



TRACIE

HEALTHCARE EMERGENCY PREPAREDNESS
INFORMATION GATEWAY

Hazard Vulnerability Analysis / Risk Assessment
Topic Collection
10/11/2016

Topic Collection: Hazard Vulnerability Analysis / Risk Assessment

Hazard vulnerability analysis (HVA) and risk assessment are systematic approaches to identifying hazards or risks that are most likely to have an impact on a healthcare facility and the surrounding community. Multiple tools and resources are available to help healthcare organizations and public health departments prioritize their planning efforts based on these identified hazards.

Each resource in this Topic Collection is placed into one or more of the following categories (click on the category name to be taken directly to that set of resources). Resources marked with an asterisk (*) appear in more than one category.

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Must Reads

Brown, A. (2010). [Choosing the Right Tool for Hospital Risk Assessment: Focused Risk Vulnerability Analysis](#). Compass Clinical Consulting: Hospital Accreditation and Compliance Journal.

The author reviews Focused Risk Vulnerability Analysis, a planning tool that predicts the impact that events or occurrences might have on a hospital. An example case study is provided followed by an analysis of the results.

Campbell P., Trockman S.J., and Walker, A.R. (2011). [Strengthening Hazard Vulnerability Analysis: Results of Recent Research in Maine](#). Public Health Report. 2011 Mar-Apr;126(2):290-3.

The authors discuss results from interviews with staff members at eight hospitals in Maine to document HVA processes and develop recommendations for improvement. Researchers conducting the interviews were from the Harvard School of Public Health and the Southern Maine Regional Resource Center for Public Health Emergency Preparedness.

Drexel University School of Public Health, Center for Public Health Readiness and Communication. (2013). [Pennsylvania Public Health Risk Assessment Tool \(PHRAT\)](#). Pennsylvania Department of Health.

This tool guides public health planners through an analysis of the health-related impacts of various hazards that can occur in their jurisdictions, and helps them prioritize planning efforts for those emergencies.

Federal Emergency Management Agency. (2013). [Comprehensive Preparedness Guide \(CPG\) 201: Threat and Hazard Identification and Risk Assessment Guide](#). (Second Edition).

This guide provides communities with a five-step process for conducting a Threat and Hazard Identification and Risk Assessment (THIRA). The First Edition of the CPG (April 2012) described a standard process for identifying community-specific threats and hazards and setting capability targets for each core capability identified in the National Preparedness Goal as required in Presidential Policy Directive (PPD) 8: National Preparedness. This edition expands the THIRA process to include estimation of resources needed to meet the capability targets.

Kaiser Permanente. (n.d.). [Kaiser Permanente Hazard Vulnerability Analysis \(HVA\) Tool](#). (Accessed 4/2/2015).

This tool provides a systematic approach to recognizing hazards that may affect demand for hospital services or a facility's ability to provide those services. The risks associated with each hazard can be analyzed and used to prioritize planning, mitigation, response, and recovery activities.

Los Angeles County Department of Public Health, Emergency Preparedness and Response Program. (2013). [Health Hazard Assessment and Prioritization \(hHAP\)](#).

This tool was developed by the Los Angeles Department of Public Health—in collaboration with the Orange County Health Care Agency, the Long Beach Department of Health and Human Services, and the Pasadena Department of Public Health—and provides a 6-step hazard vulnerability assessment process. It offers a health-focused mechanism to engage the community, identify organizational priorities, and improve an agency's or community's capability to successfully prepare for, respond to, and recover from potential emergency threats. Both the hHAP Instrument and Manual are provided as downloads.

University of California, Los Angeles (UCLA) Center for Public Health and Disasters. (2006). [Hazard Risk Assessment Instrument \(HRAI\)](#).

This workbook is intended for public health agencies and provides guidance in determining the likelihood of a hazard occurring, assessing their community's vulnerabilities and current resources, and prioritizing resources in planning for disasters.

Access and Functional Needs

*Wisconsin Department of Health Services. (2013). [Nursing Home and Assisted Living Residence Hazard and Vulnerability Analysis](#).

The Wisconsin Department of Health Services tailored the Kaiser Permanente Hazard Vulnerability Analysis Tool for use by nursing homes and assisted living residences. This resource provides a copy of the tailored template for review.

Environmental Hazards

Birkmann, J. (2006). [Measuring Vulnerability to Natural Hazards: Towards Disaster Resilient Societies](#). (Preview only.) TERI Press, New Delhi, India; United Nations University Press.

The author of this book focuses on the importance of measuring vulnerability and developing indicators to reduce societal risk and vulnerability. The author presents various conceptual frameworks of vulnerability in the context of disaster resilience.

Borden, K.A., and Cutter, S.L. (2008). [Spatial Patterns of Natural Hazards Mortality in the United States](#). International Journal of Health Geographics. 2008 Dec 17;7:64.

The authors examine the spatial patterns of natural hazard mortality at the county-level for the U.S. from 1970–2004 using a combination of geographical and epidemiological methods. This information can help to better inform local emergency practitioners who plan for and respond to disasters in their communities.

