Flex Monitoring Team
University of Minnesota | University of North Carolina at Chapel Hill | University of Southern Maine

APRIL 2024

Health Care Coalitions: A Resource to Support Critical Access Hospital Emergency Preparedness Planning

JOHN GALE, MS
KAREN PEARSON, MLIS, MA
REBECCA STEARNS, MPH, EMS-I

KEY FINDINGS

- Administration for Strategic Preparedness and Response (ASPR)-funded health care coalitions (HCCs) provide resources, tools, and technical assistance that can be used to enhance Critical Access Hospital (CAH) emergency preparedness planning and response capacity.
- HCCs foster collaborative relationships among hospitals, public health, and a wide range of health care organizations to improve local and/or regional response capacity.
- The level of engagement between HCCs and State Flex Programs (SFPs) varies across the states.
- HCC and SFP partnerships provide an opportunity to better engage CAHs in HCC activities and leverage resources to improve emergency preparedness response capacity in rural communities.

PURPOSE

As a key player in local systems of care, Critical Access Hospitals (CAHs) are called upon to respond to a wide range of emergency situations in their communities and may be at the center of these crises. Examples include cyber or ransomware attacks,[1-3] the COVID-19 Public Health Emergency,[4] power outages,[5] weather-related emergencies,[6] mass shootings,[7] and mass casualty incidents.[8] These events highlight the importance of hospital emergency preparedness plans. However, CAHs face financial challenges and resource limitations in complying with federal emergency planning and preparedness requirements.[9] Resource and infrastructure limitations, reduced access to higher levels of care, geographic isolation, low population density, and communication challenges present unique obstacles to emergency preparedness planning not found in urban settings.[10]

This study describes health care coalitions (HCCs) and their support for emergency preparedness planning of CAHs. It also explores collaboration opportunities for State Flex Programs (SFPs) and HCCs to improve CAH emergency preparedness and response capabilities as part of Medicare Rural Hospital Flexibility (Flex) Program funded activities under Program Area 3, CAH Population Health.[11] These include opportunities to enhance CAH engagement in HCCs and provide resources to support CAH emergency preparedness planning (e.g., technical assistance, planning tools, educational materials, and collaborative exercises). This brief serves as an introduction to HCCs and how they can serve as a resource for CAHs and SFPs to improve emergency response capacity in rural communities.

BACKGROUND

The 2016 final rules for the Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers required providers to comply with national emergency preparedness requirements by November 15, 2017.[12] These requirements were revised in 2021 to comply with the 2019 Burden Reduction rule.[13,14] The goals are to engage Medicare and Medicaid providers in planning for natural and man-made disasters, encourage coordination and collaboration across local or regional organizations, and promote an integrated approach to managing disasters (See text box).[15] HCCs, funded through grants from the Hospital Preparedness Program (HPP) of the Administration for Strategic Preparedness and Response (ASPR),[16] are state or regional networks of public and private organizations that partner to prepare hospitals and communities to respond to emergencies and disasters.[17] Thus, HCCs can be a valuable resource for CAHs to support their emergency preparedness planning and response capacity and a potential partner for SFPs to improve CAH and community emergency response systems in their states. Although participation in an HCC is not required of hospitals and other Medicare providers, HCC participation is strongly encouraged and provides important resources to CAHs and other hospitals in dealing with emergencies.

HCCs are composed of diverse, and sometimes competitive organizations, which collaborate to share supplies, transportation, personnel, and hospital beds during a disaster. HCCs must include these core members: acute care hospitals, public health agencies, emergency medical services (EMS), and emergency management agencies to ensure an integrated approach to managing disasters.[15] HCCs are encouraged to expand their membership to include other relevant local, regional, or state organizations.

