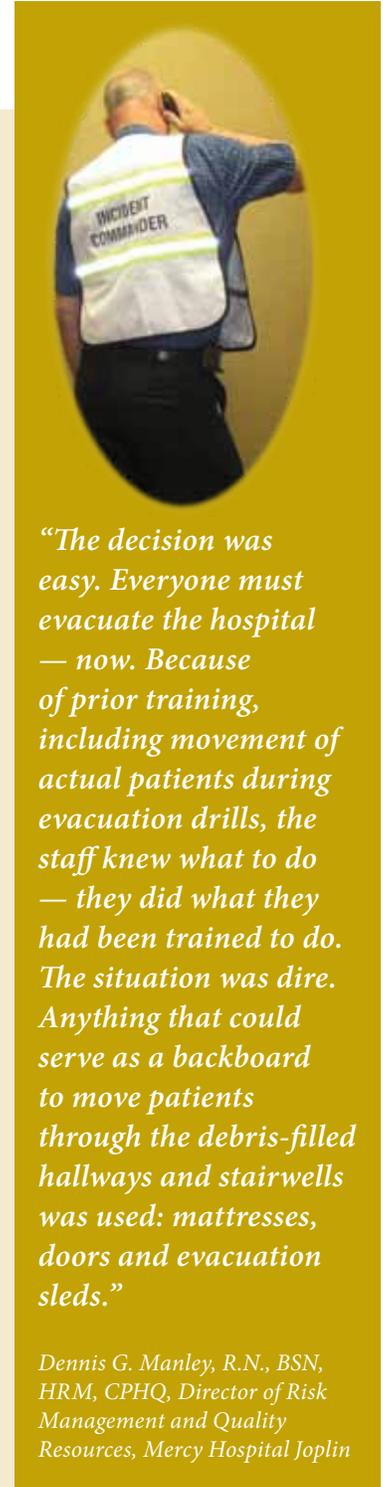


## LESSONS LEARNED: SAFETY AND SECURITY

### Evacuation-Specific Lessons Learned from Mercy Hospital Joplin

The following lessons learned were taken directly from the staff who bravely and immediately acted to save lives.

- Install battery back-up lighting in stairwells.
- Place shoes on patients' beds during initial weather warnings. Keep shoes with patients when moving into hallways during a tornado warning.
- Keep bulk slippers with evacuation equipment.
- Store disaster equipment and supplies, including evacuation equipment, where you will need it (e.g. in storage areas on patient units).
- Package disaster equipment in grab bags and other easily portable systems.
- Infrastructure damage and debris will likely cause injuries to responders. Prepare for medical follow-up.
- In a building with significant or catastrophic damage, doors, mattresses and other flat surfaces can be used for rapid evacuation.
- Always assume a damaged facility is structurally unsound until cleared by structural engineers. Build this assumption into your EOP. In the case of Mercy Hospital Joplin, the need to evacuate was evident, but that may not always be the case. Freeman Health System had to assess their damage and was required to move one unit of patients until the structural assessment and roof repairs were complete.
- You cannot depend on local fire and emergency response personnel to assist with the evacuation during a communitywide disaster.
- If communication systems are down, plans need to include a process for determining and communicating the decision to evacuate following infrastructure damage.
- Identify common gathering points for patients and staff outside the building to provide additional tracking, triage and alternate site transport and coordination.
- Citizens arrived unsolicited to help Mercy Hospital Joplin evacuate and transport patients. Include this situation in your plans.
- Include a method to ensure thorough search and rescue of your hospital during and following an evacuation.



*“The decision was easy. Everyone must evacuate the hospital — now. Because of prior training, including movement of actual patients during evacuation drills, the staff knew what to do — they did what they had been trained to do. The situation was dire. Anything that could serve as a backboard to move patients through the debris-filled hallways and stairwells was used: mattresses, doors and evacuation sleds.”*

*Dennis G. Manley, R.N., BSN, HRM, CPHQ, Director of Risk Management and Quality Resources, Mercy Hospital Joplin*

## *Lessons Learned*

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### **Safety and Security**

During a catastrophic disaster involving significant infrastructure damage to facilities or the community, the following are crucial.

