



# HEALTH CARE AND THE CLIMATE CRISIS: PREPARING AMERICA'S HEALTH CARE INFRASTRUCTURE

## II. Extreme Weather Events & Health Care Delivery

*This is the second part of a Majority Staff Report focused on the U.S. health system and the climate crisis. [Part One](#) provides an overview of the problem, description of Chair Neal's 2022 Request for Information (RFI), and summary statistics. The following part examines how the climate crisis and the prevalence of extreme weather events impact health care organizations – and what they are doing to respond and prepare for future events. [Part Three](#) describes how health care organizations are assessing their climate impact and working to reduce their respective carbon footprints. [Part Four](#) summarizes findings and provides a discussion of implications. [Part Five](#) is an appendix with survey methodology, limitations, and supplemental tables.*

### **PART TWO: KEY FINDINGS**

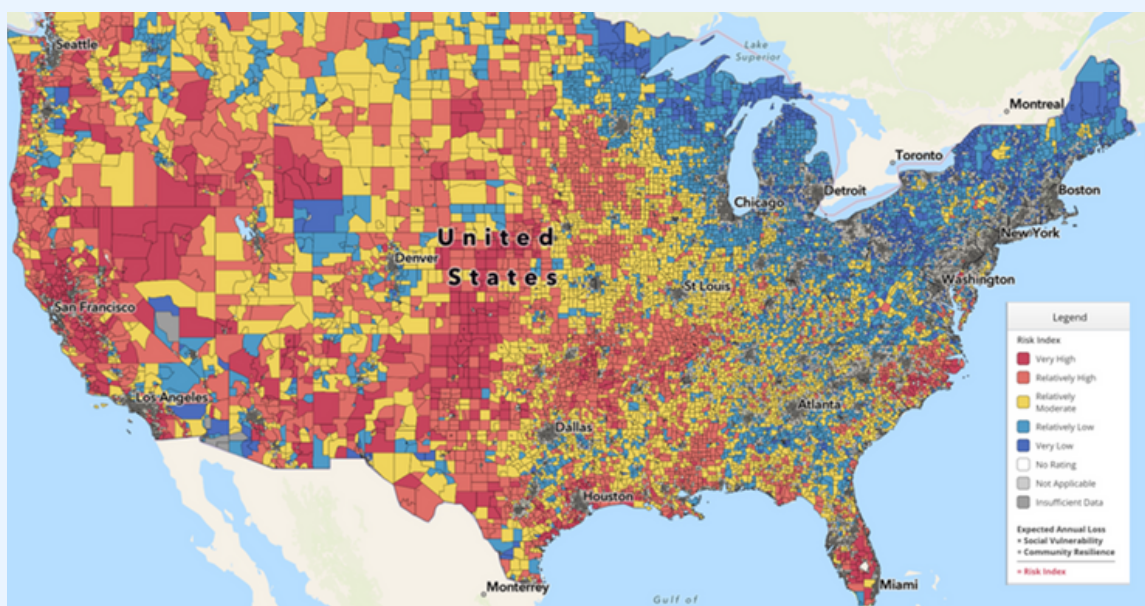
**Summary:** Due to the accelerated rate of extreme weather events across the country, a majority of respondents (54 out of 63) said they had experienced at least one such event in the last five years – with more than half experiencing five or more events in the last five years. In many cases, the cost of repairing damages from extreme weather events totaled in the millions, as some providers said they struggled to recover years later. Despite the nearly universal interruptions to operations, only a little more than a third of respondents said they had implemented formal climate action or preparedness plans (CAPPs) to limit organizational risk in the face of future weather events. Still, most respondents acknowledged the importance of preparing for climate-driven natural disasters and pointed to ways federal, state, and local authorities could provide support in the coming years.