ASPR supports emergency preparedness planning through a portfolio of programs to assist health care providers and communities in responding to disasters in an expedited and coordinated manner. The HPP is one of ASPR's core Health Care Readiness Programs.[18] Through cooperative agreements, HPP funds bolster the capacity of health care systems to plan for and respond to disasters and emergencies.[19] HPP funding is intended to build a coordinating framework across health care organizations.[19] As local or regional entities, HCCs are positioned to respond to the unique needs of their geographic areas. As of FY 2021, there were 318 HCCs funded with ASPR HPP grants across all 50 states and Washington, DC (email communication, ASPR, December 8, 2023). Involvement of CAHs in HCCs varies across the states depending on the presence of CAHs in a state (Connecticut, Delaware, Maryland, New Jersey, and Rhode Island have no CAHs within their borders) and the extent to which specific coalitions serve primarily urban areas (e.g., Los Angeles County, New York City, Washington DC, and Chicago). ASPR's website provides links to its Health Care Readiness Programs Portfolio across the 10 ASPR regions covering all 50 states and US territories.[20]

Examples of Potential Disasters
Natural disasters - earthquakes, extreme heat, floods, hurricanes, tornadoes, wildfires, blizzards
Pandemic and contagious diseases - COVID-19, influenza
Technological disasters - blackouts, power outages, cyberattacks
Attacks in public places - explosions, active shooters, civil disorder
Chemical and hazardous materials incidents - radiation emergencies, biohazard exposures, chemical spills
Accidents - train derailments, mass highway accidents, plane crashes, explosions
Terrorism and bioterrorism events – bombings, use of biological agents such as anthrax

Recipients of the multi-year federal cooperative agreement must comply with reporting requirements, which include budget and strategic planning activities.[15] Key HCC activities include coordination of joint exercises with members to improve coalition-wide resiliency, distribution and sharing of equipment and supplies during an emergency, development of communications protocols and systems, dissemination of real-time information, training of health care personnel, review of emergency response plans, and evaluation of emergency preparedness in their region.[15]

CAHs, along with other HCC members, are tasked with preparing emergency preparedness plans to address the following areas:[21]

- Risk assessments using an all-hazards approach, updated to include emerging infectious diseases
- Communication plans that comply with federal and state laws
- Policies and procedures based on emergency plans, risk assessments, and communication plans
- Training and testing programs

Developing these plans can be challenging for CAHs as they often face personnel limitations (i.e., staff members with multiple responsibilities as well as difficulty in releasing staff to engage in preparedness planning and training); reduced access to training opportunities due to geographic factors; smaller local public health departments; fewer specialty services; inadequate communication systems; insufficient ambulance, clinical, and administrative staff resources; limited ability to respond to surges; and an inability to negotiate volume discounts for necessary supplies.[22,23]

APPROACH

This study builds on the FMT's extensive body of work regarding the role of CAHs in supporting the health of their communities and the development of resources to support their community-focused activities.[24] For this study, we focused on both state and regional HCCs to explore their interactions with and support for the emergency preparedness response capacity of CAHs. We reviewed the literature on the federal HPP program and HCCs to better understand the resources available to hospitals and communities in preparing for emergencies. Our analysis incorporated peer-reviewed literature, documents from public health organizations and state health agencies, and health care coalition websites. We further relied on the 2021 HCC state fact sheets from ASPR and reached out to technical assistance staff at ASPR's Technical Resources, Assistance Center, and Information Exchange (ASPR TRACIE)* for additional information on health care coalition structures and membership.

For this study, we selected two states from each of the four Census regions (Arizona, Michigan, Mississippi, Montana, North Carolina, North Dakota, Pennsylvania, and Vermont). Within each Census region, we selected a state with a single statewide HCC as well as a state with multiple regional HCCs. **Table 1** outlines the structure and organizational home for each of the eight HCCs interviewed, describing whether the HCC was statewide or regionally organized. We also note the Census region in which each state is located, the percentage of acute care hospitals in HCCs, as well as how many CAHs in each state were reported as participating in the HCC compared to the number of CAHs in the state. Although the percentage of CAHs participating in HCCs in the eight study states was high, we were unable to assess the quality and depth of their engagement.

* ASPR TRACIE was created to meet the information and technical assistance needs of regional ASPR staff, health care coalitions, health care entities, health care providers, emergency managers, public health practitioners, and others working in disaster medicine, health care system preparedness, and public health emergency preparedness.

We conducted key informant interviews with senior HCC leaders at the state or regional HCC levels during the fall of 2023 using a semi-structured interview protocol. Interview questions were designed to help the study team learn more about how each HCC operates including their funding, structure, and membership recruitment strategies, especially related to CAHs and other rural providers. We also asked about strategies and resources HCCs provide to support the emergency preparedness planning process for CAHs.

