

Hurricane Resources at Your Fingertips

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This document provides numerous hurricane-related resources applicable to a variety of stakeholders and audiences. **Appendix A** contains U.S. Department of Health and Human Services (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR)-specific resources and contact information. **Appendix B** includes all the citations with annotations if you'd like to dive deeper into a resource. ASPR TRACIE (Technical Resources, Assistance Center, and Information Exchange) [Topic Collections](#) provide a wide array of materials and resources for further research.

For general natural disaster preparedness the ASPR TRACIE Natural Disasters Topic Collection provides a wealth of resources for preparedness, response, recovery, and mitigation and contains the following water (hurricane, flooding, tsunami) emergency-related resources:

(Updated August 28, 2017)

- [Lessons Learned: Floods and Landslides](#)
- [Lessons Learned: Hurricanes](#)
- [Lessons Learned: Tsunamis](#)
- [Plans, Tools, and Templates: Floods and Landslides](#)
- [Plans, Tools, and Templates: Hurricanes](#)
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Key Lessons Learned from Hurricane Response

- **Prepare dialysis patients:** provide early dialysis in advance of a storm or other potentially disruptive event to reduce morbidity and mortality in end-stage renal disease (ESRD) patients, promote widespread use of the 3-day emergency diet, and prepare for utility disruptions by rationing critical supplies. The [Kidney Emergency Community Response \(KCER\)](#) maintains hotlines and resources for patients, caregivers, providers, and health and emergency management officials and should be monitored for updated info.
- **Communicate often:** coordinate messages with the Joint Information Center (JIC) of your local Emergency Operations Center (EOC), prepare messages in advance of the event for external and internal audiences, and share messages with staff and the public through traditional venues (website, news, call-downs) and social media.
 - Use healthcare coalitions to support multi-agency response needs.
- **Plan for utility disruptions:** maintain open communications using ham radios and satellite phones. Use the [HHS emPOWER map](#) to find who may be at risk of/impacted by power outages and to anticipate potential surge in hospitals and shelters and assistance requests for EMS. Ensure generators are in working order and have adequate fuel, consider alternative power sources for critical medical equipment, back up IT data and have paper forms/records ready, consider relocating critical systems and services to higher ground (above flood plain), and have back up water supply available or a plan to purify polluted water.
- **Provide assistance to vulnerable/ at-risk populations (uninsured populations):** know who and where these populations are in your jurisdiction, plan for uninsured people with special medical needs at shelters, and use the [Emergency Prescription Assistance Program \(EPAP\)](#) to help plan for the needs of patients with access issues to their drugs, vaccines, medical supplies and durable medical equipment. Ensure continued delivery of mental health services and access to disaster behavioral health services. Please visit the website to learn more about EPAP and when EPAP is activated at www.phe.gov/EPAP.
- **Ensure key supplies are available:** purchase key medications and supplies from more than one supplier to avoid disruption in services, and consider higher inventories of medications and supplies known or projected to be in [short supply](#).
- **Update evacuation and shelter-in-place plans:** ensure your evacuation plan includes: a formalized local Incident Command (IC) structure, guidance to place transport isolettes on the ground floor during an emergency, guidance to use social workers as family liaisons, Neonatal Intensive Care Unit (NICU)-specific power failure and evacuation checklists, and identified locations of infant-specific evacuation equipment. Ensure all staff have an understanding and plan to address the risks versus benefits of evacuation and shelter-in-place decisions.
- **Take care of staff:** to ensure that staff are able to address their personal needs so they are able to come to work (and stay), review these [tips for retaining and caring for staff after a disaster](#). (Included September 19, 2016)
- **Plan early for recovery:** conduct the necessary actions to return to normal or “new normal” and respond with recovery in mind as soon as the event occurs.

Key Lessons Learned from Resources by Profession/ Facilities

Behavioral/ Mental Health Professionals

- Download the [SAMHSA Behavioral Health Disaster Response App](#) prior to deployment.
- Promote and disseminate information about the [SAMHSA National Disaster Distress Helpline](#) to communities as well as responders.
- Review the ASPR TRACIE [Disaster Behavioral Health: Resources at Your Fingertips](#) document. (Added May 11, 2017)
- Emergency planners, responders, and others preparing for hurricanes or needing resources for response and recovery efforts, visit the [ASPR Division for At-Risk Individuals, Behavioral Health, and Community Resilience](#) website for resources and fact sheets on at-risk individuals, behavioral health, and community resilience such as [First Responder Communication Strategies](#), [Planning for Psychiatric Patient Movement During Emergencies and Disasters](#); [Disaster Behavioral Health Capacity Assessment Tool](#); [Disaster Behavioral Health Coalition Guidance](#); [Individual Resilience: Factsheet for Responders](#); [Community Resilience](#); and [Individual Resilience](#) fact sheets.
- Encourage leaders and supervisors to take the online course [Building Workforce Resilience through the Practice of Psychological First Aid – A Course for Supervisors and Leaders](#).
- Visit [SAMHSA](#) for a number of [resources](#) on coping with hurricanes, including additional resources found in the SAMHSA Disaster Behavioral Health Information Series [DBHIS collection](#), and tip sheets from the SAMHSA Disaster Technical Assistance Center ([DTAC](#)).
- For extensive resources on children and hurricanes, visit the [National Child Traumatic Stress Network](#).
- For tips on supporting healthcare facility staff in the wake of disasters access the [ASPR TRACIE Tips for Retaining and Caring for Staff after a Disaster](#) Fact Sheet.
- Visit ASPR TRACIE to review various resources in the [Mental/Behavioral Health Topic Collection](#).

Communications Specialists/ Public Information Officers

- Coordinate messages with the JIC of your local EOC.
- Promote and disseminate information about the [SAMHSA National Disaster Distress Helpline](#).
- Prepare messages in advance of the event for external and internal audiences.
- Ensure 24/7 contact information is current (staff, media, and partners).
- Share messages on a regular basis: providing updated information will help to keep the public and staff posted on hurricane developments.
- Share messages via social media: Identify and use the same handles and hashtags being used by residents.
- Share messages through traditional sources also (television, radio, telephone hotlines).

- Text messaging is more reliable than phone calls.
- Satellite phones should be considered with awareness of potential limited use in overcast conditions and most require outdoor use.
- Ham radio support can provide emergency communication capability when other resources fail.
- Key resources for communications:
 - [The Emergency Email and Wireless Network](#)
 - [Email and SMS Weather Alert Services](#)
 - [Risk Communication Toolkit for Flooding](#)
 - [General Risk Communication Information](#)
 - [GeoHEALTH Platform](#)
 - [First Responder Communication Strategies](#)

Dialysis Centers

- Early dialysis, in advance of a storm or other potentially disruptive event can reduce morbidity and mortality in ESRD patients.
- The [Kidney Emergency Community Response](#) maintains hotlines and resources for patients, caregivers, providers, and health and emergency management officials and should be monitored for updated info.
- Guidance for the [rationing of critical supplies](#) was developed by Institute of Medicine (IOM) (now called the National Academy of Medicine) and now adapted by the Association of State and Territorial Health Officials (ASTHO).
- Guidance for the [use of water from tanker trucks and other non-public water sources](#) has been promulgated for use in the event of a utility disruption.
- Widespread use of the 3-day emergency diet.
- Prepare now for post-hurricane challenges include: lack of dialysis documentation from transient dialysis patients, staff shortage, staff transportation, and communication with other agencies.
- Key resources for dialysis providers and their clients:
 - [Dialysis Care after a Disaster](#)
 - [Getting Dialysis Treatments in a Disaster or Emergency](#)
 - [Dialysis Centers ASPR TRACIE Topic Collection](#)

Emergency Management/ Public Health Preparedness Professionals

- Plan for people with special medical needs when standing up shelters.
- Plan for maintaining continuity of prescription medications and durable medical equipment for patients with chronic diseases who cannot access pharmacies or sustain their medication supply. Use these [Emergency Prescription Assistance Program Fact Sheets](#) (the [Overview Fact Sheet](#) and Fact Sheets from Hurricanes [Ike](#), [Gustav](#), and [Sandy and 2016](#)

[flooding in Louisiana](#)) to assist in planning for the pharmacy and prescription needs, durable medical equipment, medical supplies, and vaccines provided at retail pharmacies. Create or update your plan for receiving, cataloging, using or storing medical donations.