- Over time, extreme weather events have become more frequent, deadlier, and more costly, even when adjusting for inflation. Health care delivery systems have not been immune from the damaging effects of extreme weather events: Between 2000 and 2017, there were 114 climate-related hospital evacuations, more than half of which required the evacuation of over 100 patients.
- RFI respondents on average reported experiencing 4.2 extreme weather events in the past five years, with more than half (37 out of 63) saying they had experienced five or more climate events in the past five years. While the type and scope of these extreme weather events varied, the reported financial ramifications have been notable, with respondents estimating costs ranging from \$28,000 to over \$22,000,000.
- Across all RFI respondents, most (47 out of 63) reported that they have dedicated at least some resources (i.e., standing agenda items at the board level (24 out of 63)), executive-level working groups (41 out of 63), or dedicated staff (34 out of 63) to the climate crisis.
- Some hospitals, health systems, and other providers (24 out of 63) said they have been preparing for the impact of extreme weather events in their region through the development of formal CAPPs.
- Of the 13 trade association respondents, six reported providing at least some type of written guidance to their members in the event of extreme weather. Such guidance focused on preparing for and responding to an extreme weather event, rather than guidance aimed at mitigation and resiliency strategies.
- RFI climate innovator and provider respondents shared a variety of federal, state, and local policy ideas to increase hospital preparedness in the face of extreme weather events. The most common recommendations were: funding the Hospital Preparedness Program, establishing and expanding renewable energy sources, capacity-building for microgrids, and fuel cell energy storage.



Since 1980, the United States (U.S.) has experienced 332 weather-related disasters where the overall cost of damages reached or exceeded \$1 billion, totaling \$2.275 trillion in aggregate costs. [1] Over time, extreme weather events have become more frequent, deadlier, and more costly, even when adjusting for inflation.[2] When comparing decades (and adjusting for inflation), the average year in the 1980s had 3.1 climate events costing \$20.2 billion and causing 297 deaths, while the average year in the 2010s had 12.8 events, costing \$91.9 billion, with 523 deaths per year. [3] In the last five years alone, there were 89 extreme weather and climate disasters in the U.S., totaling \$788.4 billion in damages and causing 4,557 deaths.[4] Annually, that amounted to 17.8 extreme climate events, \$157.7 billion in damage, and 911 deaths.[5] Such events ranged – wildfires experienced on the West Coast, droughts impacting the Southwest, tornadoes in the Midwest, and hurricanes along the East Coast. Because of this, the Federal Emergency Management Agency (FEMA) has created a National Risk Index to identify the communities most at-risk for extreme weather and climate disasters, as shown in Figure 1. The prevalence of such damaging and high-cost events and the accelerated rate of their occurrence make a strong economic case for efforts related to prevention and preparedness.

**Figure 1. FEMA National Risk Index, by Census tract**



Source: FEMA National Risk Index: Census Tract View, Fed. Emergency Management Agency, <https://hazards.fema.gov/nri/map> (last visited July 27, 2022).

Health care delivery systems have not been immune from the damaging effects of extreme weather events. For example, between 2000 and 2017 there were 114 climate-related hospital evacuations, more than half of which required the evacuation of over 100 patients.[6] In California, 248 hospitals lost power in October 2019 due to wildfire prevention measures.[7] The disruption from Hurricane Maria in Puerto Rico a year later led to critical shortages of pharmaceutical and health products and exposed vulnerabilities in the supply chain, as Puerto Rico represents 10 percent of U.S. pharmaceutical manufacturing.[8] Given the increasing impact of extreme weather events on health care delivery, the following part of this Majority Staff Report discusses the ways RFI respondents said they have been preparing – or plan to prepare – to mitigate future risks and ensure they are able to operate in the face of national weather emergencies, where access to health services is critical.



## THE IMPACT OF EXTREME WEATHER EVENTS ON HEALTH CARE DELIVERY

The impact of extreme weather events on organizations across the RFI sample was significant and touched most respondents. Regardless of their classification as a climate innovator vs. provider (see [Part One](#) for an explanation of this classification), a preponderance of respondents (54 out of 63) reported having experienced any climate event in the last five years (April 2017-April 2022). Respondents on average reported 4.2 events in the past five years, with more than half (37 out of 63) saying they had experienced five or more climate events in the past five years. Northwell Health, encompassing 22 campuses throughout New York, said it has experienced 23 separate climate events since 2016. While the type and scope of these extreme weather events varied, the reported financial ramifications have been notable, with respondents estimating costs ranging from \$28,000 to over \$22,000,000. Figure 2 provides a spotlight on one RFI respondent, Ascension, highlighting the frequency of extreme weather impacts on this national organization.