TABLE 1: Health Care Coalition Structure

Coalition Name	Census Region	Coalition Type	Hospital Preparedness Program Grantee	Coalition Home	% of Acute Care Hospitals in HCC*	# of CAHs in HCC/# CAHs in state**
Arizona Coalition for Healthcare Emergency Response (AzCHER)	West	Single statewide coalition - four regions covering the state	Arizona Department of Health Services	Arizona Hospital and Healthcare Association	75%	15/17
Michigan Healthcare Coalitions	Midwest	8 regional coalitions	Michigan Department of Health and Human Services	Michigan Hospital Association	100%	36/36
Mississippi Emergency Support Function - 8 Healthcare Coalition	South	1 statewide coalition with 9 districts	Mississippi State Department of Health	Mississippi Emergency Support Function Healthcare Coalition	100%	32/32
Montana Regional Healthcare Coalitions	West	4 regional coalitions	Montana Department of Public Health and Human Services	Montana Hospital Association	84%	34/49
North Carolina Healthcare Preparedness Coalitions (HPC)	South	8 regional coalitions	North Carolina Department of Health and Human Services	Each HPC is based in a Level I or II trauma center	100%	20/20
North Dakota Healthcare Coalition	Midwest	1 statewide coalition	North Dakota Department of Health (NDDOH)	NDDOH Emergency Preparedness and Response Unit	100%	37/37
Pennsylvania Healthcare Coalition	Northeast	6 regional coalitions	Pennsylvania Department of Health (DOH)	Public Health Management Corporation	100%	16/16
Vermont Healthcare Emergency Preparedness Coalition	Northeast	1 statewide coalition	Vermont Department of Health	All Clear Emergency Management Group	93%	8/8

*Source: email communication from APSR TRACIE, Dec. 8, 2023. Percentages are current as of FY 2021, Budget Period 3.
**Source: email communications from state and regional HPP/HCC Coalition Coordinators.

These interviews were recorded and transcribed. All team members reviewed the transcripts to identify key themes and the team met to reach consensus on identified themes.

FINDINGS

In our interviews with the HCC administrative staff in the eight states, we found that HCCs varied in their level of engagement with and/or knowledge about their organizations' specific involvement with CAHs at a planning or operational level. We also found variations in the breadth and depth of the services HCCs offer to their membership, including CAHs. All HCCs provide emergency preparedness training and tabletop exercises.[†] Of particular interest to CAHs are the educational sessions on emergency preparedness and HCC reviews of their emergency response plans. Some HCCs focus on ensuring that CAHs and other providers have access to emergency supplies, while others target the communication processes. Others concentrate on fostering relationships among the organizations and providers in the HCC before an emergency. This allows collaboration amongst the membership to prepare for the "what ifs" of an emergency in their communities, using an all-hazards approach.[25]

Supporting CAHs as part of a health care coalition

Note that this brief does not provide an exhaustive review of HCCs in general nor of the eight HCCs we interviewed. Rather, it is an introduction to how the eight HCCs operate and how they support CAHs and other hospitals. Through our interviews, we found that each of the HCCs worked to address the needs of their communities in unique ways while meeting the three goals of HCCs as described by ASPR:[15]

- Help patients receive needed care at the right place and time during emergencies.
- Decrease deaths, injuries, and illnesses resulting from emergencies.
- Promote health care delivery system resilience in the aftermath of emergencies.

HCCs meet these goals by concentrating on ASPR's four Health Care and Preparedness Capabilities.[14,27] **Table 2** highlights the alignment of the study HCCS with these capability goals:

- ***Capability 1: Building a Foundation for Health Care and Medical Readiness*** centers on developing collaborative relationships between key stakeholders, identifying potential disasters and mitigation strategies, and engaging members in planning for emergencies.