- Share messages on a regular basis: Holding regular briefings is beneficial to keep the public and staff posted on hurricane developments.
- Prepare for vulnerable populations: know who and where these populations are in your jurisdiction. Low-income populations may be particularly vulnerable to storms and their effects.
- Prepare for possible health consequences and issues from evacuations: As residents prepare to evacuate, they may suffer from a variety of non-fatal injuries, including blunt trauma, puncture wounds, lacerations, sprains/strains, motor vehicle crashes, animal bites, and electrocution.
- Have a plan for providing or supporting mental/behavioral health needs of responders and community: Traumatic stress reactions, anxiety, and symptoms of depression are all common responses to disaster; prepare to share coping strategies with survivors and responders through the provision of education and support services and Psychological First Aid and/or Skills for Psychological Recovery by trained staff.
- Use the [Sea, Lake, and Overland Surges from Hurricanes \(SLOSH\) Model and Display Program](#) as a tool to aid emergency managers in visualizing storm surge vulnerability. This data is also available in [GeoHEALTH](#).
- Use the [HHS emPOWER map](#) to find the monthly total of Medicare beneficiaries with electricity-dependent equipment claims at the U.S. state, territory, county, and zip code level and enable “real-time” NOAA severe weather tracking services to identify areas and populations that may be at risk of/impacted by power outages.
- Use the [HHS Response and Recovery Resources Compendium](#) to search the repository of HHS products, services, and capabilities available to state, tribal, territorial, and local agencies before, during, and after public health and medical incidents.
- Download and review the [SAMHSA Behavioral Health Disaster Response App](#) prior to deployment.
- Encourage leaders and supervisors to take [Building Workforce Resilience through the Practice of Psychological First Aid – A Course for Supervisors and Leaders](#).
- Ensure a program is in place for the surveillance and control of mosquitos after rain and flooding events. The following resources can be helpful:
 - [Surveillance and Control of *Aedes aegypti* and *Aedes albopictus* in the United States](#)
 - [Information on Aerial Spraying](#)
 - [Interim CDC Recommendations for Zika Vector Control in the Continental United States](#)
 - [Insect Repellent Use and Safety](#)
 - [Insect Repellent Use During Pregnancy and DEET Use While Pregnant](#)
- Key resources for emergency managers/ public health professionals:
 - [Hurricane Worker Podcast](#)

- [Managing Mass Fatalities: A Toolkit for Planning](#)
- Unified Planning Coalition: Health and Medical Mission Ready Package Development. ([PowerPoint](#), [Audio](#), and [Transcript](#))
- [Individual Resilience: Factsheet for Responders](#)
- [Planning for Psychiatric Patient Movement During Emergencies and Disasters](#)
- [SAMHSA DTAC DBHIS Resource Collection for Responders](#)

Hospital/ Healthcare Facility Emergency Manager or Administrator

Preparedness

- Having robust plans is key in your preparedness, response, and recovery efforts. For a list of applicable, plans, tools, and templates, [click here](#).
- Medications and Resources
- Purchase key medications and supplies from more than one supplier.
- Substituted medications or supplies should ideally be similar to those already used by an institution's providers.
- Inventories should be tracked electronically to monitor medication/supply levels.
- Consider higher inventories of medications and supplies known or projected to be in short supply.
- Institute alternate use protocols when a (potential) shortage is identified.
- Support government and nongovernmental organizations in efforts to address supply chain vulnerability.

Patients

- Patients exposed to floodwaters may [become infected with bacterial pathogens](#) (e.g., staphylococcus, Streptococcus, and vibrio vulnificus).
- Prepare your facility to evacuate and/or receive evacuated patients.
- You will likely see patients who have fallen, been in traffic crashes, sustained puncture wounds and lacerations, or suffer acute exacerbations of chronic illnesses.

Water

- Ensure you have enough drinking water available for patients and staff. This is a key issue for many hospitals in the aftermath of heavy flooding.
- Test water supply frequently, prepare to activate alternate plans for dialysis, laundry, food preparation, toileting, and other water-dependent functions.

Information Technology

- Ensure information technology (IT) personnel are part of the incident command structure.
- Validate third-party data recovery services.
- Backup data in a safe-place offsite, if possible.
- Prepare and practice with paper-based options for documentation.
- Validate your backup power.

Critical Systems

- Consider relocating critical systems and services to higher ground (above flood plain) before the storm hits.
- Ensure pump systems and other protective mechanisms are working well.
- Ensure adequate levels of fuel for generators: Healthcare facilities should test their back-up power plans before a storm strikes.
- Areas that have been noted in hospitals to cause the most damage/impact: wind related issues, water intrusion, HVAC, generators, fuel tanks, routine maintenance, medical gas cylinders and liquid oxygen tanks, bulk storage, and emergency evacuation stairways.

Evacuations/ Sheltering-in-place

- Meet with local emergency management services to review evacuation plans by ambulance, buses or other mechanisms.
- Evacuation transport for children often bypass adult-oriented facilities in favor of specialized children's hospitals.
- Ensure your evacuation plan includes a formalized local IC structure, guidance to place transport isolettes on the ground floor during an emergency, guidance

General Hospital/Healthcare Quick Links

Personal Preparedness

- [Suggested Hurricane Supply Checklist](#)
- [Hurricane Season Preparedness Guide](#)
- [Hurricanes](#)
- [Flooding Preparation and Recovery](#)

Hospital/ Healthcare Facility Preparedness

- [Pre-Storm Checklist](#)
- [Disaster Preparedness Guide for Assisted Living Facilities](#)
- [CEO Checklist](#)
- [Pre-Event Evacuation Decision Guide](#)
- [Weathering the Storm: A Hurricane Planning, Response, and Recovery Toolkit](#)
- [Inter-Facility Staffing Agreement](#)

Hospital/Healthcare Utility Interruption

- [Planning for Water Supply Interruptions: A Guide for Hospitals and Healthcare Facilities](#)
- [Planning for Power Outages: A Guide for Hospitals and Healthcare Facilities](#)
- [Working Without Technology: How Hospitals and Healthcare Organizations Can Manage Communication Failure](#)
- [Guidelines for Surviving Water Disruption](#)
- [Emergency Water Supply Planning Guide for Hospitals and Health Care Facilities](#)

Volunteers

- [Quick Reference: Reviewing Emergency Volunteer Liability and Protections](#)

to use social workers as family liaisons, the inclusion of NICU-specific power failure and evacuation checklists, and identified locations of infant-specific evacuation equipment.

- Key resources related to evacuation:
 - [Hospital Evacuation Checklist](#)
 - [Hospital Emergency Evacuation Toolkit](#)
 - [Healthcare Facility Evacuation and Shelter-in-Place Topic Collection](#)
- Key resources related to sheltering-in-place:
 - [Hospital Shelter-In-Place Checklist](#)
 - [Emergency Food Guidance Document](#)
 - [How To Cope With Sheltering in Place](#)

Staff/ Employee Resources and Safety

- Reopening a healthcare facility after a flood requires a review of facility infrastructure, air quality, the ability to sterilize and disinfect properly, and the functional capacity of supportive departments such as the laboratory and pharmacy.
- Staff should bring enough food, clothing, and supplies for several days – having one’s personal needs taken care of allows healthcare workers to devote more effort to patient care.
 - Encourage staff to pack “go bags” to bring to work with them that contain snacks, clean clothes, personal hygiene materials, medications, and other items.
 - ASPR TRACIE developed these [tips for retaining and caring for staff after a disaster](#) (Updated September 19, 2016).
- Share information with staff about the facility evacuation plan (when it will be evacuated and how they will be notified).
- Staff behavioral health needs should be addressed, especially if they are hearing of major destruction in their or their loved ones’ neighborhoods.
- Ensure safety of hospital staff: Once patients evacuated hospitals from New Orleans hospitals, staff left in caravans for safety (from unruly crowds and poorly lit and flooded roads).
- Designated staff in each hospital should be trained in psychological first aid and know where to identify appropriate information on effective coping strategies, and when and where to refer individuals who may need additional behavioral health support (i.e., an Employee Assistance Program or the SAMHSA Disaster Distress Helpline).
- Key resources related to worker safety:
 - [CDC Storm/Flood and Hurricane Typhoon Response](#)
 - [Safety Information for Health Care Professionals](#)
 - [Safety Information for Response and Cleanup Workers](#)
 - [Hospital Disaster Preparedness: Worker Safety](#)
 - [Responder Safety and Health ASPR TRACIE Topic Collection](#)

Recovery

- Planning for recovery is as important as planning for response.
- Recovery plans should address actions necessary to return to normal or new normal and can begin as soon as the event occurs.
- Key resources related to recovery:
 - [Hospital Repopulation After Evacuation Guidelines and Checklist](#)
 - [Post-Event Evacuation Decision Guide](#)
 - [Healthcare COOP and Recovery Planning: Concepts, Principles, Templates and Resources](#)
 - [Essential Functions and Considerations for Hospital Recovery](#)
 - [Rebuilding Emergency Care After Hurricane Sandy.](#)
 - [Hospital Emergency Preparedness and Response During Superstorm Sandy \(OEI-06-13-00260\)](#)
 - [Secondary Surge Capacity: A Framework for Understanding Long-Term Access to Primary Care for Medically Vulnerable Populations in Disaster Recovery](#)
 - [Healthcare COOP and Recovery Planning: Concepts, Principles, Templates and Resources.](#)
 - [Hospital Assessment and Recovery Guide](#)
 - [Recovery Planning ASPR TRACIE Topic Collection](#)
 - [Continuity of Operations ASPR TRACIE Topic Collection](#)
 - [After the Flood: Mold Specific Resources](#)

Long-term Care Facilities

- Prepare for facility evacuation by maintaining communication and collaboration with state and local agencies.
- Prepare for morbidity and logistical factors (e.g., moving frail individuals) when planning for facility evacuations.
- Evacuation of nursing homes may have deleterious effects on residents with severe dementia.
- During evacuations, receiving facilities are more likely than evacuating facilities to provide mental health services and treatment to evacuated residents.
- Physical harm, psychological distress, cognitive decline, and increased social isolation are areas that deserve special attention and planning for individuals in long-term care facilities.
- Nursing homes must be incorporated into disaster response systems at all levels - national, state, and local.
- Disaster response systems including Emergency Operations Centers (EOC) must designate nursing homes as “health care” facilities. These facilities must receive the same priority status for restoration of utilities (e.g., power, phone service) as hospitals, and may need enhanced police protection during community recovery.
- Shelter in place, when possible, and harden the physical plant to withstand hurricane winds and provide emergency power.