Although the type of extreme weather events varied, respondents with facilities in every region reported that they have experienced some kind of climate event. Those with facilities along the coasts reported hurricane impacts, providers operating in non-coastal areas said they mostly encountered extensive rainstorms and associated flooding, and organizations in the West most frequently reported fires and continued drought. Kaiser Permanente recalled that the 2017 Tubbs Fire in Santa Rosa, California, caused 130 patients to be evacuated from one hospital, which the health system had to close for 17 days; more than 200 Kaiser Permanente employees lost their homes in the event. Two years later, the same Kaiser Permanente hospital was evacuated again due to a subsequent wildfire.

Respondents attributed increased costs associated with extreme weather events to multiple factors, including damage to infrastructure, the shuttering of

**Figure 2. Respondent Spotlight: Ascension**

### Ascensions Climate Crisis

Ascension is a health care organization with over 2,600 sites of care in 19 states and the District of Columbia, including 142 hospitals and over 40 senior care facilities.

#### Polar Vortex: Feb. 2021

- Infrastructure of area (Texas & Oklahoma) was not prepared for extreme cold;
- Six hospitals lost power and water; medical supplies ran low; dialysis care was unavailable; hospitals were only health facilities able to stay open while clinics and pharmacies closed;
- Cost: \$15 million.

#### Hurricane Sally: Sept. 2020

- Primary hazards included flooding, building damage, and loss of utilities;
- Long-term care facility in Florida was affected but stayed open and provided care without negative outcomes;
- Cost: \$1.9 million.

#### Hurricane Michael: Sept. 2019

- Impacted two Florida hospitals;
- Restored communications and power and took 30 days, resulted in the deployment of satellite truck to maintain access to electronic records and data systems;
- Cost: \$1 million.

#### Hurricane Irma: Sept. 2017

- Even with preventative measures taken, damage still included flooding, power outages, and structural harm to buildings;
- Maintained full services, although physician practices were impacted for two to seven days before resuming normal operations;
- Cost: \$12.2 million.

#### Hurricane Matthew: Oct. 2016

- Damaged building and made generator power a necessity due to power fluctuations;
- Normal operations resumes within 24 hours;
- Cost: \$3.6 million.

