



Trajectories

Aim Toward Outcomes

MAY 2016 ■ HOSPITAL PREPAREDNESS: THE INTERSECTION OF RISK, RESILIENCY AND REIMBURSEMENT

Trajectories is a bimonthly publication highlighting Missouri hospital initiatives to improve the health of their communities, as well as the experience and effectiveness of the care provided to their patients.

Hospital preparedness is a high-stakes endeavor. Communities look to their hospitals as a beacon of safety, security and support when emergencies arise. Yet, hospitals must prepare to remain operational throughout these same emergencies.

Five years ago this month, an EF-5 tornado devastated parts of Joplin, Mo., critically damaging Mercy Hospital and challenging the capacity of the local health care infrastructure. Throughout the five years since the tornado, the Joplin community rebuilt and reinvested — including significant investment in a new hospital. From the destruction, the lessons of the Joplin tornado have helped shape the hospital community's planning, training and resource allocation strategies.

For more than a decade, hospitals — and the Missouri Hospital Association through a grant from the Missouri Department of Health and Senior Services — have worked to build preparedness through various investments in equipment, training and collaboration. These investments and activities have been framed around an “all-hazards” approach that is flexible enough to coordinate response and recovery in the event of a natural or man-made emergency.

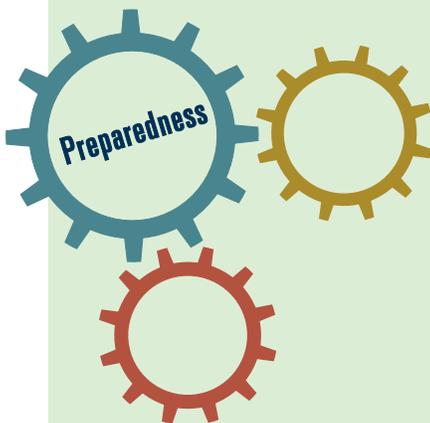
The list of challenges for all-hazards readiness continues to expand. Emerging threats are diverse. Novel and known infectious diseases, and domestic and international cyber criminals present distinct challenges for readiness, response and recovery.

Further, the Centers for Medicare & Medicaid Services is finalizing new preparedness-related Conditions of Participation that could, by the end of 2016, require hospitals and 16 other providers and suppliers to make significant investments in preparedness. This will increase hospitals' preparedness requirements and could lead to increased integration of preparedness functions into hospital operations.

This edition of *Trajectories* will investigate changes to federal payments for preparedness, the status of preparedness in Missouri, including hospital and community resiliency, emerging threats and advice for hospitals about how to integrate preparedness into hospital operations.

Lessons Learned and Emergency Preparedness CoPs

Hospital preparedness has significantly evolved throughout the past 15 years. In Missouri, the lessons of the Joplin tornado continue to drive planning and improvement. Nationally, the lessons learned from the Sept. 11, 2001, terrorist attacks and Hurricane Katrina prompted The Joint Commission to establish an emergency management chapter in 2009 and a requirement of stronger leadership engagement in 2014. It was the recurrence of critical health care operational



failures during Superstorm Sandy, however, that drove CMS to propose new emergency preparedness CoPs for 17 provider and supplier groups in December 2013.

The new CoPs identify the need for all health care organizations to develop a comprehensive emergency management program, to include policies, education and evaluation ensuring staff competency to deliver safe and effective care during a disaster.

Hospitals are the focal points for health care in their respective communities; thus, it is essential that hospitals have the capacity to respond in a timely and appropriate manner in the event of a natural or man-made disaster.ⁱ

The proposed rule is divided into the following five categories.