- Long-term care providers must know their storm surge/flood zone, the capacity of the facility’s infrastructure to withstand hurricane winds, and must develop viable plans for evacuation or sheltering in place in accordance with their facility’s risk.
- Transportation for the evacuation of long-term care facilities must be incorporated into patient movement disaster planning efforts at the national, state and local levels.
- Maintaining communications between long-term care providers and Emergency Operations Centers is vital in a disaster. Satellite phones or ham radios are recommended for use in all facilities.
- The ability to share information and resources and coordinate evacuation and response efforts hinges on the establishment of compatible databases for shared use during disasters.
- Long-term care facility disaster plans must be tested with drills that include the identification and management of cognitively-impaired residents and those with special needs such as dialysis, ventilators, and oxygen.
- Long-term care facility disaster plans must include a plan for communicating with nursing home residents, families, and staff before, during, and after a disaster.
- Flexibility is a key determinant in successfully responding to disasters. Nursing home and assisted living facility disaster plans need to allow for adaptation to the circumstances they are facing.
- Key resources for Long Term Care Facilities:
 - [Long Term Care Facility ASPR TRACIE Topic Collection](#)

Pharmacies

- Prepare to conserve medications, substitute, and adapt if resources become scarce.
- Maintain situational awareness of drugs approaching scarcity and plan accordingly.
- Broaden options and consider different suppliers or medications.
- Retail pharmacies and providers should encourage patients to do the following:
 - Subscribe to your retail pharmacies on social media (i.e. Twitter, Instagram, and Facebook) to get disaster alerts, such as [CVS](#) or [Walgreens](#).
 - For patients on medications requiring compounding, visit the [International Academy of Compounding Pharmacists \(IACP\)](#) and click on “Find a Local Compounder Store” in the event you and your family members need to plan for disasters.
- Key resources for pharmacies:
 - [Rx On the Run](#)
 - [Rx Open](#)
 - [Stability of Refrigerated Drugs](#)
 - [Emergency and Disaster Preparedness and Response Planning: A Guide for Boards of Pharmacy](#)
 - [Dosage Comparison Charts](#)
 - [Drug Shortages and Disasters ASPR TRACIE Fact Sheet](#)
 - [Pharmacy ASPR TRACIE Topic Collection](#)

Veterinarians/ Animal Care Professionals

- Veterinary medical practices should have an emergency plan.
- Work with county/state officials to plan for pet evacuations and pets in shelters: Remember that many residents will not evacuate if it means leaving their pets behind; and some residents have service animals and may bring them to healthcare facilities/shelters.
- Veterinarians should be prepared to treat flood-related illnesses in clients and share information with pet owners.
- Those who work with livestock should monitor situations and animal health more closely during and after a storm.
- Key resources for veterinarians:
 - [Interim Guidelines for Animal Health and Control of Disease Transmission in Pet Shelters](#)
 - [AVMA Emergency Planning Resources for Veterinary Practices – Disaster Preparedness](#)
 - [Emergency Animal Sheltering Best Practices](#)
 - [A Method for Decontamination of Animals Involved in Floodwater Disasters](#)
 - [Disaster Veterinary Issues ASPR TRACIE Topic Collection](#)

Appendix A: ASPR Resources

PHE.Gov serves as the key one-stop website for all federal public health and medical information sources and assets. The site is searchable for multiple resources.

<http://www.phe.gov>

The **Technical Resources, Assistance Center, and Information Exchange (TRACIE)** is a healthcare emergency information gateway that supports timely access to resources and promising practices, identifies and remedies knowledge gaps, and provides users with responses to a range of requests for technical assistance.

<https://asprtracie.hhs.gov/>

The **HHS Response and Recovery Resources Compendium** is an easy to navigate, comprehensive web-based repository of HHS resources and capabilities available to federal, state, local, territorial and tribal stakeholders before, during, and after public health and medical incidents.

<http://www.phe.gov/emergency/hhscapabilities/Pages/default.aspx>

The **HHS emPOWER Initiative** encompasses three national capabilities which ASPR developed in partnership with the Centers for Medicare & Medicaid Services to enhance situational awareness and support emergency preparedness, response and recovery for Medicare beneficiaries whose lives depend on electrical medical and assistive devices and healthcare services. These capabilities are:

HHS emPOWER Map (www.phe.gov/empowermap) is an interactive public map that features a de-identified monthly total of Medicare beneficiaries with claims for certain electricity-dependent medical and assistive equipment at the national, state, territory, county, and zip code levels as well as “real-time” NOAA severe weather tracking services (e.g. flood outlook, hurricane, precipitation). Together, this data can help health officials, hospitals, first responders, and electric utility and community members anticipate and plan for areas and populations that might be at risk from prolonged power outages following severe weather events.

De-identified Emergency Planning Datasets provide a monthly de-identified total number of Medicare beneficiaries with claims for certain electricity-dependent medical and assistive equipment and healthcare services that include oxygen tank services, dialysis, and home health visits. At this time, state health department officials can request a monthly dataset via their ASPR Regional Administrator/Regional Emergency Coordinator (RA/REC). A restricted access portal is under development. Contact your ASPR Regional Emergency Coordinator or dhsp@hhs.gov to utilize this capability.

Individual Response Outreach Individual Dataset can be made available only to a public health authority in the event of an emergency that necessitates life-maintaining and saving outreach assistance prior to, during, and after an incident, emergency, or disaster. The public health authority complete and submit an official minimum necessary disclosure request via ASPR to CMS for official review and approval. Potential submissions should be coordinated and discussed with their ASPR RA/REC prior to submission. Contact your ASPR Regional Emergency Coordinator or dhsp@hhs.gov to utilize this capability.

The **GeoHEALTH Platform** is ASPR's secure Geographic Information System (GIS) based, electronic, interactive mapping application. This application incorporates information from numerous sources both internal and external to HHS. <http://geohealth.hhs.gov>

The **Division for At-Risk Individuals, Behavioral Health and Community Resilience** provides subject matter expertise, education, and coordination to internal and external partners to ensure that the functional needs of at-risk individuals and behavioral health issues are integrated in the public health and medical emergency preparedness, response, and recovery activities of the nation to facilitate and promote community resilience and national health security. Many resources are available at www.phe.gov/abc.

Appendix B: Full References with Citations

Access and Functional Needs

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2015). [HHS emPOWER Map](#).

Healthcare providers, electric company representatives, and community members can use this map to find the monthly total of Medicare beneficiaries with electricity-dependent equipment claims at the U.S. state, territory, county, and zip code level and enable “real-time” NOAA severe weather tracking services to identify areas and populations that may be at risk of/impacted by power outages.

Behavioral/Mental Health

Division for At-Risk Individuals, Behavioral Health, and Community Resilience (ABC). (2012). [Planning for Psychiatric Patient Movement during Emergencies and Disasters](#). U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration.

This tip sheet can help healthcare providers plan to relocate patients receiving psychiatric care in the event of an emergency. It includes a list of questions for planners and healthcare providers that can help with planning efforts.

Division for At-Risk Individuals, Behavioral Health, and Community Resilience (ABC). (2014). [Disaster Behavioral Health Capacity Assessment Tool](#). U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response.

This tool can help state and local agencies and healthcare provider organizations measure their disaster behavioral health capacity and its integration into all phases of emergency management efforts. As users complete the assessment, gaps will emerge, highlighting opportunities for further research and local collaboration.

Division for At-Risk Individuals, Behavioral Health, and Community Resilience (ABC). (2014). [Disaster Behavioral Health Coalition Guidance](#). U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response.

This document provides guidance for establishing a disaster behavioral health coalition for disaster response and recovery to facilitate communication across provider groups, coordinate behavioral health care efforts, and help identify existing and emergent

needs. Checklists of guidelines for successful coalitions, ways to recruit members, and Disaster Behavioral Health Coalition activities are included.

Division for At-Risk Individuals, Behavioral Health, and Community Resilience (ABC). (2015). [Community Resilience](#). U.S. Department of Health and Human Services. Office of the Assistant Secretary for Preparedness and Response.

This factsheet provides an overview of community resilience and its role in disaster preparedness and response.

Division for At-Risk Individuals, Behavioral Health, and Community Resilience (ABC). (2015). [Individual Resilience](#). U.S. Department of Health and Human Services. Office of the Assistant Secretary for Preparedness and Response.

This factsheet explains resilience and how it contributes to disaster preparedness and response and community resilience.

Division for At-Risk Individuals, Behavioral Health, and Community Resilience (ABC). (2015). [Individual Resilience: Factsheet for Responders](#). U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response

Responders can learn more about resilience and the advantageous role it plays in disaster response and recovery from this factsheet.

National Association of County and City Health Officials. (2015). [Building Workforce Resilience through the Practice of PFA- L: A Course for Supervisors and Leaders](#).