**Source:** Ascension Climate RFI Survey response on file with the Committee on Ways and Means

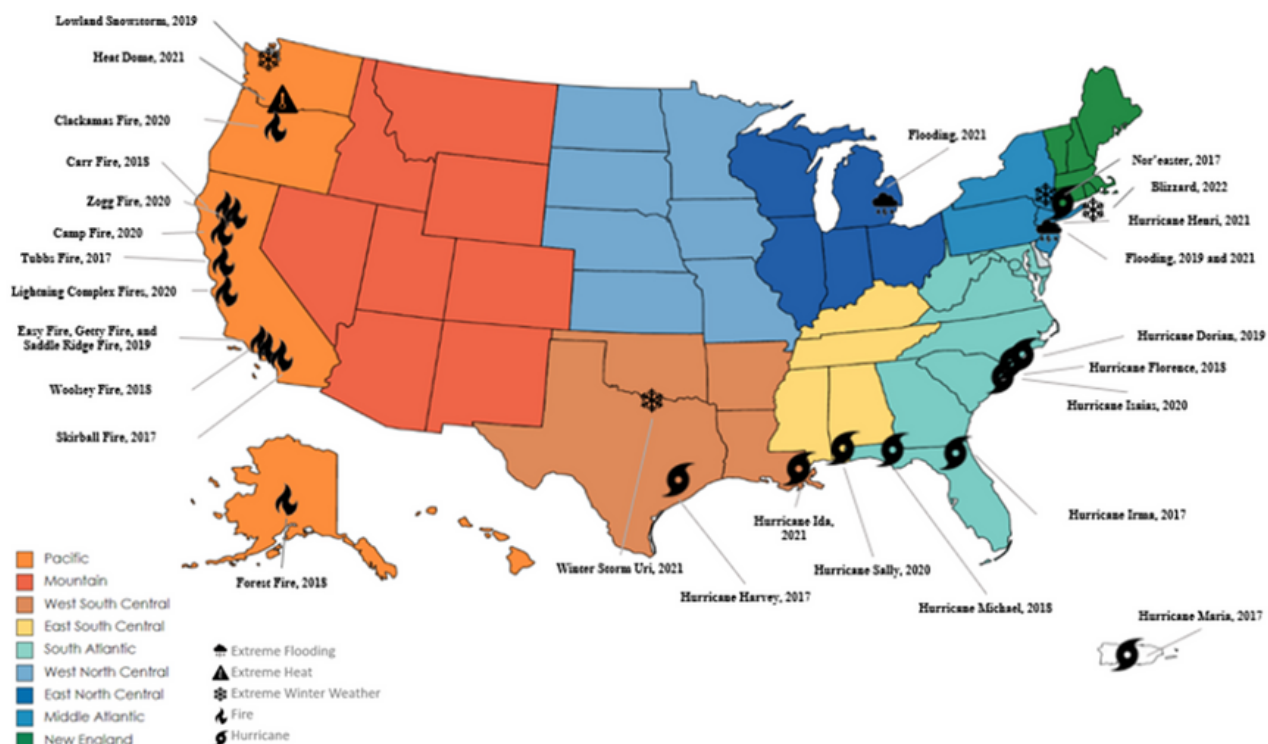


operations spanning days and weeks, compensation for employees working overtime and having to spend the night at facilities, and patients deferring elective procedures. The cost and effect of these extreme weather events can be felt for prolonged periods of time, respondents said. Hackensack Meridian Health reported that it took five years and \$2.6 million to recover from the effects of Hurricane Sandy in 2012. Other respondents noted that they had incurred additional climate-related costs unrelated to a single event, such as efforts to conserve water due to drought conditions.

A couple of respondents said that while they have not experienced direct damage to their operations due to extreme weather events, they were still concerned about indirect impacts or the increasing risk of extreme weather events. Respondents operating in Northern regions across the country discussed issues related to power outages stemming from extreme heat. Multiple respondents in areas susceptible to wildfires discussed the ways poor air quality negatively impacts patient and staff safety. Another respondent, Mt. Sinai, said it had not had one singular event in the past five years but, rather, its “experience is [the] cumulative toll of more minor but more frequent weather-related events.” Kaiser Permanente, which includes facilities in Hawaii, said that while it has experienced minor weather-related impacts to those facilities thus far, the number of “close calls” from hurricanes and tropical storms was increasing. Figure 3 shows the types of extreme weather events RFI respondents reported across the country.



**Figure 3. Extreme weather events reported by RFI respondents, 2017-2022**



**Sources:** Aggregate RFI survey responses on file with the Committee on Ways and Means; Map Chart: United States, Mapchart.net, <https://www.mapchart.net/usa.html> (last visited July 25, 2022).

**Notes:** This map is a representation of named events, as reported by respondents. This may not reflect all respondents affected by a particular event. Hurricanes are placed on map in approximate location of landfall and may not reflect the geographic region of all respondents reporting impact from each storm.

### RESOURCE ALLOCATION & STAFF TIME DEVOTED TO PREPARING FOR EXTREME WEATHER EVENTS

Despite the near ubiquitous experience with climate-related weather events across the sample, organizations varied in the level of resources they said they have dedicated to ensuring operational climate resilience. Across all RFI respondents, most (47 out of 63) reported that they have dedicated at least some resources (i.e., standing agenda items at the board level (24 out of 63), executive-level working groups (41 out of 63), or dedicated staff (34 out of 63)) to the climate crisis.