Health Care Coalition Support for Vermont Critical Access Hospitals During Summer Floods

Vermont has experienced large storms in recent years which have left the state flooded and created hazardous conditions. Flooding has resulted in contaminated water, homes destroyed, and roads impassable. Vermont CAHs continue to offer care for their patients, even as community members look to local hospitals as a place of refuge.[26,27] In July 2023, CAHs relied on their HCC, All Clear, to provide updated and relevant information regarding the flooding. All Clear was able to gather and share information with the CAHs in real time so that hospitals could focus on the safety of their staff and patient outcomes. All Clear acted as an intermediary, setting meetings, gathering information from the hospitals, sharing with the Vermont Department of Health. This information was then shared with Vermont Emergency Management which was able to act logistically. Copley Hospital in northern Vermont, for example, had E. coli in their water due to the flooding. They activated their emergency operations plan and communicated their need for clean, safe water. The HCC shared this with the Department of Health and Vermont Emergency Management, helping Copley Hospital access clean water. [Interviews]

[†] Tabletop exercises involve key personnel discussing simulated scenarios in informal settings and are a way to evaluate and test emergency response plans. They can be used to assess plans, policies, and procedures. (Source: *Hospital and health facility emergency exercise guide. Part 1. The table top exercise*; 2009).

- ***Capability 2: Health Care and Medical Response Coordination*** asks members to share information and resources, work together, and leave competition by the wayside as they seek to safeguard uninterrupted patient care during an urgent situation.
- ***Capability 3: Continuity of Health Care Service Delivery*** focuses on ensuring staff are cared for and equipped to manage crisis situations by coordinating staffing and resources.
- ***Capability 4: Medical Surge*** addresses medical surge capacity by ensuring that members can meet increased demands on their system and minimize the effects of increased patient demand.

One common strategy for CAHs to address **Capability 1** involves regular meetings between members to build collaborative relationships, plan for potential emergencies, and remind members of resources available through the HCC (Table 2). All eight HCCs offer tabletop exercises and regular trainings for members to practice and improve their plans. In some cases, tabletop exercises are conducted statewide, while others are organized regionally to improve access for members.

Member hospitals, including CAHs, are encouraged to become active members and leaders in appropriate HCC workgroups. CAHs are expected to develop their own emergency preparedness plans, prepare their staff to execute these plans, and assist their fellow members during an emergency. CAHs are also expected to participate in trainings and tabletop exercises. During these exercises, CAHs are supported in identifying potential disasters within their communities, documenting needs and capacities, and building relevant training exercises. CAHs can tailor plans with their partners to leverage available resources and address local needs. Not all states require updated emergency plans or annual reviews, but all eight HCCs noted they support CAHs in developing and reviewing emergency preparedness and response plans when requested.

Within **Capability 2**, some HCCs offer training classes and materials to members directly or through websites; work with members to create and review scalable plans; provide sample plans, annexes,[‡] and templates to members (Table 2). These efforts are often grounded in annexes and templates developed by ASPR TRACIE, shared master documents and regional plans on emergency operations, and shared resources and emergency plans through websites or mobile applications. Mississippi's MEHAC reported providing technical assistance to members as requested. Montana's Regional HCC distributes a monthly newsletter to share information with members. North Carolina's regional HCC collaborates with members to perform tabletop exercises to practice components of their regional plan. CAHs are encouraged to use these materials, engage in exercises to improve their plans, and use the relationships built in the HCC in practical applications.

Activities conducted under **Capabilities 3** and **4** overlap to a certain extent (Table 2). Under **Capability 3**, common activities conducted by HCCs include information sharing across members during an emergency, coordination and sharing of resources and supplies, and facilitating evacuation of patients. Among the unique activities conducted by study states in this area are Arizona's provision of incident action plans and situational reports and Pennsylvania's technology support for cyber-attacks.