This self-paced 90-minute course was developed by the U.S. Department of Health and Human Services and the National Association of County and City Health Officials to introduce the concept of Psychological First Aid (PFA) as a leadership tool to build workforce resilience. The course uses scenario-based exercises to teach participants about the core components of Psychological First Aid for Leaders.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2016). [First Responder Communication Strategies](#).

This webpage provides communication strategies and steps for responders assisting and directing people in crisis to help gain trust and reduce anxiety in those being treated, and achieve better physical and emotional outcomes for patients and safer conditions for all.

U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. (n.d.). [Behavioral Health Disaster Response App](#). (Accessed 3/16/2016.)

This app provides first responders access to field resources for aiding disaster survivors, and the ability to search for and map behavioral health service providers in the impacted area, review emergency preparedness materials, and share resources.

U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. (2015). [Disaster Distress Helpline](#).

This helpline allows anyone in the U.S. who wants support for any distress that they or someone they care about may be feeling related to any disaster. Users can call 1-800-985-5990 or text "TalkWithUs" to 66746 (standard rates may apply) to connect with trained crisis counselors for free support, available 24/7/365. Translation services are also available.

Communications

Enotem, Inc. (2015). [The Emergency Email and Wireless Network](#).

Users can register to subscribe to local weather, health, homeland security and cybercrime alerts delivered by email and/or text message.

National Weather Service. (n.d.) [Email and SMS Weather Alert Services](#). (Accessed 5/18/2015.)

The National Weather Service provides links to federal and external alert and warning sources

Demuth, J, et al. (2012). [Creation and Communication of Hurricane Risk Information](#). American Meteorological Society. **(Included September 2, 2016)**

The authors conducted in-depth interviews and observational sessions with meteorologists and emergency managers from the Greater Miami area to understand lessons learned in crafting communication and messages to the public during hurricane watch and warning periods.

Oregon Health Authority, Public Health Division Health Security, Preparedness, and Response Program. (2015). [Risk Communication Toolkit for Flooding](#).

This toolkit can help local health authorities develop public messaging during a flood event. It includes information relevant to the actual event and the recovery period such as key messages, talking points, sample press releases, factsheets, links to key resources, and sample social media messages for Twitter and Facebook.

U.S. Department of Health and Human Services. (2015). [GeoHEALTH Platform](#).

This tool provides central access to federal disaster and public health related natural disaster alerts, warnings, and other resources.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2015). [HHS emPOWER Map](#).

Healthcare providers, electric company representatives, and community members can use this map to find the monthly total of Medicare beneficiaries with electricity-dependent equipment claims at the U.S. state, territory, county, and zip code level and enable “real-time” NOAA severe weather tracking services to identify areas and populations that may be at risk of/impacted by power outages.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2016). [First Responder Communication Strategies](#).

This webpage provides communication strategies and steps for responders assisting and directing people in crisis to help gain trust and reduce anxiety in those being treated, and achieve better physical and emotional outcomes for patients and safer conditions for all.

U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. (2015). [Disaster Distress Helpline](#).

This helpline allows anyone in the U.S. who wants support for any distress that they or someone they care about may be feeling related to any disaster. Users can call 1-800-985-5990 or text "TalkWithUs" to 66746 (standard rates may apply) to connect with trained crisis counselors for free support, available 24/7/365. Translation services are also available.

Continuity of Care

Arrieta, M.I., Foreman, R.D., Crook, E.D., and Icenogle, M.L. (2008). [Insuring Continuity of Care for Chronic Disease Patients After a Disaster: Key Preparedness Elements](#). American Journal of Medical Sciences. 336(2):128-33.

The authors interviewed 30 key informants (KI), including health and social service providers that provide healthcare to the under- and uninsured along the Mississippi and Alabama Gulf Coast. Pre-disaster issues of importance were patient education and preparedness; evacuation guidance and support; planning for special medical needs shelters; and health care provider preparedness. Post-disaster issues were communication; volunteer coordination/credentialing; and donation management, particularly for medications.

Arrieta, M.I., Foreman, R.D., Crook, E.D., and Icenogle, M.L. (2009). [Providing Continuity of Care for Chronic Diseases in the Aftermath of Katrina: From Field Experience to Policy Recommendations](#). *Disaster Medicine and Public Health Preparedness*. 3(3):174-82.

The authors interviewed 30 key informants (KI), including health and social service providers that provide healthcare to the under- and uninsured along the Mississippi and Alabama Gulf Coast. Respondents indicated that mental health, diabetes mellitus, hypertension, respiratory illness, end-stage renal disease, cardiovascular disease, and cancer were medical management priorities after a disaster. The most frequently mentioned barrier to providing care was maintaining continuity of medications. Inaccessible medical records, poor patient knowledge, and financial constraints also impacted care. Implemented or suggested solutions included better pre-disaster patient education; support for electronic medical records at community health centers; and better management of donated medications/medical supplies.

Horahan, K., Morchel, H., Raheem, M. and Stevens, L. (2014). [Electronic Health Records Access During a Disaster](#). *Online Journal of Public Health Informatics*. 5(3):232.

The authors describe a novel approach to reestablishing connectivity with the electronic health records server for a hospital affected by Superstorm Sandy through resource-sharing of a disaster response asset from a hospital in a neighboring state.

Continuity of Operations

California Hospital Association. (2012.) [Hospital Continuity Planning Toolkit](#).

This toolkit provides examples for hospitals to follow when developing their continuity plans. It is a companion document to the California Hospital Association's Hospital Continuity Program Checklist.

California Association of Health Facilities Disaster Preparedness Program. (n.d.) [Continuity of Operations Plan Template for Long Term Care Facilities](#). (Accessed 8/28/17.)

This is a continuity of operations plan template for long-term care facilities that may be customized, as needed.

Kansas Department of Health and Environment. (n.d.) [Continuity of Operations Plan Guidance Document](#). (Accessed 7/30/15.)

This document contains guidance for hospitals to develop continuity of operations plans, and includes a checklist of required elements and a template for an annex to be completed and attached to a hospital's Emergency Operations Plan.

U.S. Department of Health and Human Services, Office of the Assistant Secretary of Preparedness and Response. (2015). [Healthcare COOP and Recovery Planning: Concepts, Principles, Templates and Resources](#).

This guide includes an overview of healthcare continuity of operations planning, customizable templates, and other related resources.

Wisconsin Hospital Association. (2011). [Inter-Facility Staffing Agreement](#).

Healthcare facilities may use this template to enter into agreements to share staff during emergencies or disasters.

Dialysis Centers

Kelman, J., K. Finne, et al. (2015). [Dialysis Care and Death Following Hurricane Sandy](#). (Abstract only.) American Journal of Kidney Disease. 65(1): 109-15.

The authors of this study address the variation in dialysis care patterns and mortality for patients with end stage renal disease in New York City and the State of New Jersey after Hurricane Sandy. They discuss their findings and conclude that members of the study group (those living in areas affected by Sandy) had higher rates of post-storm visits to the emergency department, hospitalizations, and 30-day mortality than members of the comparison groups.

Kidney Community Emergency Response Coalition. (n.d.). [Kidney Care in Emergencies: Community Considerations](#). (Accessed 8/28/2017.)

This brochure includes information on what the community needs to know about emergency preparedness for individuals on dialysis or with a kidney transplant. This information is also provided as a [one-page flyer](#).

Lempert K. and Kopp, J. (2013). [Hurricane Sandy as a Kidney Failure Disaster](#). American Journal of Kidney Disease. 61(6):865-8.

The authors review lessons learned after recent disasters and provide "the cardinal features of kidney failure disaster preparedness."

Lin, C. J., L. C. Pierce, et al. (2014). [Impact of Hurricane Sandy on Hospital Emergency and Dialysis Services: A Retrospective Survey](#). (Abstract only.) Prehospital and Disaster Medicine. 29(4): 374-9.

The authors conducted a retrospective study on hospital dialysis services provided after Hurricane Sandy. They found challenges with: lack of dialysis documentation from transient dialysis patients (92.3%), staff shortage (50%), staff transportation (71.4%), and communication with other agencies (53.3%).

Education and Training

National Association of County and City Health Officials. (2015). [Building Workforce Resilience through the Practice of PFA- L: A Course for Supervisors and Leaders](#).

This self-paced 90-minute course was developed by the U.S. Department of Health and Human Services and the National Association of County and City Health Officials to introduce the concept of Psychological First Aid (PFA) as a leadership tool to build workforce resilience. The course uses scenario-based exercises to teach participants about the core components of Psychological First Aid for Leaders.

National Institute of Environmental Health Sciences. (n.d.) [Hurricane Worker Podcasts](#). (Accessed 8/28/2017.) National Clearinghouse for Worker Safety and Health Training.

These short podcasts were developed to help emergency responders and recovery workers prepare for hurricane-related hazards (e.g., mold, debris, and electrical hazards).

Fatality Management

Page, D. (2005). [Life in a Disaster Morgue](#). Forensic Magazine.

The author of this article describes the experiences and response tasks of a forensic dental team, the Disaster Mortuary Operational Response Team (DMORT), and other mortuary affairs professionals, following Hurricane Katrina.