- You cannot depend on local law enforcement for security during a communitywide disaster.
- Ensure staff has multiple identification cards/badges. It is important that verification is strictly enforced for entry into all patient care and IC locations.
- In general, have a plan for immediate lockdown with immediate security reinforcement.
- If immediate and complete lockdown is not possible, consider partial lockdown of patient and incident command areas and plan to divert volunteers, visitors and pets away from patient surge and disaster response areas.
- Develop a security rapid response team in your EOP.
- Consider armed security as a component of the security team.
- Pharmacies and nuclear medicine areas should be guarded with armed security following massive infrastructure damage.
- Ensure security guards can be easily and officially recognized. Contract services need to be identifiable. Consider one standardized uniform and badge system.
- Ensure security cameras are on generator power.
- Anticipate tow trucks arriving at the request of owners to help recover damaged cars. The cars may not belong to the person requesting the tow service.
- High-impact glass withstood the Joplin EF-5 tornado.
- Staff providing care at the hospital may be at increased risk for looting at their homes. Be aware and educate staff of this possibility.
- Following catastrophic facility damage, plan to erect a secure fence around the property perimeter.
- All locations of care will require security, including alternate care sites.

### **Crowd Control**

- Consider plans to try and limit public sheltering in your facility. Consider a lockdown or crowd diversion procedure.
- Use portable flashing roadway signs to divert traffic and reroute staff, patients and visitors.
- Consider emergency lighting systems for parking lots and ancillary spaces that may become areas for surge and triage.
- Have a plan for discharged patients who are unable or unwilling to leave because of the loss of home, utilities or access.





## Staffing Responsibilities — Staffing

### JOINT COMMISSION EMERGENCY MANAGEMENT STANDARDS

**EM.02.02.07** As part of its Emergency Operations Plan, the hospital prepares for how it will manage staff during an emergency.

The experiences of 2011 demonstrated that perhaps the single most important planning consideration is how to manage and support the hospital staff during a response and throughout the recovery. Take care of your staff first.

There is a different mindset if your organization is a “victim” of the disaster that still must respond to the disaster, as compared to an organization or person simply responding to the disaster. Regardless of the size of the disaster — the loss of staff from an air ambulance crash or a hospital destroyed by a tornado, the hospital staff working when the disaster occurs are victims who must respond. Resiliency will be diminished. Consider their immediate needs, including emotional support, personal loss and basic housing and supplies. The need for follow-up and perhaps ongoing emotional support and services is critical and should always be considered.

In the event of a disaster that creates a hardship for a single department in a hospital, it is important to develop staffing relief and redundancy within a hospital EOP. For example, when an air ambulance staff, pilot and patient died in crash in northwest Missouri in August, the emergency department staff of regional hospitals served by the air ambulance was understandably devastated. Consider the logistics required, including computer, medical record and pharmacy dispensing system access, for a replacement team from another department, such as the critical care unit, to respond and manage the routine patients. Planning for department-specific support will provide relief to the affected staff and ensure continuity and quality of safe patient care.



### LESSONS LEARNED: STAFFING

- Immediately plan for relief staff. Long hours and extreme stress result in poor decision making.
- Sustained response requires multiple shifts and operational periods. Anticipate this need and ensure rotation and rest for all staff, including those managing the hospital incident command.

## *Lessons Learned*

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- Consider a requirement to include back-up picture identification that staff must store in several locations, including their wallets, homes and cars. Staff must have identification with them when reporting to a disaster. Their entry likely will not be permitted without it.
- Have a plan for staff who are unable to reach the hospital but able to assist in the response from a remote location.
- Consider an off-site call notification system for back-up if the hospital is damaged and staff is unable to initiate the call notification system because of response or infrastructure limitations.
- Revise staff notification procedures to be event-triggered, such as in the case of a weather event. Event-triggered notification should serve as a proxy for call trees/ phone trees and electronic notification systems to include instructions to take care of family needs and then report to the hospital.
- Ensure your staffing plan addresses how to assign staff if a disaster occurs during a shift change.

### **Staffing Logistics**

- Food and sleeping logistics for staff are challenging. They will need a quiet place for rest, nourishment and emotional support.
- Food and rest accommodations should include family and pets of staff.
- When staffing is augmented through the Missouri Show-Me Response system or MHA's hospital mutual aid agreement, consider there will not be resources to provide access and training on the hospital's electronic medical record system. For this reason and the likelihood of utility failure, hospitals should have an immediate and basic manual charting system that could easily be implemented with just-in-time training. This back-up manual system should be widely available, and staff trained and tested.



## Staffing Responsibilities – Volunteers

### JOINT COMMISSION EMERGENCY MANAGEMENT STANDARDS

- EM.02.02.13** During disasters, the hospital may grant disaster privileges to volunteer licensed independent practitioners.
- EM.02.02.15** During disasters, the hospital may assign disaster responsibilities to volunteer practitioners who are not licensed independent practitioners but who are required by law and regulation to have a license, certification or registration.