Common activities conducted under **Capability 4** include systems to assist members in obtaining and storing supplies and sharing staff during surge events (Table 2). According to respondents, CAHs and rural hospitals were a valuable resource to reduce the demands on urban hospitals during the COVID-19 pandemic. Arizona, Michigan, and Mississippi use

[‡] Annexes are documents relating to diverse types of emergencies and the responses to them. ASPR, the HCCs, and individual hospital or hospital systems have annexes as part of their emergency operations plans.[12]

TABLE 2: Functions and Roles of Health Care Coalitions by ASPR Capability Goals

Coalition	1. Foundation for Health Care and Medical Readiness	2. Health Care and Medical Response Coordination	3. Continuity of Health Care Service Delivery	4. Medical Surge
Arizona Coalition for Healthcare Emergency Response (AzCHER)	• Accessible Regional Mangers • Optional Memoranda of Understanding to improve resource sharing • Active CAH recruitment • Mobile App provides disaster resources/guides • Annual exercises	• Classes for members to create emergency preparedness plans • Scalable plans available • Accessible plans and annexes through website	• Coordination and facilitation of resources between members • Interfacility liaison • Facilitates communication between providers during an emergency • Incident Action Plans and Situational Reports	• Helps organizations find equipment • Helps with storage of equipment needed for surge • Resource management – PPE, Equipment, Staffing, Inventory Tracker
Michigan Healthcare Coalitions	• Each regional HCC has a medical director in leadership team • Members communicate effectively and rapidly, reducing wait times for resources	• Master document on emergency operations available • Regional websites offer planning templates, training/ educational resources, and capacity to process trades between members	• Coordination/ facilitation of resources between members • Communication provider during emergency	• Help organizations find equipment • Deployable field hospital for surges • Patients trackable through portals
Mississippi Emergency Support Function - 8 Healthcare Coalition (MEHC)	• Created Partner Support Network for health care organizations • Engages hospitals with annual plan reviews • Encourages hospitals to build relationships with diverse members	• Provides technical assistance to members for planning • Provides templates for emergency planning • Training materials, annexes, and resources available on website	• Facilitates communication between providers during an emergency • Helps with patient evacuations • Provides medical resources during disaster	• Helps organizations find equipment and staffing • Provides patient, evacuation, and casualty tracking • Works closely with other organizations to help during emergencies
Montana Regional Healthcare Coalitions	• Conduct site visits to engage hospitals • Review emergency plans • Educate members on emergency planning • Regional classes open to all members	• Monthly newsletter to inform members • Train community members to ensure coordinated emergency planning • Provide emergency planning tools and templates	• HCCs able to help with supplies during crisis • HCCs can help with evacuation	• Specialists available during emergency • Practice surge plans with regional tabletops to ensure patient care and staff safety during events
North Carolina Healthcare Preparedness Coalitions (HPCs)	• Regional planning encourages members to work together • HPCs work closely with emergency management	• Prepare regional plans and perform tabletops for members to practice roles • Training materials, annexes, and resources available on website	• Help with supplies and equipment during crisis	
North Dakota Healthcare Coalition)	• Works with Hospital Association to build relationships with CAHs	• Provides developmental support for emergency plans	• Helps with supplies and equipment during crisis • Shares information during emergencies • Contracts with ambulance companies to facilitate evacuations	
Pennsylvania Healthcare Coalition	• HCCs reorganized to better serve population – members are supportive of each other and have developed relationships to create patient equity and diversify members and resources	• Provides communication technologies for members to use during emergency • Offers support for development of emergency plans • Uses ASPR-TRACIE annexes to develop templates/tools for member use	• Able to create support technology for cyber attacks • Regional websites provide data, request portals, and resources for members • HCCs shares information during emergency	• Uses plans for surge to redistribute patients in hospitals based upon acuity
Vermont Healthcare Emergency Preparedness Coalition (VHEPC)	• Continues to add members and build relationships among providers • Uses website to communicate with members • Creates space for hospitals to work together	• Supports members with emergency templates	• Shares information during emergency • Facilitates discussions for patient placement	• Can provide limited resource assessment and allocation • Provides administrative support during crisis

the U.S. Department of Health and Human Services' *emPower* platform and/or similar systems to track availability of resources, beds, and patients during a surge which allows them to relyon their network to move patients without compromising patient outcomes.[28] Arizona noted that its mobile app allows members easy access to supplies and resources during an emergency and that HCCs in Connecticut, Colorado, Hawaii, and Vermont are working with AzCHER to develop similar apps to improve communication and resource sharing during an emergency.[29]

HCCs also help coordinate transfers and evacuation of patients and staff during an emergency. HPP funds may be used to ensure resources are available during a disaster such as mobile hospitals (e.g., Michigan and North Dakota) and specialty providers (e.g., Montana). Respondents from the Montana HCC conducts tabletop exercises to practice surge capacity. Vermont respondents noted that they can provide administrative support during a surge event. Based on their structures and responsibilities, the HCCs in our study vary in the extent to which they engage with members during emergencies.

