

Measuring Climate Resiliency: A Virtual Roundtable Discussion

February 1 – 2, 2023
12:00 p.m. – 2:00 p.m. EST

RESOURCES

Recommended Preparatory Reading

- [What is “hospital resilience”? A scoping review on conceptualization, operationalization, and evaluation](#), *Frontiers in Public Health*, October 2022. This study establishes a baseline for understanding hospital resilience, exploring its 1) conceptualization, 2) operationalization, and 3) evaluation in the empirical literature.
- [Metrics and indicators used to assess health system resilience in response to shocks to health systems in high income countries—A systematic review](#), *Science Direct*, December 2022. The purpose of this systematic review is to examine how the resilience of health systems has been measured across various health system shocks.
- [Health systems resilience toolkit: a WHO global public health good to support building and strengthening of sustainable health systems resilience in countries with various contexts](#), World Health Organization, May 2022. The Toolkit serves as a compendium of technical resources to support countries in strengthening the resilience of their health systems and provides technical grounding and clarity on the conceptualization and operationalization of health systems resilience.

Additional Readings

More on Measures

- [Definition of Donabedian Model](#), Wikipedia.
- [Types of Health Care Quality Measures](#), Agency for Healthcare Research and Quality, 2015. Measures used to assess and compare the quality of health care organizations are classified as either a structure, process, or outcome measure.

Operational Frameworks and Toolkits

- [Operational framework for building climate resilient health systems](#), World Health Organization (June 2015). This framework by the WHO responds to the demand from Member States and partners for guidance on how the health sector and its operational basis in health systems can systematically and effectively address the challenges increasingly presented by climate variability and change.
- [Sustainable and Climate-Resilient Health Care Facilities Toolkit](#), US Department of Health and Human Services (2015). This toolkit includes a best practices document, a framework describing affordable measures that can help make health care facilities more resilient, and resources for responding to challenges associated with climate change impacts.

- [Climate Resilience for Health Care and Communities Strategies and Case Studies](#), Healthcare Without Harm, January 2022. This paper explores how health care institutions can leverage investment dollars and economic capital to support equitable decarbonization to build community resilience, health, and wealth.

Resources Highlighted During the Meeting

- [Health Systems Recovery in the Context of COVID-19 and Protracted Conflict](#), *Frontiers in Public Health*, November 2022 - WHO with IANPHI (International Association of National Public Health Institutes) are putting together a special collection issue in the journal *Frontiers in Public Health*, collating the most recent operational evidence on health systems recovery in the context of COVID-19 and protracted conflict covering 5 out of 6 WHO regions and with contributions from leading organizations and research/academic institutions across the world.
- [Climate Mapping for Resilience and Adaptation](#) - This portal can help you understand what climate-related hazards you face, now and in the future. CMRA is designed to work with the [U.S. Climate Resilience Toolkit](#). It integrates decision-relevant information from across the U.S. Federal government
- [Safe haven in the storm: Protecting lives and margins with climate-smart health care](#), Healthcare Without Harm, 2018 - This business case analyzes billions of dollars in losses and resilience-related savings to demonstrate how preparing for extreme weather can make or break a health system.
- [Guidance for Designing Health and Residential Care Facilities that Respond and Adapt to Emergency Conditions](#), FGI Emergency Conditions Committee, March 2021 - FGI Board of Directors formed a committee to take a critical look at existing guidelines, requirements and recommendations on emergency preparedness, determine best practices, and establish a new minimum standard on emergency preparedness and response for health and residential care facilities.
- [Health service continuity planning for public health emergencies: a handbook for health facilities. Interim version for field testing](#), World Health Organization, 2021 - This is a handbook for health facilities enable the continuation of routine health services.
- [The Growing Link Between Climate Change and Health](#), *NEJM Catalyst*, February 16, 2022 - Survey data points around to what extent climate change is impacting health care delivery and how severe these impacts will become in the future.
- [Sustainable and Resilient Health Care in the Face of a Changing Climate](#), *Annual Review of Public Health*, posted online on January 10, 2023 - This review synthesizes the evidence of what the health care sector can do to adapt to a changing climate while reducing its own climate impact, identifies barriers to change, and makes recommendations to achieve sustainable, resilient health care systems.
- [Safe Hospitals](#), Pan American Health Organization - Definitions and objectives for Safe Hospitals.
- [New and Revised Standards in Emergency Management](#), The Joint Commission - New and revised Emergency Management standards (since July 2022) that apply to all Joint Commission–accredited hospitals and critical access hospitals.