Redman, S., Fromknecht, C., Hodge, S., et al. (2017). [Death Scene Investigation After Natural Disaster or Other Weather-Related Events](#). Centers for Disease Control and Prevention.

The authors conducted a literature review and discovered variance in the tools used in disaster death scene data collection. They formed a work group comprised of medical examiners and coroners, forensic pathologists, death scene investigators, forensic anthropologists, and epidemiologists that developed and pilot tested this toolkit. The toolkit includes templates and checklists by hazard.

Santa Clara County Public Health Department Advanced Practice Center. (2011). [Managing Mass Fatalities: A Toolkit for Planning](#). National Association of County and City Health Officials.

Based on lessons learned from actual events (e.g., the Oklahoma City bombing, 9/11, and Hurricane Katrina) this toolkit provides customizable operational strategies and tools that can help jurisdictions create a plan for managing mass fatalities. Tips for communicating with the public are included in the toolkit.

Floods

Bandino, J.P., Hang, A., and Norton, S.A. (2015). [The Infectious and Noninfectious Dermatological Consequences of Flooding: A Field Manual for the Responding Provider](#). *American Journal of Clinical Dermatology*. 16(5): 399-424.

The authors provide information for clinicians caring for flood victims. They describe the conditions seen in patients following floods, and characterize the causative agents of these conditions. Treatment is also discussed.

Centers for Disease Control and Prevention. (2012). [Dealing With Mold Allergies after a Disaster](#).

This written PSA script explains how mold can have negative health impacts to those with specific health conditions, and provides brief recommendations on how to deal with mold allergies after a disaster.

Centers for Disease Control and Prevention. (2017). [Cleanup and Remediation](#). (Added August 28, 2017)

This webpage includes resources that explain how individuals can remove mold.

New Jersey Work Environment Council. (n.d.). [Safer after Sandy Public Service Announcement – 60 seconds: The Hazards of Mold after Hurricane Sandy.](#)

This PSA script provides information on what individuals should know about the hazards of mold when rebuilding after Hurricane Sandy.

Shroades, R. (2007). [Flood Preparedness: Once Bitten, Twice Ready.](#) Facility Maintenance Decisions.

This article documents how facility staff from Memorial Hermann Hospital incorporated lessons learned after Tropical Storm Allison flooded the facility with almost 40 feet of water in 2001.

General Lessons Learned

Berggren, R. (2005). [Hurricane Katrina. Unexpected necessities--Inside Charity Hospital.](#) The New England Journal of Medicine. 353(15):1550-3.

The author describes her experience in Charity Hospital following Hurricane Katrina, with a focus on the unexpected necessities (e.g., shoes, extra underwear, shift work/sleep, morale-boosting activities, a team of professionals who care about patients and each other, etc.) that arose, and how they were addressed.

Kostas Research Institute for Homeland Security, Northeastern University & Columbia University's National Center for Disaster Preparedness. (n.d.) [After Hurricane Sandy: Lessons Learned for Bolstering the Resilience of Health Systems and Services.](#)

This document contains a series of reports developed following Hurricane Sandy and presented as read ahead material during a conference. The reports individually outline lessons learned following the Hurricane Sandy response.

Okie, S. (2008). [Dr. Pou and the Hurricane — Implications for Patient Care during Disasters.](#) The New England Journal of Medicine. 358(1):1-5.

The author discusses the circumstances surrounding the arrest of a physician and two nurses for allegedly euthanizing four elderly patients at Memorial Hospital in Louisiana after Hurricane Katrina. Issues such as altered standards of care, scarce resource allocation, triage, and indemnification and/or immunity for health professionals are included.

Healthcare Facility Evacuation/Sheltering-in-Place

Baldwin, S., Robinson, A., Barlow, P., and Fargason, C.A. (2006). [Moving Hospitalized Children All Over the Southeast: Interstate Transfer of Pediatric Patients during Hurricane Katrina](#). *Pediatrics* 117: s416-420.

This article highlights the unique issues associated with the flooding and the subsequent need to evacuate neonates from New Orleans hospitals after Hurricane Katrina.

Barkemeyer, B. (2006). [The University Hospital NICU in the Midst of Hurricane Katrina: Caring for Children without Power or Water](#). *Pediatrics* 117(5): s369-374.

The author of this report, a neonatologist, discusses steps taken by the hospital's level 3 neonatal intensive care unit (NICU) before, during, and after Hurricane Katrina. He highlights lessons learned about evacuation from a hospital, patient, and staff perspective.

Espiritu, M. (n.d.). [The Vertical Evacuation of a Neonatal ICU During a Disaster, Lessons Learned at NYULMC during Hurricane Sandy](#). NYC Pediatric Disaster Coalition, and NYU Langone Medical Center. (Accessed 10/1/2015.)

This PowerPoint presentation provides lessons learned and overall experiences related to the vertical evacuation of the neonatal intensive care unit (NICU) from NYU Langone Medical Center during Hurricane Sandy.

Haggerty, E. (2013). [When Bellevue Had to Evacuate Its Criminally Insane](#). Bedford and Bowery.

This article addresses having to evacuate patients with serious behavioral health issues. It specifically provides experiences and challenges faced by Bellevue Hospital in the aftermath of Hurricane Sandy.

Perrin, K. (2006). [Closing and Reopening of a Children's Hospital during a Disaster](#). *Pediatrics* 117(5): s381-385.

The author of this article discusses steps taken by a children's hospital before, during, and after Hurricane Katrina, to include the evacuation of patients. He also provides lessons learned.

Ramme, A.J., Vira, S., and McLaurin, T.M. (2015). [Superstorm Sandy's Forgotten Patient: A Lesson in Emergency Preparedness in Severe Obesity](#). *Obesity*. 23(2):253-4.

The authors describe the challenges associated with evacuation of a morbidly obese patient during Superstorm Sandy, and how those challenges influenced the decision not to evacuate the patient, even in the absence of power and running water.

Redlener, I., Reilly, M. (2012). [Lessons from Sandy — Preparing Health Systems for Future Disasters](#). National Center for Disaster Preparedness, Mailman School of Public Health, Columbia University, New York.

This article discusses lessons learned from the evacuation of two NYC area hospitals in response to Hurricane Sandy in 2012.

U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Disaster Technical Assistance Center. (2014). [How To Cope With Sheltering in Place](#).

This resource offers tips people can use to cope with sheltering-in-place. It explains reactions people often feel when sheltering-in-place; suggests ways to care for oneself and the family, such as making a plan and staying connected; and provides additional helpful resources.

Health Effects Related to Hurricanes and Flooding

Bandino, J.P., Hang, A., and Norton, S.A. (2015). [The Infectious and Noninfectious Dermatological Consequences of Flooding: A Field Manual for the Responding Provider](#). *American Journal of Clinical Dermatology*. 16(5): 399-424.

The authors provide information for clinicians caring for flood victims. They describe the conditions seen in patients following floods, and characterize the causative agents of these conditions. Treatment is also discussed.

Lane, K., Charles-Guzman, K., Wheeler K., Abid, Z., Graber, N., and Matte, T. (2013). [Health Effects of Coastal Storms and Flooding in Urban Areas: A Review and Vulnerability Assessment](#). *Journal of Environmental and Public Health*. 2013; 2013: 913064.

The authors provide a review of the health impacts of U.S. coastal storms, with a focus on outcomes relevant to New York City (NYC) and urban coastal areas, and incorporate lessons learned from recent experience with Superstorm Sandy. Based on the literature reviewed, indicators of health vulnerability were selected and mapped within NYC neighborhoods.

McMichael, A.J. (2015). [Extreme Weather Events and Infectious Disease Outbreaks](#). (Abstract only.) *Virulence*. 6(6):539-43.

The author discusses infectious disease risks associated with extreme weather events, drawing on recent experiences, including Hurricane Katrina in 2005 and the 2010 Pakistan mega-floods. Historical examples from previous centuries of epidemics and 'pestilence' associated with extreme weather disasters and climatic changes are also discussed.

Sugerman, D., Armstrong, J. (2013). [Prevention and Treatment of Injuries Following Hurricanes and Tornadoes](#). Centers for Disease Control and Prevention.

This one-hour webinar covers the provision of pre-hospital care; the patterns of injury seen after hurricanes and tornadoes, including appropriate initial management; appropriate emergency risk communication messages; and the importance of data collection to improve messaging and response efforts.

Long-term Care Facilities

Blanchard, G., and Dosa, D. (2009). [A Comparison of the Nursing Home Evacuation Experience between Hurricanes Katrina \(2005\) and Gustav \(2008\)](#). *Journal of American Medical Directors Association*. 10(9): 639-43.

The authors of this report discuss their findings from a study in which they conducted telephone surveys with multiple nursing home administrative directors in Louisiana after Hurricanes Katrina and Gustav. The objective was to ascertain whether nursing home facilities were more prepared to evacuate their nursing home facilities for Hurricane Gustav than they were for Hurricane Katrina.

Brown, L.M., Dosa, D.M., et al. (2012). [The Effects of Evacuation on Nursing Home Residents with Dementia](#). *American Journal of Alzheimer's Disease and Other Dementias*. 27(6): 406-12.

The authors of this report discuss their findings from research conducted on the effects of evacuation from Hurricane Gustav on residents with severe dementia.