DISCUSSION

During our interviews, we asked HCC administrators about their awareness of and/or engagement with SFPs and State Offices of Rural Health (SORHs). The SFPs and SORHs in North Carolina and Michigan are already connected to their state and regional HCCs. North Carolina's SFP encourages engagement of CAHs with the regional Healthcare Preparedness Coalitions by disseminating information and assisting in transfers of ventilators or other medical supplies as needed. Michigan's HCC utilizes trainings and webinars from the Michigan Center for Rural Health to support its educational efforts.

Other study participants were not as familiar with the role of SFPs and SORHs but expressed interest in learning more about opportunities to engage and partner with them to better support CAH involvement in emergency preparedness planning. This provides an opportunity for SFPs and SORHs to reach out to the HCCs in their states to foster relationships and leverage resources on issues impacting local community emergency response challenges. For example, are SFPs aware of available resources to deal with medical surge capacity? Do they know how to access needed medical supplies in an emergency? What are the communication pathways? What are the barriers CAHs face in complying with federal emergency planning regulations and how can SFPs work with HCCs to overcome those barriers? Can SFPs and HCCs provide mutual benefit to overcome funding constraints?

As noted in our recent paper on encouraging CAH and local health department (LHD) partnerships to address to local needs,[30] one important opportunity to encourage collaborative relationships involved efforts to address local emergency preparedness and response plans and capacity. As acute care hospitals, including CAHs, and public health departments are core members of HCCs, this suggests an opportunity to improve the development of collaborative CAH/LHD partnerships and local emergency response capacity. Through interviews with HCC administrators and outreach to Flex Coordinators, we learned there is still work to be done to foster collaboration and pool resources across these entities to achieve these goals.

To further support CAH/LHD partnerships and improve community emergency response capacity, we suggest that SFPs work with CAHs to quantify their emergency preparedness planning and response capacity, identify their resource and technical assistance needs in this area, and reach out to state and regional HCCs to explore opportunities to leverage their combined resources. The ASPR's website provides listings of state and regional HCCs, and ASPR TRACIE's resources are available to all HCC partners.[20,31] By working together, HCCs and SFPs can improve the recruitment and engagement of CAHs in HCC activities, share contact and resource information, and improve emergency preparedness response capacity at the HCC, CAH, and community levels.

LIMITATIONS

This study was designed to introduce SFPS to HCCs, develop an understanding of the ways in which HCCs recruit, engage, and support CAHs in emergency preparedness planning, and identify opportunities to encourage better linkages between HCCs and SFPs to support CAH emergency response capacity. Although we did not conduct an exhaustive examination of the capacity and resources of all HCCs across the 50 states and territories, this study reveals that HCCs vary in their reach (statewide versus regional) and in the level of resources and support they provide to CAHs and rural communities. As a result, it is important that SFPs and SORHs reach out to and engage with the HCCs in their states to facilitate discussion of opportunities to collaborate, share resources, and better support CAHs.

CONCLUSION

Recent events, such as the mass shooting in Uvalde (Texas), train derailments in the Midwest, flooding in Vermont, and the COVID-19 pandemic; highlight the importance of engaging CAHs efforts to improve their emergency preparedness plans. HCCs can be a significant resource to SFPs and CAHs in improving local and regional emergency preparedness planning and response capabilities. SFPs and SORHs are encouraged to connect with HCCs to explore opportunities to foster their relationships and leverage resources to improve the abilities of CAHs and local communities to prepare for potential emergencies.

For more information on this report, please contact John Gale, john.gale@maine.edu.

This report was completed by the Flex Monitoring Team with funding from the Federal Office of Rural Health Policy (FORHP), Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services (HHS), under PHS Grant No. U27RH01080. The information, conclusions and opinions expressed in this document are those of the authors and no endorsement by FORHP, HRSA, or HHS is intended or should be inferred.