- risk assessment and planning
- policies and procedures
- communications plan
- training and testing
- emergency and standby power systems

Throughout the rule, hospitals are identified as critical in all elements of a community-based response. “Additionally, since Medicare-participating hospitals are required to evaluate and stabilize every patient seen in the emergency department and evaluate every inpatient at discharge to determine his or her needs and to arrange for post-discharge care as needed, hospitals are in the best position to coordinate emergency preparedness planning with other providers and suppliers in their communities.”ⁱⁱ

The rule was delivered to the Office of Management and Budget on Nov. 4, 2015, and currently is under fiscal review. By statute, the rule must

be finalized prior to December 2016 — three years from its introduction. MHA currently is developing programming to assist hospital staff with the anticipated requirements.

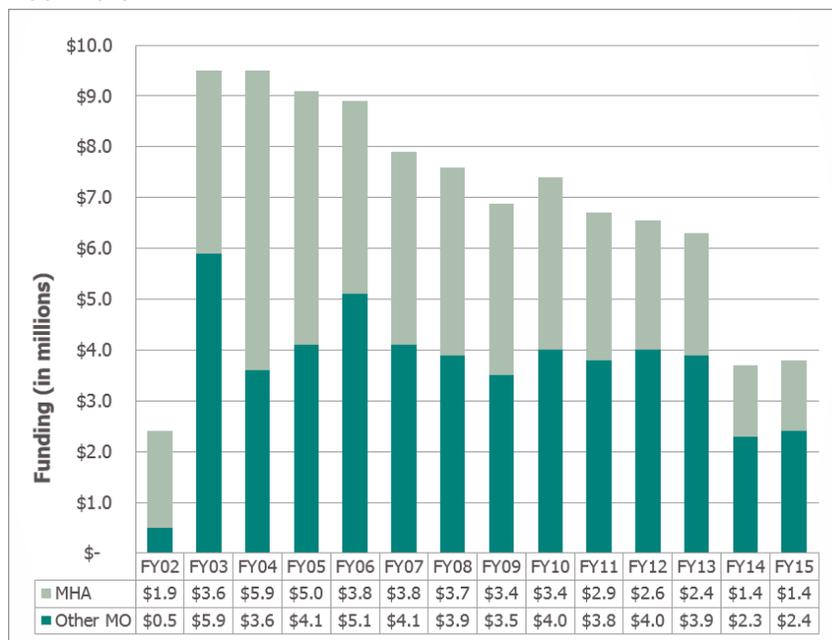
Missouri Hospital Funding and Demonstrated Progress

The majority of Missouri’s funding for hospital emergency preparedness and response has been received through grants from the U.S. Department of Health & Human Services’ Hospital Preparedness Program, administered by the Office of the Assistant Secretary for Preparedness and Response. Since 2002, Missouri has received federal preparedness grants (Figure 1) with an overarching goal of increasing the capacity and capability of our health care delivery system for the purposes of disaster response. The grant funds have afforded Missouri’s health and medical partners the opportunity to strengthen the statewide foundation

for individual organizations upon which to build. This includes, but is not limited to the following.

- Health care coalitions: facilitating communication and coordination of regional health care partners
- EMResource®: electronic reporting tool providing statewide situational awareness
- eICS: electronic incident management tool, to include call notification and documentation for reimbursement and accreditation/licensure requirements
- MHA mutual aid agreement: statewide document to facilitate the sharing of staff and resources among Missouri hospitals
- Standardized, plain language emergency codes to facilitate strategies for worker and patient safety and compliance with the National Incident Management Systemⁱⁱⁱ

Figure 1: Missouri Hospital Preparedness Program Funding 2002-2015



Source: U.S. Department of Health & Human Services, Assistant Secretary for Preparedness and Response. “Other MO” refers to other HPP contractors.

- Deployable, mobile medical assets to include redundant communication systems, medical, respiratory and fatality surge capacity, and personal protective equipment for health care workers

HPP funds have been, and will continue to be, necessary to sustain many of the critical regional and statewide resources currently in place. Recent reductions of the grant program, however, prohibit direct funding at the organizational level to maintain programs for current and emerging threats. This further demonstrates the need for continued efforts organizationally to develop sustainable models of preparedness.