Brown, L.M., Hyer, K., et al. (2010). [Use of Mental Health Services by Nursing Home Residents After Hurricanes](#). *Psychiatric Services*. 61(1): 74-7.

The authors of this report discuss the findings of their study on the evaluation of pre- and post-hurricane mental health service use in Florida nursing homes. Results indicated

that although most nursing homes provided some type of mental health service during normal operations, disaster-related mental health services were not routinely provided to residents. The authors also found that receiving facilities were more likely than evacuating facilities to provide treatment to evacuated residents.

Christensen, J.J., Brown, L.M., et al. (2012). [A Haven of Last Resort: The Consequences of Evacuating Florida Nursing Home Residents to Nonclinical Buildings](#). *Geriatric Nursing*. 33(5): 375-83.

The authors of this study conducted a series of six focus groups with nursing home administrators and directors of nursing who worked in nursing homes during the 2004-2005 Florida hurricane season. The purpose of the focus groups was to explore issues faced by nursing home administrators, nurses, and residents during hurricane evacuations to nonclinical buildings.

Claver, M., Dobalian, A., et al. (2013). [Comprehensive Care for Vulnerable Elderly Veterans during Disasters](#). *Archives of Gerontology and Geriatrics*. 56(1): 205-13.

This study examines the experiences of evacuations and sheltering of Veterans Health Administration (VHA) nursing homes (VANHs) during Hurricanes Katrina and Rita. Interviews were conducted with nursing home staff and representatives, which revealed that physical harm, psychological distress, cognitive decline, and increased social isolation were areas that deserved special attention for this vulnerable population.

Deal, B.J., Fountain, R.A., et al. (2006). [Challenges and Opportunities of Nursing Care in Special-Needs Shelters](#). (Abstract only.) *Disaster Management and Response*. 4(4): 100-5.

This article discusses lessons learned and challenges that were encountered by nurses volunteering in special-needs shelters during Hurricanes Katrina and Rita. It also addresses issues related to human and physical resources, patient care, and confidentiality. Evacuee patients included residents with special needs, and residents of nursing homes and group homes caring for mentally and physically disabled persons.

Dosa, D., Hyer, K., et al. (2012). [To Evacuate or Shelter In Place: Implications of Universal Hurricane Evacuation Policies on Nursing Home Residents](#). *Journal of the American Medical Directors Association*. 13(2): 190 e1-7.

The objective of this study was to examine the differential morbidity/mortality associated with evacuation versus sheltering in place for nursing home residents exposed to four hurricanes in the Gulf region. The authors discuss their methodology and results of the study.

Florida Health Care Association. (2007). [Caring for Vulnerable Elders during a Disaster: National Findings of the 2007 Nursing Home Hurricane Summit.](#)

The second Southeastern Nursing Home Hurricane Summit was held in St. Petersburg Beach, Florida on May 21-22, 2007. This summary document includes lessons learned, promising practices, experiences, research findings, and guidance on disaster preparedness for elders.

Hyer, K., Brown, L.M., et al. (2006). [Establishing and Refining Hurricane Response Systems for Long-Term Care Facilities.](#) *Health Affairs (Millwood)*. 25(5): w407-11.

In February 2006, the John A. Hartford Foundation funded a long-term care “Hurricane Summit,” sponsored by the Florida Health Care Association. Summit participants included representatives from five Gulf Coast states that sustained hurricane damage during 2005, along with representatives from Georgia, which was a receiving state for hurricane evacuees. Participants evaluated disaster preparedness, response, and recovery for long-term care provider networks and identified gaps that impeded safe resident evacuation and disaster response. Specific areas warranting further attention are presented as lessons learned.

Hyer, K., Brown, L.M., et al. (2010). [Helping Nursing Homes Prepare for Disasters.](#) *Health Affairs (Millwood)*. 29(10): 1961-5.

The John A. Hartford Foundation funded an initiative called Hurricane and Disaster Preparedness for Long-Term Care Facilities as a result of deaths and suffering of older adults in long-term care facilities following Hurricanes Katrina, Rita, and Wilma. The authors of this paper describe the planning, research, and dissemination efforts of the Hartford grantees. This paper also provides insights into successful disaster grant making, noting foundations’ unique flexibility, strategic and long-term view, and ability to be a neutral convener of stakeholders that can help grantees work toward achieving major policy change.

Laditka, S.B., Laditka, J.N., et al. (2008). [Providing Shelter to Nursing Home Evacuees in Disasters: Lessons from Hurricane Katrina.](#) *American Journal of Public Health*. 98(7): 1288-93.

The authors examined nursing home preparedness needs by studying the experiences of nursing homes that sheltered evacuees from Hurricane Katrina. Interviews were conducted with nursing home administrators that sheltered evacuees in four states.

Levinson, D.R. (2012). [Gaps Continue to Exist in Nursing Home Emergency Preparedness and Response During Disasters: 2007-2010](#). U.S. Department of Health and Human Services Office of Inspector General.

In a 2006 report, results indicated that nursing homes that experienced hurricanes lacked many provisions recommended by experts in their emergency plans. In response, the Centers for Medicare & Medicaid Services (CMS) issued guidance checklists for emergency planning of healthcare facilities, long-term care ombudsman programs, and state survey agencies. This study was conducted to assess emergency preparedness and response of nursing homes that experienced disasters from 2007-2010.

Pharmacy

ASPR TRACIE. (2017). [ASPR TRACIE Hospital Disaster Pharmacy Calculator](#).

This calculator allows hospitals to estimate whether they have adequate supplies of medications for a disaster in stock. The user inputs facility details and based on the medication category and type, the calculator compares the amount of medications available to an estimate of those needed for 48 hours per patient and determines whether the hospital has a surplus or deficit in specific categories.

Healthcare Ready (formerly Rx Response). (2014). [A Review of State Emergency Prescription Refill Protocols](#).

This blog notes that in order for pharmacists to adequately prepare for potential disasters, it is imperative for all states (and the District of Columbia) to clearly define emergency prescription refill protocols and allow pharmacists to dispense an emergency 30-day supply of medications, specifically during times of a public health emergency, and to make this information readily available and accessible to pharmacists and the public. Maps depicting the emergency prescription refill laws by state, and the number of days' supply allowed by emergency prescription laws is also provided.

Hayes, H. (2008). [CMS Activates Emergency System to Fill Evacuees Prescriptions](#). Government Health IT.

The author of this article discusses how the Centers for Medicare and Medicaid Services (CMS) activated the Emergency Prescription Assistance Program (EPAP) after Hurricanes Gustav and Ike. EPAP provides financial assistance to uninsured disaster victims to cover

one refill of existing prescriptions. It may also be used to replace equipment (e.g., walkers and wheelchairs) left behind or lost as people evacuated.

Healthcare Ready (formerly Rx Response). (2013). [Rx On the Run](#).

This online tool can be used by the general public and enables users to print a personalized medication wallet card that documents prescriptions, dosages, and other important medical information. These cards can help people access their medical records or refill prescriptions after a disaster or public health emergency.

Healthcare Ready (formerly Rx Response). (2014). [Rx Open](#).

This website helps emergency management teams and the general public locate operating pharmacies in areas affected by natural disasters or public health emergencies. The tool provides maps to identify the location of open and closed pharmacies using Google Maps. The website is free to the public when activated at the request of state or federal officials.

Healthcare Ready (formerly Rx Response). (2015). [Stability of Refrigerated Drugs](#).

This chart details the stability of the most commonly dispensed refrigerated drug products (based on the U.S. top 200 prescription medications in 2014), and over-the-counter insulin products. The chart includes proper storage data, allowable temperature excursions and the length of time such excursions are permitted, and contact information for product manufacturers.

Jhung, M.A., Shehab, N., Rohr-Allegrini, C., et al. (2007). [Chronic Disease and Disasters: Medication Demands of Hurricane Katrina Evacuees](#). *American Journal of Preventive Medicine*. 33(3):207-210.

The authors of this study assess the relationship between actual medication demands and medical relief pharmaceutical supplies in a population of 18,000 evacuees relocated to San Antonio, TX after Hurricane Katrina struck the Gulf Coast in August 2005.

Khrais, R. (2012). [For Some Sandy Survivors, Medicine's the Big Worry](#). NPR.

The author of this article (and webcast) discusses the medical issues that some Superstorm Sandy survivors experienced after the storm. The storm caused many pharmacies to close, kept home healthcare aides from getting to their patients, and flooded many of the clinics people rely on. The article also describes one doctor's

mission to get medicine to people who did not have access to their doctors or could not get out of their homes.

National Association of Boards of Pharmacy. (2006). [Emergency and Disaster Preparedness and Response Planning: A Guide for Boards of Pharmacy](#).

This guidance document was developed for the Boards of Pharmacy. It provides an overview of federal, state, and local governments in preparedness and response management to enable Boards to develop robust emergency and disaster plans that compliment local efforts. It also includes several appendices, which contain guidance information and templates for issues such as emergency planning, maintaining operations, and communications.

Pharmacist's Letter. (n.d.). [Dosage Comparison Charts](#). (Subscription required. Accessed 8/25/2015.) Therapeutic Research Center.

This dosage comparison chart provides information on how to switch medications.