REFERENCES

1. Bodus T. *MGRMC still recovering from recent ransomware attack*. news article. Easstern Arizona Courier. 2023. Accessed December 21, 2023. https://www.eacourier.com/news/mgrmc-still-recovering-from-recent-ransomware-attack/article_5b1ce0ba-66f0-11ee-834e-471a44038804.html
2. Czachor EM. *Hackers had access to patient information for months in new york hospital cyberattack, officials say*. CBS News. 2023. December 12. https://www.cbsnews.com/news/healthalliance-cyberattack-hackers-stole-patient-information-new-york-westchester-medical-center-health-network
3. U.S. Department of Health and Human Services. *Healthcare sector cybersecurity. Introduction to the strategy of the U.S. Department of Health and Human Services*. US DHHS;2023. Accessed December 21, 2023. https://aspr.hhs.gov/cyber/Documents/Health-Care-Sector-Cybersecurity-Dec2023-508.pdf
4. French G, Hulse M, Nguyen D, Sobotka K, Webster K, Corman J, et al. Impact of hospital strain on excess deaths during the COVID-19 pandemic — United States, July 2020–July 2021. *MMWR Morb Mortal Wkly Rep.* November 19 2021;70(46):1613-.
5. Taylor DB, Carballo R. *Patients are evacuated after blackout at los angeles hospital*. New York Times (online). 2023. August 22. Accessed January 19, 2024. https://www.nytimes.com/2023/08/22/us/la-hospital-power-blackout-evacuation-hilary.html
6. RHIhub. *Natural disasters*. RHIhub. 2023. Accessed January 19, 2024. https://www.ruralhealthinfo.org/toolkits/emergency-preparedness/case-studies/natural-disasters
7. KENS5. 10 *shooting victims were treated at Uvalde memorial hospital emergency room*. News article. 2022. May 27. Accessed January 31, 2024. https://www.kens5.com/article/news/special-reports/uvalde-school-shooting/10-shooting-victims-were-treated-at-uvalde-memorial-hospital-texas/273-38f3342f-331d-47f6-bb45-1abf56a5cccb
8. RHIhub. *Mass casualty incidents*. RHIhub. 2023. Accessed January 19, 2024. https://www.ruralhealthinfo.org/toolkits/emergency-preparedness/case-studies/mass-casualty-incidents
9. American Hospital Association. *Rural report: Challenges facing rural communities and the roadmap to ensure local access to high-quality, affordable care*. AHA;2019. Accessed January 19, 2024.
10. RHIhub. *Rural emergency preparedness and response*. 2024. January 5. Accessed January 19, 2024. https://www.ruralhealthinfo.org/topics/emergency-preparedness-and-response
11. Federal Office of Rural Health Policy. *Medicare rural hospital flexibiliy program structure for FY 2024 - FY 2028*. National Rural Health Resource Center;2023 December. Accessed https://www.ruralcenter.org/sites/default/files/2024-01/FY24-FY28%20Flex%20Program%20Structure.pdf
12. Centers for Medicare & Medicaid Services. *Medicare and Medicaid programs; emergency preparedness requirements for Medicare and Medicaid participating providers and suppliers*. Final rule. 81 fr 63859. 2016. September 16. Accessed November 18, 2020. https://www.federalregister.gov/documents/2016/09/16/2016-21404/medicare-and-medicaid-programs-emergency-preparedness-requirements-for-medicare-and-medicaid
13. Administration for Strategic Preparedness and Response, Technical Resources, Assistance Center, and Information Exchange. *Critical access hospital requirements CMS emergency preparedness final rule*. ASPR TRACIE;2021 March 26. Accessed December 7, 2023. https://files.asprtracie.hhs.gov/documents/aspr-tracie-cms-ep-rule-cah-requirements.pdf
14. Centers for Medicare & Medicaid Services. *CMS releases updated emergency preparedness guidance.* Fact sheet. CMS;2021 March 26. Accessed December 7, 2023. https://www.cms.gov/files/document/fact-sheet-cms-releases-updated-emergency-preparedness-guidance.pdf
15. Administration for Strategic Preparedness and Response. *2017-2022 health care preparedness and response capabilities*. ASPR;2016. Accessed April 27, 2023. https://www.phe.gov/preparedness/planning/hpp/reports/documents/2017-2022-healthcare-pr-capablities.pdf
16. Administration for Strategic Preparedness and Response. *Health care coalitions (HCCs)*. ASPR;2021 April. Accessed December 8, 2023. https://aspr.hhs.gov/HealthCareReadiness/HealthCareReadinessNearYou/Documents/HCC-FactSheet-April2021-508.pdf