Annually, MHA surveys hospitals regarding preparedness in an effort to direct its organizational strategy and grant operations, while tracking the developing capacity and capability of Missouri hospitals. To date, 124 hospitals have completed the 2016 capacity assessment, representing 85 percent of Missouri’s 21,315 staffed beds. The following provides a summary of hospital activity.

Risk Assessment and Planning

- 119 (96 percent) have completed a hazard vulnerability assessment within the past 12 months
- 73 (59 percent) have integrated identified community/regional hazards and threats into the hospital’s community health needs assessment
- 107 (87 percent) reported that the hospital emergency operations plan addresses scalable medical surge

Operational Coordination

- 123 (99 percent) have adopted an incident command structure for handling emergency events

- 90 (73 percent) report activating an incident command structure for handling emergency events in the last 12 months
- 110 (89 percent) routinely use EMResource® to track and report essential information, such as bed availability, during events, exercises or drills
- 59 (48 percent) use Electronic-ICS to manage and document exercises, drills or real world incidents

Community Engagement

- 112 (90 percent) report being a member of a formal health care coalition for purposes of emergency planning and response
- 106 (85 percent) report participating in at least one exercise with the health care coalition during the past year
- 46 (37 percent) include the time staff spends on regional preparedness and health care coalitions in the hospital community benefit report

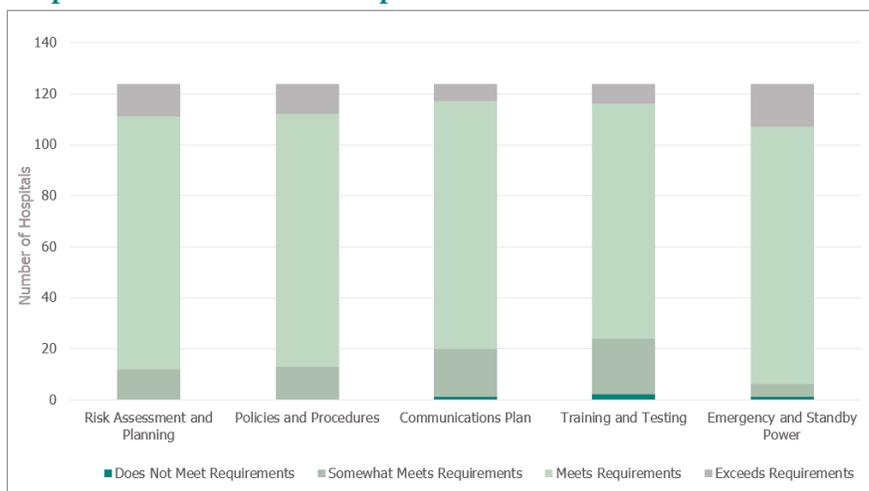
With the anticipated finalization of the proposed rule, MHA also asked hospitals to rate the current level of

compliance by category in the 2016 assessment. Of all survey respondents, 80 percent indicated their current program meets or exceeds the requirements of all five categories (Figure 2).

AVAILABLE THIS SPRING

MHA, using Assistant Secretary for Preparedness and Response Hospital Preparedness Program funds, will distribute two on-demand Web-based educational offerings. The first will discuss the proposed CoPs as they relate to current regulatory and accreditation requirements of hospitals. The second will outline the critical elements of health care continuity of operations with special emphasis on administration, facilities and information technology.

Figure 2: Missouri Hospital-Reported Level of Compliance With Proposed Conditions of Participation



Source: 2016 MHA Hospital Capacity Assessment

New and Emerging Threats

In addition to natural disasters, hospital leaders are closely monitoring the unconventional incidents that result in significant disruptions to the health care delivery system. These events include highly infectious diseases, security threats and cybersecurity. In the area of emerging threats, the all-hazards approach to preparedness planning is critical. An all-hazards emergency management program considers the critical functions of a successful response. Training and exercises focus on developing capacity in the broad activities that most likely will occur during response, regardless of threat. Incident command activation, staff notification, surge management and evacuation/shelter-in-place, are four functional activities that would result for a variety of hazards identified by a risk assessment. Further, ensuring staff competency in fundamental response objectives provides a competitive advantage to the unexpected hazards.

