Healthcare

ALERTBULLETIN®

A Risk Management Update | 2023 Issue 2

Extreme Weather Events: Take Steps Now to Address a Growing Risk

High-impact weather events – including extreme heat and cold, hurricanes, tornadoes, floods, drought and wildfires – are on the rise, in terms of both frequency and severity. According to the United Nations, the world has recently witnessed a near doubling of natural disasters, with more than 7,300 major weather episodes occurring during the first 20 years of the current century, as compared with 4,200 between 1980 and 1999. What were not long ago considered "thousand-year" heat waves now occur almost once per decade. Globally, the costs associated with weather-related disasters have exceeded $200 billion in seven of the past 10 years, a level of damage reached only twice during the previous decade.

Climate Change Tools and Resources for Healthcare Organizations

- "Accelerating Healthcare Sector Action on Climate Change and Health Equity," a webinar series produced by the Office of Climate Change and Health Equity of the U.S. Department of Health and Human Services.
- Action Collaborative on Decarbonizing the U.S. Health Sector, an initiative launched by the National Academy of Medicine (NAM).
- Grand Challenge on Climate Change, Human Health & Equity, sponsored by the NAM.
- "How Health Care Organizations Are Preparing for Climate Shocks and Protecting Vulnerable Patients," issued by the Commonwealth Fund, October 20, 2022.
- *WHO Guidance for Climate Resilient and Environmentally Sustainable Health Care Facilities*, issued by the World Health Organization, 2020.

Large-scale natural disasters can paralyze hospitals, clinics and office practices at a time when their services are most needed, as the following real-life examples demonstrate:

- **Flooding during a tropical hurricane inundated the bottom three floors of a hospital,** damaging a critical backup generator located in the basement.
- **High winds from a tornado tore off the roof of a rural outpatient clinic,** resulting in the closure of the sole medical facility within a 50-mile radius.
- **Smoke and ash from wildfires overwhelmed an infusion center's air filtration system,** exposing immunocompromised patients to potentially dangerous respiratory irritants.
- **Record high temperatures in the Southwest region of the country disabled power grids,** leading to a spike in admissions to emergency departments and urgent care centers as many residents of the affected area sought treatment for heat-related illnesses.
- **Ice storms and frigid temperatures led to frozen water lines at a dialysis center,** causing them to burst and flood the facility, which disrupted care and created long-term mold and mildew problems.

The alarming increase in catastrophic weather events is generally thought to be one symptom of planet-wide climate change. A detailed discussion of the factors contributing to global warming and the efforts being made to combat it is beyond the scope of this article. However, on a practical level, as the damaging effects of climate change become more visible, many healthcare organizations have launched efforts to reduce their carbon footprint. The sidebar at left lists resources that can help guide facilities toward a more sustainable, equitable and energy-efficient future.

This edition of *AlertBulletin*® focuses on three essential strategies for healthcare organizations seeking to prepare for extreme weather events:

- **Comprehensively assess possible threats,** with respect to both likelihood and potential magnitude.
- **Draft a detailed and practical response plan** in order to reduce uncertainty and expedite decision-making under pressure.
- **Educate staff about weather-related emergency scenarios, procedures and responsibilities,** bolstered by "table-top" exercises and emergency drills performed in coordination with local emergency management agencies and first responders.

Assess Risks

Every healthcare organization should undergo an annual hazard vulnerability analysis (HVA), encompassing potential weather-related and seasonal emergencies. Depending upon the region, facilities should be aware of the following potential threats, among others:

- damaging winds
- drought
- earthquakes
- extreme heat/cold
- flash or coastal floods
- hurricanes
- landslides
- poor air quality/smog
- tornadoes
- vector-borne diseases, such as West Nile virus, Lyme disease and malaria
- waterborne contamination
- wildfires

Begin the process of identifying significant risk exposures by constructing a database of past extreme weather losses, noting their impact on the community and on clinical operations, as well as their probability of recurrence in view of changing weather patterns and future climate variability. The following self-assessment tools can aid administrators and office practice managers in detecting current and emerging vulnerabilities: Checklists to Assess Vulnerabilities in Health Care Facilities in the Context of Climate Change, issued by the World Health Organization, and the Sustainable and Climate-Resilient Health Care Facilities Toolkit, issued by the U.S. Department of Health and Human Services (HHS).