Rutkow, L., Vernick, J.S., Wissow, L.S., et al. (2012). [Prescribing Authority during Emergencies Challenges for Mental Health Care Providers](#). *The Journal of Legal Medicine*. 32(3): 249–260.

This article addresses the issues associated with the prescribing abilities of mental health providers after a disaster and the implications for acute and chronic management of behavioral health issues.

Plans, Tools, and Templates

Banatin, C.; Go, M. (2010). [Safe Hospitals in Emergencies and Disasters: Structural, Non-Structural and Functional Indicators](#). World Health Organization, Regional Office for the Western Pacific.

This vulnerability assessment highlights structural, non-structural, and functional elements that must be considered to ensure that a health facility can withstand and remain operational in emergencies.

Jackson Health System. (2012). [Hurricane Response Plan](#).

This healthcare facility hurricane plan can serve as a model for others. It includes sections on scope and planning assumptions, hazard analysis (which can be tailored to a specific jurisdiction), concept of operations (from preparation to recovery),

accommodations, employee plans, information on making claims for reimbursement for disaster-related damage, and hospital incident command system.

Louisiana State University Health Sciences Center. (2012). [External Flood Prevention Plan](#). Campus Wide/Hospital Safety Manual.

This plan was designed to help prevent floodwaters from entering the ground floor of the medical school and hospital and can be used by medical facility planners faced with similar challenges.

Monroe Regional Medical Center. (2012). [Hurricane Preparedness Plan](#).

This plan includes sections on pre-hurricane planning, procedures to follow during a hurricane, and recovery. It also includes appendices on a variety of topics, including a list of shelters in the area, items to bring if working during and after a storm, and visitor policy.

New Jersey Hospital Association. (2010). [Weathering the Storm: A Hurricane Planning, Response, and Recovery Toolkit](#).

This plan was written to help state hospitals prepare for, respond to, and recover from hurricanes. The plan focuses on sheltering in place and related needs. The plan also includes templates that can be tailored by healthcare facilities.

Novation. (n.d.) [Emergency Disaster Plan Template](#). (Accessed 7/21/2015.)

Healthcare facility emergency planners can use this template when developing their emergency operations plan. It features 12 disaster scenarios, including: hurricane, tornadoes, structure fires, earthquakes, and extreme cold.

Oregon Health Authority, Public Health Division Health Security, Preparedness, and Response Program. (2015). [Risk Communication Toolkit for Flooding](#).

This toolkit can help local health authorities develop public messaging before, during, and after a flood event. It includes information relevant to the actual event and the recovery period: key messages, talking points, sample press releases, factsheets, links to key resources, and sample social media messages for Twitter and Facebook.

Toner, E., McGinty, M., Schoch–Spana, M., et al. (2017). [A Community Checklist for Health Sector Resilience Informed by Hurricane Sandy](#). (Added August 28, 2017)

The authors incorporated lessons learned from Hurricane Sandy and developed this checklist of actions for healthcare, public health, nongovernmental organizations, and private entities to strengthen the resilience of their community's health sector. Information is provided by type of healthcare facility (e.g., long-term health, behavioral health, correctional health).

U.S. Department of Health and Human Services (HHS). (2014). [Primary Protection: Enhancing Health Care Resilience for a Changing Climate](#).

This 86-page document is a guide and toolkit designed to assist healthcare providers, design professionals, policymakers, and others with roles and responsibilities in assuring the continuity of quality health and human care before, during, and after extreme weather events. It is focused on healthcare infrastructure resilience to climate change impacts as manifested primarily by extreme weather events.

World Health Organization, Regional Office for Europe. (2014). [Floods and Health: Fact Sheets for Health Professionals](#).

These fact sheets are geared towards health professionals and describe steps to take during a flood, in the absence of a flood health preparedness and response plan. The sheets cover a variety of strategies including: vaccination during flood events, food safety, water and hygiene in healthcare facilities during and after flood events, and post-flood disinfection strategies.

Yale New Haven Health. (n.d.) [Pre-Storm Checklist](#). (Accessed 3/3/2016).

The Center for Emergency Preparedness and Disaster Response shares pre-storm checklists for the following departments: administrative, clinical laboratory, clinical services, facilities, food and nutrition, IT/MIS, materials management, pharmacy, respiratory care, and safety and security.

Recovery

Harvard School of Public Health Emergency Preparedness and Response Exercise Program and Massachusetts Department of Public Health. (2013). [Essential Functions and Considerations for Hospital Recovery](#).

Based on an extensive literature review (including federal guidelines), review of hospital plans, interviews with staff from hospitals affected by critical incidents, and lessons learned from a 2013 workshop on recovery-based lessons learned, the authors developed this document to help hospitals prepare to manage recovery from all types of events

Institute of Medicine. (2012). [Post-Incident Recovery Considerations of the Health Care Service Delivery Infrastructure - Workshop Summary](#).

This document is a summary of a workshop session during the 2012 Public Health Preparedness Summit that focused on sustaining health care delivery past the response phase of a disaster and the full recovery of local health care delivery systems. The session focused on identifying services to support the affected health care service delivery infrastructure and ways to facilitate long-term recovery. It also includes lessons learned from prior disasters to inform pre-incident planning for recovery and mass casualty care.

Institute of Medicine. (2015). [Healthy, Resilient, and Sustainable Communities After Disasters: Strategies, Opportunities, and Planning for Recovery](#). (Book available for purchase; PDF is free for guests to download.)

This report is the product of an Institute of Medicine meeting that convened experts on disaster recovery. It emphasizes the need to understand that the disaster recovery process offers communities the unique opportunity to not only "return to normal," but to improve upon the status quo. Doing so can improve a community's resilience, health, preparedness for future events, and sustainability. Recommended: Review "Summary of Findings" sections to more easily navigate this extensive resource.

Lee, D., Smith, S., McStay, C. et al. (2014). [Rebuilding Emergency Care After Hurricane Sandy](#). (Abstract only.) *Disaster Medicine and Public Health Preparedness*. 9:1-4.

The authors describe their experience managing a freestanding emergency department at the Bellevue Hospital Center in New York City following Hurricane Sandy. They provide a model that could possibly be replicated to rebuild emergency care capacity following future natural disasters.

Levinson, D. (2014). [Hospital Emergency Preparedness and Response During Superstorm Sandy \(OEI-06-13-00260\)](#). U.S. Department of Health and Human Services, Office of the Inspector General.

This report identifies common recovery challenges that healthcare facilities in Connecticut, New Jersey, and New York experienced after Superstorm Sandy.

Runkle, J., Brock-Martin, A., Karmaus, W., and Svendsen, E. (2012). [Secondary Surge Capacity: A Framework for Understanding Long-Term Access to Primary Care for Medically Vulnerable Populations in Disaster Recovery](#). *American Journal of Public Health*. 102(12):e24-32.

The authors advocate for the expansion of surge capacity plans to meet the chronic health care needs of vulnerable populations that increase following the acute phase of disaster response. They use a health services model to identify factors that perpetuate health disparities following disasters. To address these disparities, the authors recommend a baseline assessment of needs, with the expectation that such health care needs will expand post-disaster.

U.S. Department of Health and Human Services, Office of the Assistant Secretary of Preparedness and Response. (2015). [Healthcare COOP and Recovery Planning: Concepts, Principles, Templates and Resources](#).

This guide includes an overview of healthcare continuity of operations planning, customizable templates, and other related resources. It includes links to information on continuity planning, online courses, and other COOP resources.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2015.) [HHS Response and Recovery Resources Compendium](#).

This compendium offers an easy-to-navigate, comprehensive, web-based repository of HHS products, services, and capabilities available to state, tribal, territorial, and local agencies before, during, and after public health and medical incidents. The information spans 24 categories, and each category showcases the relevant disaster resources available from HHS and partner agencies, a brief description of each resource, and information on accessing each one.

Zane, R., Biddinger, P., Gerteis, J., and Hassol, A. (2010). [Hospital Assessment and Recovery Guide](#). U.S. Department of Health and Human Services.

This guide is designed to help hospital staff conduct an initial assessment of a hospital after a closure or evacuation due to an emergency event.

Surge Planning and Immediate Bed Availability

Irving, M. (2015). Unified Planning Coalition: Health and Medical Mission Ready Package Development. ([PowerPoint](#), [Audio](#), and [Transcript](#).) U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response.

This set of resources can help healthcare coalition members prepare for and respond to incidents or events by developing interoperable and comprehensive all-hazards public health and medical emergency response systems.

Joint Commission on Accreditation of Healthcare Organizations. (2006). [Surge Hospitals: Providing Safe Care in Emergencies](#). Washington, DC: The Joint Commission.

The authors provide an overview of planning for and operating surge hospitals followed by five case studies of surge hospitals that were stood up after Hurricane Katrina.

State and Federal Emergency Management/Support

Association for State and Territorial Health Officials. (2013). [Emergency Authority and Immunity Toolkit](#).

This toolkit contains a review of key emergency authority and immunity concepts; a summary of federal laws and policies pertaining to emergency planning and response; and a series of fact sheets addressing fundamental issues or legal authorities, issue briefs, and state analysis guides.

Hodge, J.G., Anderson, E., Teret, S.P. et al. (2009). [Model Memorandum of Understanding Between Hospitals During Declared Emergencies](#). Centers for Disease Control and Prevention.