During a disaster, people and volunteers will come on their own to help at the hospital. Despite efforts to plan, pre-register and limit the people who self-present, they will continue to show up and may be difficult to manage or turn away. It is important to include a plan to divert or accept, credential and use volunteers who arrive on scene without basic lodging and food accommodations. The plan should include situations without a coordinating agency to verify individuals' names, credentials and competencies.

The Missouri Show-Me Response volunteer credentialing system was established to pre-register health care providers who choose to volunteer their expert skills during a disaster. This system was underutilized during the Joplin response but enrolled approximately 5,000 health care professionals licensed in Missouri as a result of the tornado.



### LESSONS LEARNED: VOLUNTEERS

- Include processes in the EOP to manage both pre-registered and credentialed volunteers and those volunteers who self-deploy and present without a plan or basic supplies for lodging and meals.
- Verify the identity of volunteers to prevent imposters and other opportunists.

**HOSPITALS  
DEMONSTRATE  
PROGRESS!**

#### Missouri Hospital Emergency Preparedness Assessment

Volunteers	2009	2010	2011	2012
have a policy in place to screen and accept potential and willing health volunteers during emergencies when the facility needs staff	60%	61%	71%	76% ▲

Source: 2009 – 2012 MHA Emergency Preparedness Capacity Assessment

## Lessons Learned

### Utilities Management

#### JOINT COMMISSION EMERGENCY MANAGEMENT STANDARDS

**EM.02.02.09** As part of its Emergency Operations Plan, the hospital prepares for how it will manage utilities during an emergency.

#### 2012 MHA Capacity Assessment: Priority Risks Identified by Hospitals

##### Top 3 Internal Risks

- Utility failures
- Fire
- Communications and information technology failures

##### Top 3 External Risks

- Weather-related events (tornado, ice, severe storms)
- Hazardous materials exposure
- Mass casualty events

Source: 2012 MHA Emergency Preparedness Capacity Assessment

A hospital is required to plan for a safe environment and manage a sudden or sustained influx of patients, regardless of the availability of utilities. Understandably, the continuity of operations will be affected by the availability of power and weather, but a hospital must plan for at least some standard of reasonable response. During blizzards, flooding and minor tornado damage, Missouri hospitals demonstrated that redundant systems for utilities were effective. However, the catastrophic damage to Joplin and surrounding communities resulted in a loss of utilities for extended periods of time.



#### LESSONS LEARNED: UTILITIES

- Water is the most critical utility. Ensure deep redundancy in supply of potable and non-potable water systems.

- Power from generators may increase the risk of electrocution and explosions in facilities with catastrophic infrastructure damage.
- Security systems, including cameras, should be on back-up power sources.
- There are never enough emergency-powered outlets, and they are never located in all of the places needed.
- Portable toilets are essential during utility failures with medical surge.

#### **You cannot have too many sources of back-up lighting.**

- Ensure battery and portable lighting systems for parking lots, stairwells and all areas that may serve as patient, visitor and staff overflow have redundant power sources.
- Consider luminescent lighting for stairwells.
- Hands-free battery-powered lighting may be the primary source for patient surge areas.

## Patient, Clinical and Support Activities — Medical Surge



### JOINT COMMISSION EMERGENCY MANAGEMENT STANDARDS

**EM.02.02.11** As part of its Emergency Operations Plan, the hospital prepares for how it will manage patients during emergencies.

Patient care is the core of every hospital's mission and purpose. Caring for patients during and following a disaster is a natural and universal expectation. Understanding the balance between managing a surge of patients and recognizing the need for regional, state or federal resources or support is critical to ensuring patient safety. EOPs must establish detailed procedures for providing patient care in conventional, contingency or crisis settings, and transition plans must be clearly delineated. Planning for medical surge requires innovative solutions to the inherent limitations of staff, supplies and space.