Of note, a self-assessment should align with the healthcare facility's clinical operations and may vary in scope based upon the type of services offered. For example, an HVA for outpatient facilities, including medical office practices, should focus on measures taken to secure the continued access to patients' healthcare information records and on business continuity planning, whereas an analysis for inpatient settings may concentrate more heavily on the evaluation of supply chain readiness and evacuation or shelter-in-place procedures.

Receiving weather forecasts, warnings and advisories in a timely manner is imperative. Consider establishing partnerships with major weather-related organizations – such as the American Meteorological Society, National Weather Association and National Weather Service – in order to enhance preparedness for individual emergencies, as well as to track long-term climate patterns and trends.

Create a Plan

The formal emergency management plan for facilities and office practices should devote considerable attention to potential weather events. (For a more in-depth look at emergency response fundamentals and the components of a written plan, see the *CNA Special Resource*, January 2022, "Emergency Planning: A Risk Management Guide for Healthcare Facilities and Providers.") Review the plan on an annual basis, ensuring that it includes, at a minimum, the critical preparedness measures that are listed below.

Evaluate the organization's vulnerability to weather-related events. In order to prepare realistic response measures, the emergency preparedness team must first quantify risk exposures through the self-assessment process. The following questions, among others, can help leadership ascertain the facility's level of disaster readiness:

- **What is the average daily bed occupancy** or patient census?
- **How many patients are capable of early release or discharge** from the facility, on average?
- **What is the threshold for surge capacity,** if applicable, e.g., when the number of hospitalized patients exceeds normal bed occupancy levels by 10 percent?
- **How many (if any) community residents can shelter in the facility during a weather emergency,** in view of space, staff and supply limitations?
- **How many portable refrigerated trailers are available,** as well as available spaces for expanded treatment?
- **What is morgue capacity,** if applicable?
- **Based upon past experience, how many staff members will likely be absent from work** following a disaster, due to illness, safety concerns or inability to travel?
- **What are the existing procedures to facilitate ongoing communications between providers and patients** in regard to canceled appointment notifications, return-for-care notices or referrals for alternative treatment?
- **How are critical documents stored,** including healthcare information records, financial records, patient insurance policies, equipment vendor names and contracts, and employee-related data?

- **What are the alternative methods for accessing patient information** in the event electronic data systems are inaccessible?
- **Following a disaster, how long can the facility sustain basic operations** without repairing equipment, replenishing supplies and staff, and/or receiving aid from the community?
- **In the event a facility or office practice decides to close, when can operations resume,** considering such factors as the sufficiency of supplies and staff, whether procedure room integrity and temperature control have been compromised, and the operability of procedure or treatment areas?

Create contingency plans for critical support services. Severe weather may disrupt many of the support services that permit a facility to function, including pharmacy, imaging capabilities, clinical laboratories, blood banks, hazardous waste management and food preparation, as well as morgue and helipad, if applicable. The organizational response plan should include facility-wide instructions for responding to disruptions and obtaining essential supplies, services and medications from alternate sources.

Protect critical operating systems. To the extent possible, relocate or reroute vulnerable equipment – e.g., backup generators, pumps and servers – to higher floors in the event of flooding, or to interior corridors to avoid wind damage. In addition, add multiple redundant system components, such as additional HVAC units and backup generators, to protect patients and vital infrastructure. Finally, ensure that backflow preventers and other safety features have been installed, inspected and maintained. (For additional measures listed in the HHS climate resilience toolkit referenced above, click here and scroll down to the section entitled "Infrastructure Protection and Resilience Planning.")

Anticipate surge conditions. Natural disasters often simultaneously disrupt operations and increase patient loads. To prepare for a potential surge in census, review the organization's access to critical resources, such as agency staff, laboratory and diagnostic services, and medical equipment and supplies. In addition, note areas that may be used to house patients in an emergency or to quarantine individuals exposed to contagious diseases. Finally, establish mutual aid relationships with other local healthcare settings for transfer of patients, if necessary.