Highly Infectious Diseases

Through 2014, as public health officials monitored the rapidly spreading Ebola virus disease in West Africa, hospitals across the country strengthened surveillance systems to ensure effective safety and infectious-disease practices. The initial lack of understanding of the transmission paths of the virus, as well as hyper-vigilance to adequately outfit health care workers in appropriate personal protective equipment, resulted in a tremendous expenditure of human and financial resources. While these preparedness expenditures have yet to be quantified, the financial burden of not being prepared was evidenced by the declining revenue of Texas Presbyterian Hospital, in Dallas. Following the hospital's failure to recognize and appropriately treat Thomas Eric Duncan, the first Ebola patient diagnosed in

the U.S., the facility reported a decline in revenue of \$8.1 million — a 25 percent decrease from the previous nine months.^{iv}

Investing in daily practices to routinize infectious-disease and hazardous-incident management would reduce the reactionary efforts by hospitals at the onset of each new threat, such as Middle East respiratory syndrome coronavirus (MERS-CoV) and Zika. Further, the efforts would mitigate recurring threats, such as annual influenza and hospital-acquired infections.

Following the identification of the first Ebola patient in Texas, CoxHealth in Springfield, Mo., conducted an assessment to evaluate established systems for response.

Safety and Security

Workplace violence statistics are on the rise, specifically for health care organizations. In 2012, the Bureau of Labor Statistics reported the number of nonfatal occupational injuries involving days away from work at a rate of 15.1 per 10,000 full-time health care workers, compared to a rate of



“While a local threat of Ebola seemed improbable at first, the case in Texas and recognition of our college population and several large religious central headquarters based in Springfield, led us to re-evaluate our preparedness efforts to effectively manage an Ebola patient. Our well-established emergency management program facilitated an incident command system-led evaluation and action plan for EMS, the emergency department,

clinics and hospital operations. Based on previous efforts to develop a robust hazardous materials program, there were very few gaps requiring attention. We leveraged our I8 FEMA-trained first receivers (hazmat operations level) and the functional design of our new ED to develop a strategy to safely receive a patient. We equipped one of our ambulances for any necessary transport by any of our trained HAZMAT technician qualified medics in EMS. The major challenge was the inpatient setting, requiring us to adapt our radiology care unit to meet the special requirements to effectively care for a suspect patient. With an established training program in place, upon requesting staff for inpatient care, I8 nurses volunteered for our treatment team. We also benefited from physician leadership and engagement in our planning process. We increased training offerings, purchased additional personal protective equipment and built a mock room for training, but not at an excessive cost. However, the intangible return on investment was immense if quantified by the level of relief in our organization that we were well prepared for this and other unidentified emerging threats. This was magnified by the level of pride in how our organization came together in a time of need.”

– Ron Prenger, Sr. Vice President and Chief Hospital Officer with CoxHealth in Springfield, Mo.

4 per 10,000 for the private industry overall.^v Considering that many incidents go unreported, the actual number of injuries is likely higher and poses a significant challenge for health care leaders. A recent survey of Missouri hospitals identified the top three internal threats based on the organizational hazard vulnerability analysis. While workplace violence was identified as the most prevalent internal risk by 27 respondents, 51 hospitals reported workplace violence in their top three hazards.

Top Three Internal Threats Identified by Hospital HVAs

	Security/Workplace Violence
	Infrastructure Losses
	Fire

Internally-identified risk does not include the business disruption caused by community-centered civil unrest. Throughout the duration of the Ferguson Grand Jury, leading up to the verdict on Nov. 25, 2014, hospitals in the region employed new strategies to manage the unanticipated impacts to their daily operations. A [webinar series](#) outlining the identified challenges and lessons learned are available to Missouri hospitals.