17. Institute of Medicine, Forum and Medical and Public Health Preparedness for Catatsrphic Events, Board on Health Sciences Policy. Roles of regional health care coalitions in planning and response. In: Davis M, Reeve M, Altevogt BM, eds. *Nationwide response issues after an improvised nuclear device attack: Medical and public health considerations for neighboring jurisdictions: Workshop summary*. IOM; 2014:81-92:chap 9.
18. Administration for Strategic Preparedness and Response. *Hospital preparedness program (HPP)*. ASPR. 2023. Accessed December 13, 2023. https://aspr.hhs.gov/HealthCareReadiness/HPP/Pages/default.aspx
19. Administration for Strategic Preparedness and Response. *About the hospital preparedness program*. 2018. Accessed January 19, 2024. https://aspr.hhs.gov/HealthCareReadiness/HPP/Pages/about-hpp.aspx
20. Administration for Strategic Preparedness and Response. *ASPR health care readiness near you*. n.d. Accessed March 8, 2024. https://aspr.hhs.gov/HealthCareReadiness/HealthCareReadinessNearYou/Pages/Kansas.aspx
21. Centers for Medicare & Medicaid Services. *Core emergency preparedness (EP) rule elements*. CMS.gov. 2023. September 6, 2023. Accessed December 13, 2023. https://www.cms.gov/medicare/health-safety-standards/quality-safety-oversight-emergency-preparedness/core-ep-rule-elements
22. Edwards JC, Kang J, Silenas R. Promoting regional disaster preparedness among rural hospitals. *J Rural Health*. Summer 2008;24(3):321-5. doi: 10.1111/j.1748-0361.2008.00176.x
23. Manley WG, Furbee PM, Coben JH, Smyth SK, Summers DE, Althouse RC, et al. Realities of disaster preparedness in rural hospitals. *Disaster Manag Response*. Jul-Sep 2006;4(3):80-7. doi: 10.1016/j.dmr.2006.05.001
24. Flex Monitoring Team. *About the Flex program. Community engagement*. 2024. Accessed January 19, 2024. https://www.flexmonitoring.org/the-flex-program
25. Centers for Medicare & Medicaid Services, Survey and Certification Group. *Clarifications on definitions. Emergency preparedness regulation, faq*. CMS;2017. Accessed January 19, 2024. https://www.cms.gov/medicare/provider-enrollment-and-certification/surveycertemergprep/downloads/faq-round-four-definitions.pdf
26. Copley Hospital. *Community collaboration kept Copley afloat with water*. Copley (VT) Health Systems. 2023. Accessed February 5, 2024. https://www.copleyvt.org/community-collaboration-kept-copley-afloat-with-water/
27. Del Trecco M. Del trecco: *Hospitals prepared for flooding, collaborated*. Vermont Biz. 2023. July 18. Accessed February 5, 2024. https://vermontbiz.com/news/2023/july/18/del-trecco-hospitals-prepared-flooding-collaborated
28. US. Department of Health and Human Services. *HHS emPower*. US DHHS, ASPR, and CMS. 2024. https://empowerprogram.hhs.gov/
29. Arizona Coalition for Healthcare Emergency Response. *AzCHER annual report 2023*. AzCHER;2023. Accessed January 31, 2024. https://azcher.org/wp-content/uploads/2023/07/AzCHER-annual-report-2023_FINAL.pdf
30. Croll Z, Jewell C, Gale J. *Critical access hospital-local health department partnerships to address rural community needs*. University of Southern Maine, Flex Monitoring Team;2024 January. Accessed January 22, 2024. https://digitalcommons.usm.maine.edu/rural_hospitals/63/
31. Administration for Strategic Preparedness and Response. *Welcome to ASPR TRACIE*. 2024. March 11. Accessed March 11, 2024. https://asprtracie.hhs.gov/