***“Now is the time to focus on making our health infrastructure more efficient and resilient...”***

—Chair Richard E. Neal, Press Release Applauding the establishment of the Office of Climate Change and Health Equity, August 31, 2021

Segmenting the sample by climate innovator vs. provider revealed a statistically significant difference between the groups ( $\chi^2 = 6.13$ ,  $df = 1$ ,  $p = 0.013$ ): All climate innovators reported devoting some resources to addressing the climate crisis, while only some providers reported devoting any resource (33 out of 49). Across organization types, more multi-hospital



systems (16 out of 18, or 88.9 percent) and health systems (11 out of 12, or 91.7 percent) reported having any dedicated resources, followed by community health centers (16 out of 26, or 61.5 percent) and other facility types, which included dialysis facilities and nursing homes (four out of seven, or 57.1 percent). No statistically significant differences were found regarding dedicated resources when comparing by respondents operating in specific regions; however, health care entities with facilities located in urban areas reported more dedicated resources (92.3 percent) compared to non-urban facilities (62.2 percent) ( $\chi^2 = 7.32$ ,  $df = 1$ ,  $p < 0.01$ ). Correlation analysis showed that the number of climate events an organization experienced in the last five years was significantly associated with the number of full-time equivalent (FTE) staff that organization dedicated to addressing the climate crisis (Pearson's  $R = 0.27$ ,  $p < 0.05$ ).

*a. Some respondents show long-term leadership focus and commitment of resources on climate preparedness*

While a larger proportion of climate innovators (six out of 14) compared to providers (18 out of 49) reported having a standing agenda item for their board discussions on the impacts of extreme weather events, this was not a statistically significant difference ( $\chi^2 = 0.17$ ,  $df = 1$ ,  $p = 0.68$ ) ([Part Three](#) provides an analysis of resources dedicated to reducing an organization's carbon footprint). Some climate innovators said they had been working to address the climate's impact on their organization for over a decade, focusing on such issues as emergency preparedness, resilience planning, and financial impact estimates. In some cases, respondents said they had been engaging in a top-down approach as part of a larger enterprise risk management (ERM) strategy, including annual ERM risk assessments and internal audit services; the assessment of key climate-related risks with management and mitigation strategies; and the creation of response plans (see below for more details on climate action or preparedness plans).

In terms of the number of FTEs each organization has dedicated to handling climate-related issues, overall, climate innovators reported that they have committed more FTEs (7.8 FTEs, on average) compared to provider respondents (3.5 FTEs, on average), although this difference was not statistically significant ( $t = 1.61$ ,  $df = 61$ ,  $p = 0.11$ ). Still, when comparing climate innovators and providers, clear differences exist in the expertise of individuals employed to oversee these issues. For example, Kaiser Permanente reported that three of its dedicated FTEs that primarily focus on the impacts of the climate crisis on their organization each have more than 20 years of relevant experience. In contrast, many provider respondents said their FTEs working on climate-related issues also had a number of other responsibilities unrelated to the climate. More multi-hospital health organizations (14 out of 18, or 77.8 percent) and health systems (10 out of 12, or 83.3 percent) reported devoting any staff to addressing the climate crisis compared to other organization types; this result was statistically significant ( $\chi^2 = 16.28$ ,  $df = 3$ ,  $p < 0.001$ ).

*b.. Barriers persist in enabling providers to prepare for extreme weather events*



***“Climate issues are very long term, and our board is dealing with many short-term crises like funding for the health center, staffing shortages, and all the complications associated with COVID. We have been hit hard by hurricanes in the past and serve many farmworkers who are constantly affected by rising temperatures and more extreme weather events. It is impossible for the board to tackle all the problems at once.”***

***—Community health center respondent***

Respondents who said they have not dedicated resources or staff to responding to climate threats expressed several common explanations. Providers often reported experiencing a binary choice due to limited resources, prioritizing what they dubbed to be “more urgent” issues – such as the COVID-19 pandemic response (cited most frequently), limited funding, or staffing shortages – rather than the climate crisis, which several labeled as a global or long-term issue that does not impact their day-to-day operations. For example, one respondent reported that their focus is on the restructuring of several failing hospitals to attain financial stabilization. Other respondents simply stated that the impact of the climate crisis is not an immediate priority for their organization. Still, some noted that the lack of past or current focus on climate impacts does not necessarily mean they will not focus on it

in the future, acknowledging that it will likely require organizational attention and dedication of resources in the coming years.