Cybersecurity and Ransomware Attacks

The current attention on cybersecurity threats and their recognized impact to health care facilities has prompted new preparedness efforts within health care systems. It has become necessary to strengthen existing protocols to protect patient information, medical devices and communication infrastructure; all of which are vulnerable to cyber criminals. The

constantly-evolving threat requires organizations to continuously monitor the situation and adapt security measures accordingly. Most recently, ransomware — referred to more commonly by the variant names of Locky and Samas — are succeeding in business disruption by restricting access to one or all systems until payment is made to return control to the network administrator.^{vi} The pace in which the threat is evolving and the potential exposure and vulnerabilities of those organizations impacted has drastically limited the ability to openly share lessons learned and mitigation strategies. Nationally, hospitals and health care systems are developing internal risk assessment teams and subject matter expertise to remain vigilant. Implementing established incident command system protocols

for situational awareness and tracking has proven successful.

Emerging threats and the negative consequences evident from previous responses — the resource constraints to provide appropriate patient care during Hurricane Katrina, the urgent medical evacuations because of power loss in Superstorm Sandy, the failure to adequately diagnose a suspect patient during the Ebola response at Texas Presbyterian Hospital — support the initiative to adequately prepare medical providers to respond effectively. Hospitals have an opportunity to further develop and sustain their preparedness programs to standardize response actions, strengthen organizational continuity of operations and contribute to a more resilient community.



“Recognizing the ever-changing dynamics of hospital EP for a large and diverse health care system is a challenge. Limited time and resources always play into assessing priorities. How far do we take some of these “but it will never happen here,” or “we are prepared for anything” conversations? We have established response plans for our hospitals based on risk assessments and security incidents that routinely affect hospitals. Nothing we had,

however, prepared us for the civil unrest incidents which occurred in the St. Louis area. Access control to ensure protection of staff and patients while maintaining routine business practices was paramount. This required regular attention throughout the duration of the incident and additional resources. The complexities of managing logistics external to our facilities — home health care delivery, patient discharges, supply chain management — were immense. There were a lot of “lessons learned,” which have led to a more global and systematic review of security policies and the critical interface needed with emergency preparedness. This event showed us the importance of focusing on our mission; being open to new resources; and understanding the community impact of losing a critical infrastructure like a hospital. When you think you have all the bases covered, look just a little harder. The silver lining is, we learned.”

-Debbie Mays, Director of Emergency Preparedness and Safety with BJC Healthcare in St. Louis

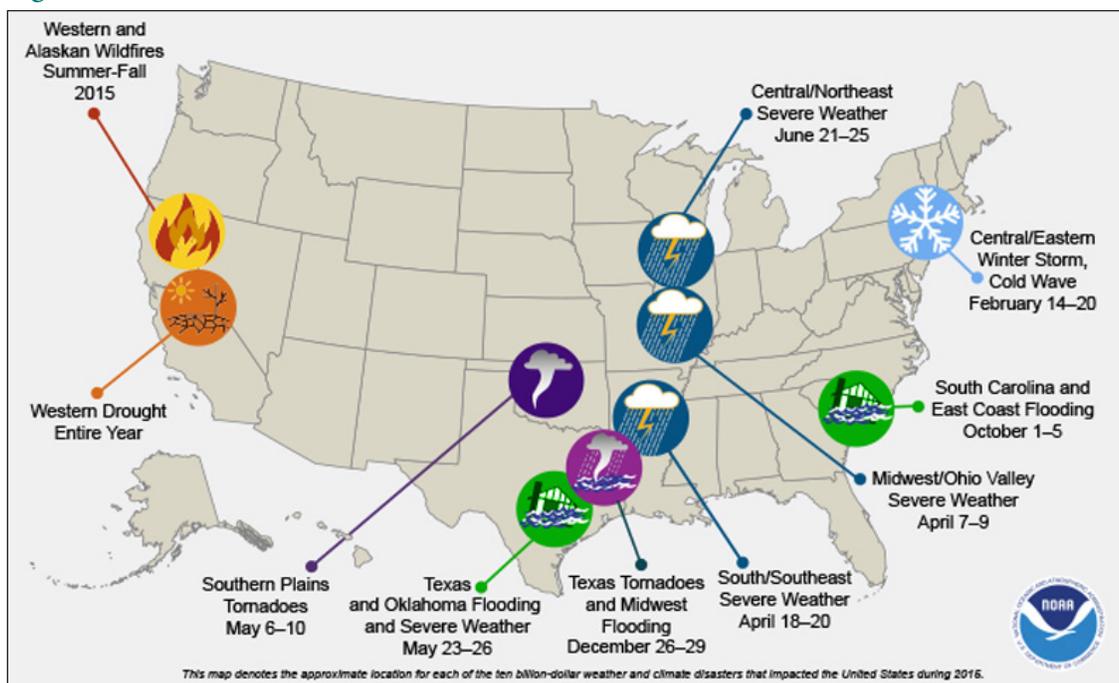
Hospital leaders looking to assess the status of their preparedness program should look for the following elements.