### LESSONS LEARNED: MEDICAL SURGE

- Facility security must be an immediate priority.
- Plans should include a means for basic patient identification and tracking during extreme medical surge and utility failure.
- Surge response plans must include:
  - identified locations for patients who are able to be discharged and unable to leave the facility. Anticipate family and pets will be joining these patients.
  - immediate evacuation of waiting areas for patient surge
  - pre-identified locations within the hospital, including nontraditional areas, for patient care by triage category (life-threatening/immediate, urgent, walking-wounded and expectant)
  - the need for medical gasses in nontraditional areas that may be used for surge
- To ensure basic documentation of patient care, create and store downtime kits with basic patient care forms that can quickly be implemented if there is an information technology and power failure.
- Communication and coordination must be established with EMS, the local emergency operations center, coalitions and health care organizations.
- Drug dispensing machines must be on back-up power. Ensure a manual system is in place to open them.
- Regional plans should include pre-identified triage and alternate care sites in your community and plans for coordinated triage and care management.

## Lessons Learned

- Medical services that are not part of the regional or state response plan will self-deploy. Establish triage and care sites in your community following a significant incident. It is difficult to know which services are legitimate and qualified to provide medical care in a disaster. Include procedures in your plan to assess and determine if the hospital should coordinate with these impromptu services or report them to authorities.

### Alternate Care Sites

- Alternate care sites for evacuation and medical surge overflow require different plans, staff and resources. Both are critical. Overflow sites for medical care should be coordinated and managed with regional health partners. It is not reasonable to assume that one hospital can manage full medical surge at their existing and additional locations.
- Staff at alternate care sites need to be experts and independent problem solvers. Send expert staff to alternate care sites, even if the patient population has less acute illnesses and injuries.
- Ensure the ability to access electronic records from alternate care sites or other redundant and reliable systems for medical records.
- Ensure the ability to access the phone system or other on-demand communication between the hospital and alternate care site.
- EOPs must include methods of transportation to alternate care sites. Consider memorandums of understanding for access to school busses or similar modes of mass transportation.
- Establish triage at the alternate care site for all patients, including those who may have had basic field triage at a previous location. Patients' conditions can and will deteriorate.

### Freeman Health System: Medical Surge

#### Initial Medical Surge From Tornado:

- treated more than **500 patients** at Freeman West
- treated **39 patients** at Freeman Neosho
- performed **22 surgeries in 12 hours**
- received **60\* patient transfers** from Mercy Hospital Joplin
- **transferred 64 patients** to surrounding hospitals

*\*Known patient numbers*

#### Four Days Following the Tornado, the Medical Surge Continues:

- **treated more than 1,000 patients** at Freeman Health System
- **transferred 124 patients** to surrounding hospitals



**Emergency Medical Services —  
Have a plan.**

- The EOP must include procedures to provide situational awareness to EMS, especially with medical surge and communication failures.
- Planning and coordination with EMS is critical! Plan, train and exercise with EMS to coordinate methods for patient identification, tracking and managing the patient movement during catastrophic medical surge.
- The Missouri Disaster Response System (formerly the Mo-1 DMAT) coordinates with law enforcement and emergency operations when establishing an off-site location for medical surge and triage. Because people will seek established health care centers, consider setting up a mobile unit at or near existing hospitals to decompress the hospital patient load.



**HOSPITALS  
ARE REVISING  
EXISTING PLANS!**

**Missouri Hospital Emergency Preparedness Assessment**

Medical Surge	2011	2012
have identified an alternate care site to provide medical surge care while the hospital is still fully operational	60%	65%
an approved comprehensive plan for medical evacuation that includes transportation is included in the EOP	72%	68% !
an approved comprehensive mass fatality plan is included in the EOP	42%	45% !
have no morgue capacity	53%	57%
are part of a larger health system that would be able to provide assets and/or accept patient transfers during a surge event	54%	56%

Source: 2011 – 2012 MHA Emergency Preparedness Capacity Assessment



# References and Acknowledgements

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Paula F. Baker, President/Chief Executive Officer

Jeff M. Carrier, R.N., MSM, NE-BC, FACHE,  
Chief Clinical Officer

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Dennis G. Nicely, FACHE, Chief Executive Officer

Jeremy Mitchell, Controller

Trish Shuler, Chief Clinical Officer

### Mercy Hospital Joplin

Gary Pulsipher, President and Chief Executive Officer

Dennis Manley, R.N., BSN, HRM, CPHQ, Director of Risk Management and Quality Resources

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## MHA Emergency Preparedness Staff

Leslie L. Porth, R.N., MPH  
Vice president of health planning

Carissa Hutson  
Manager of emergency preparedness

Jackie Gatz, MPA  
Director of emergency preparedness

Cindy Soule  
Disaster preparedness coordinator





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P.O. Box 60 • Jefferson City, MO 65102-0060 • Phone: 573/893-3700 • Fax: 573/893-2809 • [www.mhanet.com](http://www.mhanet.com)