American Hospital Association™
Advancing Health in America

Fact Sheet: Strengthening Hospital Infrastructure to Be Better Prepared

The Issue

When a disaster strikes, hospitals and public health officials must work together to meet the health needs of the communities they serve. This was never more apparent than it has been during the pandemic. The ease with which COVID-19 spreads and the seriousness of the disease would have presented challenges under any circumstances, but years of under-investment in public health, shortages in necessary supplies due to a far-too-lean supply chain, and other issues made this pandemic particularly challenging. Hospitals leaned in to partner with local public health officials to provide scientific information, offer testing and treatment, assist with contact tracing, administer vaccines, and address other issues in their communities. The pandemic and other emergencies, such as the ice storm in Texas, also have highlighted the need to strengthen hospitals' physical structures and emergency systems to improve our country's responses to all kinds of future emergencies.

To achieve these needed improvements:

1. Greater investment needs to be made in the public health infrastructure.
2. In the short term, hospitals and health systems are in urgent need of additional investment to protect their physical structure and vital functions so that they can withstand the ravages of weather disasters and other threats.
3. In the longer term, serious reconsideration must be given to the plan for handling very large scale public health emergencies with the goals of improving communication and coordination across the public health system and between public health and health care; enabling the sharing of critical information to drive action; and improving the nation's ability to take full advantage of available resources.

AHA Take

The AHA urges Congress and the Biden Administration to make a substantial investment of at least $58 billion in improving hospital and health system resilience against the growing threats posed by extreme weather, seismic events, wildfires and novel pathogens.

Why?

Many groups have come together to synthesize lessons learned during the pandemic and make recommendations about how to improve the plan for responding to a national emergency, such as a pandemic. Our nation's public health infrastructure should be designed to assess, respond to and manage threats to public health. To fulfill that mission, public health departments must be provided with the necessary resources to meet health concerns as they arise. However, COVID-19 quickly overwhelmed an underfunded and under-prepared public health system, leading to confusion and delays in establishing effective partnerships. AHA is pleased to be part of these discussions to develop an improved plan for responding to national emergencies.

It is clear that public health needs sustained investment to ensure it is ready to meet the needs of the country during an emergency. While additional funding was made available in the wake of the Ebola crisis, public health funding at all levels of government has frequently been cut to enable investment in other priorities. Going forward, a solid and sustained investment in the public health infrastructure is needed if the nation is to be expected to respond swiftly and effectively to threats to the health of its citizens.

The AHA continues to advocate for improved funding for the Hospital Preparedness Program (HPP), which Congress created as the primary federal funding mechanism for public health to use in supporting hospitals during an emergency. However, the HPP was never intended to prepare all health care providers, suppliers and stakeholders for disaster. It is insufficient to enable hospital preparedness because the funds cannot be used for the kind of structural improvements and changes hospitals need to make to be better positioned to care for significant surges in patients during an infectious disease outbreak or to preserve hospital functions during a weather-related disaster or other localized emergency.

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In addition to large scale disasters, weather-related and seismic events will increase in severity and frequency, according to many predictions, and the hospitals in their path will need to harden their physical plants so that they can continue to care for the injured and sick, and serve as a beacon of hope and a resource to the community during disasters. This work will improve hospitals' ability to operate after a disaster such as the 2011 tornado in Joplin, Mo., Hurricane Katrina in 2005, Superstorm Sandy in 2012 and Hurricanes Harvey, Irma and Maria in 2017, as well as the recent wildfires and earthquakes along the West Coast.

Improving the resilience of hospitals by retrofitting them to enable continuity of care when a disaster strikes is far more cost effective than repairing damaged facilities or replacing them after they are destroyed. A 2009 Fulbright Grant project found that, "The cost of the disaster safe hospital is only 4% added to the cost of the new facilities."[1] According to the Federal Emergency Management Agency (FEMA), the most common points of hospitals' failure from storms are the elevator machinery, windows and generators. Bolstering these building assets often costs less than the cost to rebuild after damage from a severe weather event.

Not only does mitigation cost much less than the direct cost of repair and indirect cost of rebuilding the community around it, but building hospital and health system resilience also results in social and human gains, such as lives and property saved in disasters or emergency situations and reductions in fatalities, with more timely treatment of injuries and illness. Such an investment also helps to preserve employment for the hospital and related businesses that depend upon a functioning health care system for their livelihood and the preservation of an economic anchor in communities.

The critical vulnerabilities that we urge Congress to help fund include:

1. **Emergency Power:** Hardening emergency power generator placements and improving the viability of fuel storage and distribution is essential to ensure backup emergency power is provided so hospitals can continue to operate over longer periods during extreme events.[2] Emergency power is critical to the operation of lighting, equipment and ventilation. Generator capacity would need to be increased in most facilities to include heating, cooling and pressurization of more areas for isolation of infectious patients.

2. **Building Envelope:** The normal operations of a hospital can be interrupted by wind damage and water infiltration, potentially leading to evacuation.[3] Hardening the building envelope, including roofing, walls, windows and doors is necessary to reduce damage from airborne debris and water in weather events.[4]

3. **Potable Water and Waste:** Hospitals need water to operate, including potable water for patients and staff. Water also is needed to run medical equipment, HVAC systems, handwashing stations and dialysis, and to ensure that wastewater streams are available to dispose of byproducts of water usage and safe disposal of human waste, among other purposes. During water system interruptions, the operation of health care facilities is severely disrupted, and operational capabilities can be almost completely degraded within two hours. Hospitals need to develop a water supply plan in advance of an emergency, such as the ice storm that recently hit Texas, taking out normal sources of power and water.[5]

4. **Flood Damage Prevention:** Hardening existing hospitals that are in flood-prone areas that are susceptible to structural and non-structural damages and impairment of utility service is critical to protecting access and use of these facilities during a flooding event.[6] This also will limit the potential impacts of site damages such as erosion.

5. **Ventilation Improvements:** To increase the ability for hospitals to isolate infectious patients during an outbreak of an infectious disease, ventilation systems need to be upgraded and reconfigured. Reconfiguring HVAC zones and controls allow patient isolation in more patient rooms or entire portions of a hospital and maintain separation between them and non-infected hospital patients needing general care and persons under investigation.[7]

Sources

1. http://www.pitt.edu/~super4/34011-35001/34411.ppt
2. https://www.wbdg.org/FFC/DHS/femap1019.pdf
3. https://www.fema.gov/sites/default/files/2020-07/guidelines-wind-vulnerability.pdf
4. https://www.hfmmagazine.com/articles/1570-inspecting-hospital-building-envelopes
5. https://www.cdc.gov/healthywater/emergency/pdf/emergency-water-supply-planning-guide-2019-508.pdf
6. https://www.fema.gov/sites/default/files/2020-08/fema577_design_guide_improving_hospital_safety_2007.pdf