AHRQ Resources

- [Reducing Healthcare Carbon Emissions: A Primer on Measures and Actions for Healthcare Organizations to Mitigate Climate Change](#), September 2022 - AHRQ primer on health care decarbonization that serves as an action guide to help healthcare organizations reduce their carbon footprint and protect communities from climate threats.
- [AHRQ Special Emphasis Notice: Research on Climate Change and Healthcare \(Notice Number: NOT-HS-23-006\)](#) - Announces AHRQ's interest in receiving health services research grant applications that address the intersection of climate change and healthcare, in three primary areas: Reducing the healthcare sector's greenhouse gas emissions and carbon footprint; Creating resilient healthcare systems and communities that can plan, prepare, respond, and adapt to climate-related threats; and Addressing the inequitable impacts of climate change.

HHS OCCHE Resources

- [Compendium of Federal Resources to Support Emissions Reduction and Climate Resilience for Healthcare Stakeholders](#) – Compilation of federal resources that may assist healthcare stakeholders in emissions reduction and climate change adaptation. There is an associated [webinar series](#) which reviews these resources in greater detail.

FEMA Resources

- [Risk MAP Products](#) - Information on Flood Risk Products which help state, tribal, territories and local governments and community officials view and visualize their local flood risk, allowing communities to make informed decisions about reducing flood loss and mitigating potential damage from flood hazards.
- [FEMA National Risk Index](#) - This is a dataset and online tool that leverages available data for natural hazard and community risk factors.
- [FEMA's Public Assistance Program and Policy Guide, Version 4, June 1, 2020](#) – Program guide to assist State, local, Territorial, or Tribal, and local governments, and certain types of private nonprofit organizations so that communities can quickly respond to and recover from major disasters or emergencies.
- [FEMA Benefit-Cost Analysis Toolkit](#) - FEMA quantifies risk and losses associated with disasters through this Toolkit and allows for evaluation of net benefits to society for taking a given action to reduce the severity or the probability of impact of disasters. This is a way to account for low probability, high impact events (the big disaster) as well as high probability, low impact events (regular disruptions) and put them in comparable terms.
- [FEMA P-1019: Emergency Power Systems for Critical Facilities: A Best Practices Approach to Improving Reliability: Guidance](#), September 2014 - Design and operation of emergency power systems in critical facilities so that they will be able to remain operational for extended periods, as needed.
- [FEMA 543: Design Guide for Improving Critical Facility Safety from Flooding and High Winds](#), January 2007 - Information and guidelines for building professionals and decision-makers to implement a variety of mitigation measures to reduce the vulnerability to damage and disruption of operations during severe flooding and high-wind events.

- [FEMA 577: Design Guide for Improving Hospital Safety in Earthquakes, Floods, and High Winds](#), June 2007 - State-of-the-art knowledge on the variety of vulnerabilities faced by hospitals exposed to earthquakes, flooding, and high wind risks, as well as the best ways to mitigate the risk of damage and disruption of hospital operations caused by these events.
- [Partial Implementation of the Federal Flood Risk Management Standard for Hazard Mitigation Assistance Programs \(Interim\) FEMA Policy FP-206-21-0003](#)
Provisions of the Federal Flood Risk Management Standard from EO14030, which includes provisions to elevate structures in floodplains to a new standard based on climate science.
- [Natural Hazard Mitigation Saves](#), December 1, 2019 - Measures that communities, local governments, land owners, developers, and tenants can take to reduce the impact of natural disasters.
- [Hazard Mitigation Assistance Grants](#)
FEMA offers funds both post-disaster and on an annual basis to increase the disaster resilience of communities, which includes healthcare facilities.