## **PREPARING FOR FUTURE EXTREME WEATHER EVENTS THROUGH CLIMATE ACTION OR PREPAREDNESS PLANS**

In the face of ever-present extreme weather events, some hospitals, health systems, and other providers said they have been preparing for the impact of extreme weather events in their region through the development of formal climate action or preparedness plans (CAPPs). More specifically, in response to such survey questions, 24 out of 63 RFI respondents uploaded formalized CAPPs for the Committee’s review (seven out of 14 climate innovators and 17 out of 49 providers).

***By implementing a climate action and preparedness plan that focused on both preparing for extreme weather events and mitigating its own climate impact, the Cleveland Clinic said it added an additional 39 hours of emergency run time for its back-up generators at its Weston Campus over the course of seven years.***

Table 1 below shows the relationship between organizational resources devoted to the climate crisis for organizations with and without a CAPP. Of those with a CAPP (n=24), half reported that the impact of the climate crisis on their organization was a standing agenda topic for their board, compared to 12 out of 39 (30.8 percent) who did not report they have a CAPP. Further, for those with a CAPP, 18 out of 24 (75.0 percent) reported that they have a working group at the executive level to assess the climate crisis’s impact on their organization, compared to 23 out of 39 (60.0 percent) of those without a CAPP. Those with a CAPP had on average 7.8 FTEs dedicated to addressing climate-related issues compared to 2.5 FTEs for respondents without a CAPP in place.



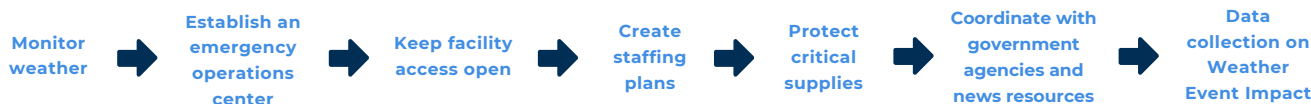
**Table 1. Characteristics of Respondents: Climate Innovators and Providers**

	Standing board agenda item	Executive-level working groups	Average No. FTEs
CAPP	12 out of 24 (50.0 percent)	18 out of 24 (75.0 percent)	7.8 FTEs
No CAPP	12 out of 39 (30.8.1 percent)	23 out of 39 (60.0 percent)	2.5 FTEs
Stat. diff.	$\chi^2 = 2.33, df = 1, p = 0.13$	$\chi^2 = 1.68, df = 1, p = 0.20$	$t = 2.396, df = 61, p < 0.05$ <i>This finding was statistically significant.</i>

Source: Aggregate RFI Survey responses on file with the Committee on Ways and Means.

The CAPPs provided to the Committee through the RFI ranged in detail from a general one-size-fits-all approach for all emergency events to highly detailed CAPPs for multiple events, including ways to reduce greenhouse gas emissions (see [Part Three](#) for more information). Despite the heterogeneity in the focus of CAPPs, at a high-level, most followed a similar sequential approach, as shown in Figure 4.

**Figure 4. Common approach for climate action or preparedness plans**



Source: Aggregate RFI Survey responses on file with the Committee on Ways and Means.

Many CAPPs included the continuous monitoring of weather events in coordination with the National Weather Service and local weather services to stay informed about potential storms that could impact operations in a given area. Several RFI respondents specifically mentioned setting up an emergency operations center (EOC) – a term used by FEMA to describe a location from which leaders of an organization coordinate information and resources to support continuous operations of a facility.[9] After establishment of an EOC, many CAPPs simultaneously prepared to keep facilities open and operational, ensured access to staff, and implemented plans to protect critical supplies. While ensuring internal operations, many CAPPs specified coordination with outside organizations, such as government agencies, local news sources, and other external partners to ensure communication on weather patterns and operational capacity. Few CAPPs mentioned post-event data collection on the type and severity of the event, total cost impacts, and opportunities for improvement.