This document provides the background and text for a model Memorandum of Understanding (MOU) between hospitals during declared emergencies. The model MOU was developed by the National Center for the Study of Preparedness and Catastrophic Event Response (PACER) at Johns Hopkins University.

National Emergency Management Association. (n.d.). [Emergency Management Assistance Compact \(EMAC\)](#). (Accessed 9/20/15.)

This webpage provides information on the Emergency Management Assistance Compact (EMAC), a congressionally-mandated interstate mutual aid agreement that has been adopted by all 50 states and the District of Columbia. Under EMAC, state assets (supplies, equipment, and/or volunteers) may be deployed to a requesting state. Reimbursement, liability, compensation, and licensure issues are also addressed. The website has links to training and education resources, as well as a document library, and information on deployable resources. The “Learn about EMAC” menu provides helpful documents for those not familiar with the agreement and process.

Orenstein, D. and White, L. (2015). [Emergency Declaration Authorities Across All States and D.C.](#) Robert Wood Johnson Foundation, Network for Public Health Law.

This document provides a listing of state statutory and regulatory authorities for emergency declarations in all 50 U.S. States and the District of Columbia. Emergency declarations, public health emergency declarations, and other types of declarations that may relate to the public's health are included.

Stier, D. and Goodman, R. (2007). [Mutual Aid Agreements: Essential Legal Tools for Public Health Preparedness and Response](#). American Journal of Public Health. 97(Suppl 1): S62–S68.

The authors provide an overview of the "basic legal framework for states to accomplish interstate and international mutual aid, identify gaps in that framework, and suggest steps that could be taken to address those gaps." The need for mutual aid for smaller-scale incidents that fall outside the scope of the Emergency Management Assistance Compact (EMAC) is highlighted. Summaries of relevant authorities are included.

U.S. Centers for Disease Control and Prevention, Public Health Law Program. (2014). [Selected Federal Legal Authorities Pertinent to Public Health Emergencies](#).

This document summarizes a selection of key federal legal authorities pertaining to public health emergencies.

U.S. Congress. (2013). [Stafford Act: Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, April 2013](#). Federal Emergency Management Agency.

The Stafford Act establishes the statutory authority for most federal disaster response activities and assistance to state and local governments. In particular, the Stafford Act creates the system for federal financial and physical assistance during a presidential disaster declaration.

U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services. (2009). [Requesting an 1135 Waiver](#).

When the HHS Secretary declares a public health emergency under Section 319 of the Public Health Service Act, s/he may temporarily waive or modify certain requirements to ensure that there are enough health care resources and services available to meet the needs of the public's health. A presidential declaration of emergency under the National Emergencies Act or Stafford Act is also required for Section 1135 waivers. This document highlights examples of waivers and other related information.

U.S. Department of Health and Human Services. (2014). [Health Information Portability and Accountability Act of 1996: Privacy Rule](#). U.S. Government Publishing Office.

The HIPAA Privacy Rule, comprised of 45 CFR Part 160 and Subparts A and E of Part 164, was adopted under section 264 of HIPAA, P.L. 104-191. The Rule was modified by HHS pursuant to the HITECH provisions of the American Recovery and Reinvestment Act of 2009, P.L. 111-5, and the Genetic Information Nondiscrimination Act of 2008, P.L. 110-233. The Rule establishes minimum Federal standards for safeguarding the privacy of certain individually identifiable health information (known as “protected health information” or PHI). When the HHS Secretary has declared a public health emergency and the President has declared an emergency under the Stafford Act or National Emergencies Act, under section 1135 of the Social Security Act, the Secretary may temporarily waive the sanctions or penalties for noncompliance with certain provisions of the Privacy Rule.

U.S. Department of Health and Human Services, Health Resources and Services Administration. (2006). [Emergency System for Advance Registration of Volunteer Health Professionals \(ESAR-VHP\) — Legal and Regulatory Issues](#).

This report summarizes legal issues pertaining to the use of volunteer health professionals during disasters, particularly liability and immunity issues.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2015). [HHS Response and Recovery Resources Compendium](#).

This comprehensive web-based repository of HHS resources and capabilities can help federal, state, local, territorial and tribal stakeholders before, during, and after public health and medical incidents. Each topic includes a list of the related HHS capabilities, resources that support that function, a brief description of each, and information on accessing them.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2014). [National Disaster Medical System](#).

This webpage describes the National Disaster Medical System (NDMS) and its role within the National Response Framework. NDMS is a federally coordinated asset that can support disaster medical response at the state and local level, such as through Disaster Medical Assistance Teams (DMATs).

Utility Failures

California Emergency Medical Services Authority. (n.d.) [Incident Planning Guide: Utility Failure](#). (Accessed 9/9/15.)

This document includes a series of questions to guide hospitals in planning for utility failures associated with systems such as power, water, heating, ventilation, air conditioning, medical air, vacuum, or medical gases.

Centers for Disease Control and Prevention and American Water Works Association. (2012). [Emergency Water Supply Planning Guide for Hospitals and Health Care Facilities](#). American Academy of Ambulatory Care Nursing.

This document provides a four step process for the development of a hospital emergency water supply plan and includes tips for assembling the right planning team, performing a water use audit, analyzing alternatives, and developing and exercising the plan.

Greater New York Hospital Association. (2006). [Power Disruptions](#).

Starting on p. 17, the Greater New York Hospital Association shares links to documents that can help healthcare facilities plan for disruptions to electrical and other power systems.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2013). [Planning for Power Outages: A Guide for Hospitals and Healthcare Facilities](#).

This document highlights issues for healthcare facilities to consider regarding power outages. It also provides a checklist of key planning considerations, and recommendations for fostering a relationship with a facility's utility company.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2013). [Planning for Water Supply Interruptions: A Guide for Hospitals & Healthcare Facilities](#).

This document provides information on the impact of water loss on healthcare facilities, and a series of questions for planners to use to prepare their facilities for water service interruptions.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2014). [Working Without Technology: How Hospitals and Healthcare Organizations Can Manage Communication Failure](#).

This fact sheet summarizes steps a healthcare facility can take to ensure communication during incident response when normal technologies fail.

Veterinary

American Veterinary Medical Foundation. (2016). [Emergency Planning Resources for Veterinary Practices - Disaster Preparedness](#).

This webpage includes links to various resources and is provided as a starting point to aid veterinarians in creating an emergency plan tailored to the individual needs of their practices.

Centers for Disease Control and Prevention. (2014). [Interim Guidelines for Animal Health and Control of Disease Transmission in Pet Shelters](#).

This guidance can help disaster responders plan for health management of pets who arrive at disaster shelters, including obtaining a health and vaccination history, creating a health record, verifying identification, maintaining behavioral health, taking protective measures for caretakers, and using safe handling methods.

Federal Emergency Management Agency. (2007). [Pet Sheltering Best Practices](#).

This document outlines successful practices in operating pet-friendly human shelters during major disasters. It includes discussion and links to many community-developed plans, resource lists, and other helpful documents.

NASAAEP Disaster Veterinary Care Best Practices Working Group. (2012). [Disaster Veterinary Care: Best Practices](#).

The first half of this report explains federal regulations specific to incorporating animals into emergency management plans and highlights the challenges associated with developing animal response teams. The second half illustrates best practices and related information from various agencies on disaster planning and response for household pets, animal first responders, animal shelter managers, and veterinarians.

National Alliance of State Animal and Agricultural Emergency Programs. (2014). [Emergency Animal Sheltering Best Practices](#).

This document can help animal emergency management planners develop comprehensive animal evacuation and practical sheltering plans.

National Alliance of State Animal and Agricultural Emergency Programs. (2014). [Species Evacuation and Transport Guide](#).

This document includes evacuation and transport guidelines for: pet birds, snakes, reptiles, amphibians, pocket pets and rabbits, and poultry. It also includes a section on "oiled wildlife spills."

Soric, S., Belanger, M., and Wittnich, C. (2008). [A Method for Decontamination of Animals Involved in Floodwater Disasters](#). *Journal of the American Veterinary Medical Association*. 232(3):364-370.

After a disaster, abandoned or stray animals and search and rescue dogs may be exposed to toxins in floodwaters. This article: outlines safety requirements for healthcare professionals who manage decontamination teams; provides strategies for laying out a decontamination site; and includes a decontamination protocol.

Thompson, K. (2013). [Save Me, Save My Dog](#). *Australian Journal of Communication*. 40(1).

In this article, the author emphasizes the positive effects that pet ownership can have on disaster resilience and protective factors and emphasizes the risks that humans are willing to take to save animals—even those with whom they have no prior bond.

Volunteers

Baker-White, A. (2013). [Quick Reference: Reviewing Emergency Volunteer Liability and Protections](#). Robert Wood Johnson Foundation, Network for Public Health Law.

This one-page quick reference guide summarizes concepts and issues pertinent to emergency volunteers. It also includes an overview of state and federal laws that provide liability coverage and/or immunity to volunteers, and notes when such protections would apply.

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. (2015). [Medical Reserve Corps](#).

This webpage describes the Medical Reserve Corps (MRC) program, and provides links to the local units across the U.S. and its territories. The MRC is a national network of local volunteer units created to strengthen their community's health, improve its emergency response capabilities, and build its resiliency.