- An identified incident management framework that appropriate staff are confident in activating to monitor and respond to incidents and events. The system will facilitate proper communication and coordination with local, regional and state emergency management networks. *TIP: Practice activation during accreditation or licensure visits. A proper incident management system will provide timely communication, manage objectives and document follow-up actions — all applicable during a survey.*
- A hazard vulnerability analysis is conducted annually by a multidisciplinary team to identify internal and external hazards. The [Kaiser-Permanente](#) HVA is a commonly-used tool among hospitals.
- Emergency plans reflect an all-hazards approach; with hazard-specific references provided as necessary. Hospital has established policies/plans for their top three identified hazards. Plans include communication procedures and training schedules.
- Annually, hospital preparedness programs are exercised to validate staff competency and identify areas for improvement. Following exercises, plans are modified accordingly.

Engage Patients and Families in Preparedness

Resources are available to organizations working to engage patients and families in preparedness and resiliency. Some of the recommended actions include encouraging patients and their families to develop a family reunification plan, and recommending that patients maintain a month’s worth of prescribed medications and secure back-up power sources for family members dependent on electric lifesaving medical devices. The recommendations contribute to a more resilient community. Further, a higher level of community preparedness can reduce a surge for the health care system during a disaster and allow for the immediate treatment of the most critical patients. The Missouri Department of Health and Senior Services provides “Ready in 3”^{vii} resources to promote personal preparedness.

Figure 3: U.S. 2015 Billion-Dollar Weather and Climate Disasters



Source: National Centers for Environmental Information. (n.d.). Billion-Dollar Weather and Climate Disasters: Overview. Retrieved from <https://www.ncdc.noaa.gov/billions>

Commentary: Integrating Preparedness Into Health Care Delivery



In a recent *Health Affairs* [blog](#)^{viii} post, David Marcozzi, M.D., MHS-CL, FACEP, and Benoit Stryckman describe the preparedness-investment value proposition, including solutions for integration. MHA interviewed Marcozzi to offer additional insights for this edition of *Trajectories*. While currently in academics, [Marcozzi](#) had a long tenure within the federal government as a senior leader and subject matter expert on health delivery, emergency care and emergency preparedness. His experience and influence includes advising health care delivery reform efforts and clinical quality standard development with CMS, directing the ASPR HPP program and contributing to the Pandemic and All-Hazards Preparedness Act that became law in 2006. Marcozzi is a Lieutenant Colonel in the U.S. Army Reserves.

MHA: As a practicing physician in the hospital setting with programmatic experience in HHS ASPR and the Centers for Medicare & Medicaid Services, with a keen awareness of the impact of disasters on health care, what is the primary message you would provide to hospital leaders — in both operations and finance — at this critical juncture in time?