Larger health systems spanning multiple locations shared CAPPs that outlined specific plans for different types of weather events (i.e., thunderstorms, extreme temperatures, tornadoes, hurricanes, blizzards, ice storms, droughts, earthquakes, wildfires, extreme wind, and flash floods). More technical CAPPs described the utilization of predictive algorithms for myriad extreme weather events to prepare the organization. More specifically, one respondent, Mass General Brigham, working with a climate consulting organization, projected likely extreme



weather scenarios and changing weather patterns over time for each of its facilities and assessed existing vulnerabilities with a multidisciplinary team of leaders across the organization. Using these projections, Mass General Brigham created a comprehensive list of vulnerabilities organized by the likelihood of the event occurring to help prioritize urgent mitigation needs.

Another respondent, Ascension, utilized algorithms to categorize the severity of the extreme weather events to tailor its real-time responses to a specific scenario, ranging from thunderstorms and flashfloods to extreme temperatures and tornadoes. Further, HealthProMed, a community health center located in Puerto Rico, conducted a vulnerability analysis in 2021 that ranked the probability of extreme weather events by type (i.e., hurricane, earthquake, tsunami, wildfire, extreme temperatures, flooding) and predicted the impact on death and injury, physical damage to existing structures, and interruption of services. This ranking was calculated by multiplying the probability of the event by the severity of the event to produce a risk score from 0-100 percent (higher percentages equaled higher risk). According to their analysis, hurricanes and earthquakes had a 67 percent risk score compared to a 17 percent for tsunamis. Such analyses enabled HealthProMed to assess its preparedness for each such occurrence and allocate resources appropriately.

Some respondents described CAPPs that were specific to the challenges of their regions, such as one health system with locations in Florida that had a CAPP for harmful algae blooms. One respondent's CAPP determined the need and possibility of cooling loss in its facilities in the event of extreme heat (cataloguing plans to ensure adequate backup power generation as a result of energy blackouts), monitored temperatures in critical areas housing pediatric and geriatric patients, ensured adequate water supplies, reduced the use of outside services to limit operations, and monitored staff health and safety. Another CAPP related to flooding called for an assessment of preparedness plans in the event that flood waters breached the facility. According to the CAPP, if the flood water entered the facility, it would mobilize security services to determine where flooding was coming from, remove valuable property, turn off electrical equipment, close doors and seal openings to minimize flooding, and determine if the flood water was contaminated and required implementation of infection control measures.

## **THE ROLE OF TRADE ASSOCIATIONS**

Trade association respondents generally acknowledged that extreme weather events were of regular concern to their members, and some (six out of 13) specifically relayed concerns from their members related to the costs associated with repairing damages from extreme weather events. Of the 13 trade association respondents, six reported providing at least some type of written guidance to their members in the event of extreme weather, including updates on regulations and waivers in the event of a disaster declaration, updates on supply chain issues if disrupted by extreme weather events, guidance to receive federal funding, and templates to help guide operations during an extreme weather event. The guidance offered to members focused on responding to an extreme weather event compared to preventative measures and guidance aimed at mitigation and resiliency strategies.



## FEDERAL, STATE, AND LOCAL SUPPORT FOR CLIMATE RESILIENCY

As shown in the Table 2 below, RFI climate innovator and provider respondents shared a variety of federal, state, and local policy ideas to increase hospital preparedness for climate crisis mitigation, adaptation, and resilience. The most common federal policy recommendations from RFI respondents were: funding the Hospital Preparedness Program, establishing and expanding renewable energy sources, capacity-building for microgrids, and fuel cell energy storage.[10] More specifically, Intermountain Healthcare suggested funding for the Hospital Preparedness Program aimed at pre-disaster resiliency to retrofit facilities with flood- and wildfire-mitigating infrastructure. Other respondents requested federal regulatory assistance to enable backup electricity and microgrid energy systems utilizing renewable energy and fuel-cell technology for increased energy storage. State and local government ideas included funding for community climate resilience and permitting the use of multiple energy forms for emergency situations and investments in the energy grid. Of note, 50 out of 63 RFI respondents (13 out of 14 climate innovators and 37 out of 49 providers) were non-profit entities, meaning that tax-based incentives prior to the passage of the Inflation Reduction Act were not effective in improving their climate resiliency response.[11]