Identify potential supply chain problems. Supply chain operations are often adversely effected during a natural disaster, potentially threatening patient safety and compromising the quality of clinical care. For a self-assessment questionnaire on supply chain robustness, see the CNA *AlertBulletin*® 2021-Issue 1, "Supply Chain Management: Avoid Disruption by Enhancing Readiness."

Emergency Response Measures

Shelter in place

- **Identify areas of higher and lower risk within the premises,** so that patients can be swiftly removed from the threat of floodwaters, high winds, extreme temperatures and other dangers.
- **Safeguard designated care areas** by installing stormproof doors, locking windows, automatically closing gates, storm shutters and other structural safety features.
- **Stockpile potable water, durable food and essential medications,** as well as basic emergency supplies, such as portable radios, flashlights, duct tape, plastic sheeting and garbage bags.
- **Anticipate waste disposal issues and needs,** and regularly revisit and update procedures, if necessary, to safely manage chemical and biomedical waste, sewage, runoff water and recyclable materials.
- **Create a system for communicating with family members** concerning the location and health status of their loved ones, and requesting that they avoid visiting during a weather emergency unless absolutely necessary.

Evacuation

- **Review written transfer agreements with other facilities,** if applicable, checking that they are within reasonable driving distance and can provide an equivalent level of care.
- **Arrange for inpatients to be evacuated by safe, fully licensed and adequately insured drivers,** along with their baseline history, care-related instructions and other healthcare information records, as well as sufficient medications and supplies.
- **Assign an acuity level to patients** and evacuate the most vulnerable individuals first.
- **Prepare detailed diagrams of the facility or office practice, as well as the surrounding area,** showing all critical access and evacuation routes, and provide copies in advance to transporters and emergency response and rescue personnel.
- **Inform vendors and suppliers of relocation sites,** if applicable, and arrange for backup sources in the event that a primary vendor is unable to deliver supplies or services to an alternate setting.
- **Draft a policy addressing documentation and family notification** of evacuation-related decisions.

Review shelter-in-place and evacuation plans. In life-threatening situations, the decision must be made to evacuate the setting or shelter in place. The suggestions listed in the box on page 3 can help strengthen organizational preparedness and reduce the risks associated with both emergency response options.

Prepare a post-event assessment protocol. Healthcare organizations may decide to close in the face of an imminent weather emergency. If so, guidelines should be established and implemented to determine when operations can resume. Such issues as structural integrity, interior damage, condition of medical equipment, HVAC system functionality, and availability of staff and essential supplies, among others, should be considered.

Prepare Staff

Healthcare workers are more likely to report to work and stay calm during catastrophic events if they have received comprehensive training in disaster preparedness, provided in collaboration with local or regional emergency personnel. Training sessions should include a review of weather-related threats, emergency response policies and procedures, and detailed descriptions of the expanded roles and responsibilities that individuals may assume during emergencies. A key goal of preparedness training is to ensure that staff members understand how the organization's disaster team functions, and are aware of the incident command structure, as well as how to report changes that may alter emergency response plans.

Even the most scrupulously designed response plans cannot fully anticipate the chaos that may ensue during a worst-case scenario. For this reason, contingency planning should be supported by emergency simulation exercises designed to boost staff readiness and prevent panic. Disaster drills should include the following elements, among others:

- **Prior assessment of participants' skill and knowledge level,** with exercises arranged to help staff members evaluate and strengthen their emergency response skills.
- **Use of detailed, realistic emergency scenarios** that clearly convey disaster-related challenges and responsibilities.
- **"Knowledge checks" built into the simulations,** where participants are quizzed about response efforts in real time, in order to reinforce lessons learned and skills mastered.
- **Prompt, detailed feedback to participants,** as well as written self-assessment by participants and post-exercise performance review by supervisors.

As the earth's climate becomes less stable, weather-related disasters proliferate and consequent risk exposures increase for all types of healthcare facilities. Using the basic strategies described in this publication as a starting point, leadership is well-advised to initiate a high level, ongoing effort to prepare the organization for changing environmental conditions and a less predictable future.

Quick Links

- "Incident Planning Guide: Severe Weather with Warning," issued by the Hospital Preparedness Program of the California Hospital Association.
- "Natural Disasters and Severe Weather," a resource of the Centers for Disease Control and Prevention.
- Weather Hazard Resources, compiled by the National Weather Service.

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