Marcozzi: “I would say there are two crucial aspects for chief executives to consider. First, threats are ever-present, take various forms and occur in communities large and small. You want your hospital able to respond at times of crises. Period. Don’t think that checking The Joint Commission box is sufficient. It isn’t. Actually do it. Make it a part of the fabric of your operations. Work with community partners. You’ll be glad you did when ‘it’ happens.

Second, economics rule and readying your hospital to respond to a disaster doesn’t necessarily garner support in the boardroom or pay the bills. On a very fundamental level, some daily health delivery principles are at odds with hospital preparedness. For example, maintaining “medical surge,” a cornerstone of health care preparedness, simply doesn’t generate revenue. Due to insufficient funds, we also can’t ‘grant’ our way to preparedness either. Not all is doom and gloom though. There are fiscally-sensible and operationally-tenable paths ahead. One such example is the concept of ‘Immediate Bed Availability.’ This population health goal seamlessly weaves preparedness within a facility’s daily health care delivery. I’d encourage you to look into it.”

MHA: With this proposed model, how would health care systems maintain surge capacity for catastrophic events?

Marcozzi: “I’m not sure the classic concepts of ‘medical surge’ are relevant for today’s hospitals. Successful health care systems are adapting to delivery reform demands by trying to increase market share and capitalize on new payment models, all while implementing “just-in-time” staffing and operating principles to constrain costs. This is inconsistent with the classic ideas of medical surge. IBA is an ethically-designed hospital, health care system or accountable care organization goal that provides a framework to achieve today’s medical surge. Simply put, it is ‘surge’ with no new space, staff or stuff. It champions a strategically proactive system design to enable a rapidly reactive response. Interestingly, the implementation of this goal supports and synergizes with many health delivery reform tenants, including improved coordination of care and care transitions to prevent potentially avoidable readmissions.

As a leader, articulating a vision that captures the ability of your institution to safely and optimally care for patients today and during a crisis is an ever-growing and essential part of hospital and health care leadership. As a nation, I think we can get there from here, but work remains.”

Defined and implemented as a programmatic measure of the Hospital Preparedness Program, IBA is the ability of a health care coalition to provide no less than 20 percent bed availability of staffed members’ beds within four hours of a disaster.^{ix} This is accomplished through triage of admitted patients, transfer of appropriate medical populations to post-acute settings, early discharges and cancelling of elective surgeries.

Conclusion

Investing in preparedness is good business, as trends demonstrate that naturally-occurring hazards are increasing and pose challenges to the nation's health care infrastructure. Nationwide, in 2015, 10 weather-related events generated losses exceeding one billion dollars each (Figure 3),^x and in 2016, 23 of the 27 Federal Emergency Management Agency-declared disasters were classified as weather-related.^{xi} Although weather-related natural disasters are among the most likely threat to hospital operations, a host of other threats to hospital business continuity exist.

According to a recent White House Report, "The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment," published last month, "Climate change is a significant threat to the health of the American people not just in the future but right now. As the climate continues to change, the risks to human health will grow, exacerbating existing health threats and creating new public health challenges, and impacting more people in more places."^{xii}

The lessons of the Joplin tornado remain. Since May 2011, the Joplin community and its hospitals have demonstrated how consistent and effective preparedness efforts contribute to a successful response and recovery. Lessons include the following.

- Routine training empowered staff to safely and effectively evacuate patients following impact.
- Established contracts with vendors ensured critical medical supplies were delivered in the immediate aftermath to provide continued patient care.
- The statewide Hospital Mutual Aid Agreement facilitated the sharing of staff and resources.
- Health care organization continuity planning successfully retained health care workers in the region through the recovery process.
- Lessons learned contributed to the design of new health care facilities constructed post-event.

Hospital investments in preparedness are essential to business continuity and community resiliency, and should be an essential component of every hospitals' CHNA. Although funding for preparedness has decreased, and new CoPs allow for additional integration of preparedness efforts, Missouri hospitals have made significant strides toward readiness for all hazards.

Suggested Citation

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