**Table 2. Suggested policy proposals at the federal, state, and local levels**

Federal	State
<ul style="list-style-type: none"> <li>• Increase funding for the Hospital Preparedness Program (x6)</li> <li>• Support microgrid and renewable energy grids (x6)</li> <li>• Permit fuel cell energy storage (x3)</li> <li>• Support pre-disaster hospital and health facility resilience programs, like retrofitting existing infrastructure to be more resilient and integrating redundant water and power supplies</li> <li>• Provide public assistance for extreme weather disasters that do not rise to the level of a federal disaster declaration</li> <li>• Establish policies, research, and funding to ensure resilience of the health care supply chain</li> <li>• Provide funding through the Health Resources and Services Administration (HRSA) for climate mitigation and adaptation, including capital, and workforce support</li> <li>• Fund the emPOWER Program for data coordination[11]</li> <li>• Create a patient notification system to communicate environmental and energy warnings for events with health impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Provide funding for community climate resilience (x2)</li> <li>• Allow the use of multiple energy sources to maximize reliability and strengthen the energy grid</li> </ul>
	Local
	<ul style="list-style-type: none"> <li>• Permit multiple forms of backup electricity</li> </ul>

Source: Aggregate RFI Survey responses on file with the Committee on Ways and Means.

[1] Nat'l. Ctrs. For Environmental Information, Billion-Dollar Weather and Climate Disasters, Nat'l. Oceanic & Atmospheric Admin., <https://www.ncei.noaa.gov/access/billions/> (last visited July 18, 2022).

[2] *Id.*

[3] *Id.*

[4] *Id.*

[5] *Id.*



[6] Sharon E. Mace & Aishwarya Sharma, Hospital evacuations due to disasters in the United States in the twenty-first century, 15:1 *Am. J. of Disaster Med.* (2020), <https://doi.org/10.5055/ajdm.2020.0351>.

[7] Hospital Building Safety Board, Microgrids for Healthcare Facilities, California Dept. of Health Care Access and Info. at 6 (Sept. 24, 2021), <https://hcai.ca.gov/wp-content/uploads/2021/09/HBSB-Microgrid-White-Paper-FINAL-9.24.2021-A.pdf>.

[8] Public-Private Analytic Exchange Program, Vulnerabilities within the United States' Pharmaceutical Supply Chain: Lessons Learned About Pharmaceutical Supply Chain Security in Puerto Rico, AEP (2018), [https://www.dhs.gov/sites/default/files/publications/2018\\_AEP\\_Threats\\_to\\_Pharmaceutical\\_Supply\\_Chains.pdf](https://www.dhs.gov/sites/default/files/publications/2018_AEP_Threats_to_Pharmaceutical_Supply_Chains.pdf).

[9] National Incident Management System Emergency Operation Center How-To Quick Reference Guide, Fed. Emergency Management Agency (Aug. 2021), [https://www.fema.gov/sites/default/files/documents/fema\\_eoc-quick-reference\\_guide.pdf](https://www.fema.gov/sites/default/files/documents/fema_eoc-quick-reference_guide.pdf).

[10] Office of the Assistant Secretary for Preparedness & Response, Hospital Preparedness Program (HPP), U.S. Dept. of Health & Human Servs. <https://aspr.hhs.gov/HealthCareReadiness/HPP/Pages/default.aspx> (last visited July 8, 2022).

[11] See generally Inflation Reduction Act of 2022, Pub. L. No. 117-169 § 10201.

[12] The HHS emPOWER Program provides federal data, mapping, and artificial intelligence tools, as well as training and resources, to help communities nationwide protect the health of at-risk Medicare beneficiaries, including 4.4 million individuals who live independently and rely on electricity-dependent durable medical and assistive equipment and devices, and or essential health care services. HHS empower Program Platform, U.S. Dept. of Health & Human Servs., <https://empowerprogram.hhs.gov/> (last visited July 8, 2022).