Borden, K.A., Schmidtlein, M.C., Emrich, C.T., Piegorsch, W.W., and Cutter, S.L. (2007). [Vulnerability of U.S. Cities to Environmental Hazards](#). (Abstract only.) Journal of Homeland Security and Emergency Management. Volume 4, Issue 2, ISSN (Online) 1547-7355.

The authors of this paper explore the variability in vulnerability to natural hazards among 132 urban areas using three indices of vulnerability: social, built environment, and hazard impact. They also examine the relative levels of vulnerability compared to federal Urban Areas Security Initiative (UASI) funding.

Houghton A., and English P. (2014). [An Approach to Developing Local Climate Change Environmental Public Health Indicators, Vulnerability Assessments, and Projections of Future Impacts](#). Journal of Environmental and Public Health. 2014;2014:132057.

The authors provide a three-tiered approach to develop local climate change environmental public health indicators. These indicators can assist local health departments with incorporating climate-related trends into the larger health department planning process and can be used to perform vulnerability assessments.

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.

National Oceanic and Atmospheric Administration (NOAA). (2011). [Coastal County Snapshots](#).

This resource incorporates data into easy-to-understand stories, using charts and graphs to help depict the information. Users can select a sample coastal county to get more information on resilience to coastal hazards that can be translated and applied to their jurisdiction. These snapshots can be used as a planning tool by local officials to assess their county's resilience to environmental hazards.

Plans, Tools, and Templates

Centers for Disease Control and Prevention. (2011). [Community Assessment Tool \(CAT\) for Public Health Emergencies Including Pandemic Influenza](#).

This planning tool can help community planners assess disaster readiness from a healthcare system perspective. The tool can assist with identifying core agency partners' capabilities and resources and instances where the same vendors are being used for resource supplies by the partners, and can help planners address gaps in their community's capabilities or potential shortages in resources.

Drexel University School of Public Health, Center for Public Health Readiness and Communication. (2013). [Pennsylvania Public Health Risk Assessment Tool \(PHRAT\)](#). Pennsylvania Department of Health.

This tool guides public health planners through an analysis of the health-related impacts of various hazards that can occur in their jurisdictions, and helps them prioritize planning efforts for those emergencies.

Kaiser Permanente. (n.d.). [Kaiser Permanente Hazard Vulnerability Analysis \(HVA\) Tool](#). (Accessed 4/8/2015.)

This tool provides a systematic approach to recognizing hazards that may affect demand for hospital services or a facility's ability to provide those services. The risks associated with each hazard can be analyzed and used to prioritize planning, mitigation, response, and recovery activities.

Lake County Office of Emergency Management. (2012). [Pre-Disaster Mitigation Plan for Lake County, Montana](#). Helena, MT: Tetra Tech Inc.

This plan ranks the 10 most significant hazards to the community of Lake County, Montana and describes mitigation projects that can help reduce potential impacts of each hazard. In Section 4, the authors provide: the risk assessment methodology used to calculate the hazard profiles, the risk assessment summary, and a discussion on the location of future development projects.

Los Angeles County Department of Public Health, Emergency Preparedness and Response Program. (2013). [Health Hazard Assessment and Prioritization \(hHAP\)](#).

This tool was developed by the Los Angeles Department of Public Health—in collaboration with the Orange County Health Care Agency, the Long Beach Department of Health and Human Services, and the Pasadena Department of Public Health—and provides a 6-step hazard vulnerability assessment process. It offers a health-focused mechanism to engage the community, identify organizational priorities, and improve an agency's or community's capability to successfully prepare for, respond to, and recover from potential emergency threats. Both the hHAP Instrument and Manual are provided as downloads.

University of California, Los Angeles (UCLA) Center for Public Health and Disasters. (2006). [Hazard Risk Assessment Instrument \(HRAI\)](#).

This workbook is intended for public health agencies and provides guidance in determining the likelihood of a hazard occurring, assessing their community's vulnerabilities and current resources, and prioritizing resources in planning for disasters.

West Virginia Department of Health and Human Resources, Center for Threat Preparedness. (2012). [Health Risk Assessment \(HRA\): Kanawha County Report](#).

A Health Risk Assessment tool was developed for local health departments in West Virginia to define risk, identify hazards, and list strengths and areas for improvement to reduce hazard impact. The tool meets the requirement of the Centers for Disease Control and Prevention's Public Health Preparedness Capability 1: Community Preparedness. This specific report provides a summary of the hazards, impacts, and mitigation actions for Kanawha County, WV.

*Wisconsin Department of Health Services. (2013). [Nursing Home and Assisted Living Residence Hazard and Vulnerability Analysis](#).

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Studies

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The authors discuss results from interviews with staff members at eight hospitals in Maine to document HVA processes and develop recommendations for improvement. Researchers conducting the interviews were from the Harvard School of Public Health and the Southern Maine Regional Resource Center for Public Health Emergency Preparedness.

Toolkits

Federal Emergency Management Agency. (2013). [Comprehensive Preparedness Guide \(CPG\) 201: Threat and Hazard Identification and Risk Assessment Guide](#). (Second Edition).

This guide provides communities with a five-step process for conducting a Threat and Hazard Identification and Risk Assessment (THIRA). The First Edition of the CPG (April 2012) described a standard process for identifying community-specific threats and hazards and setting capability targets for each core capability identified in the National Preparedness Goal as required in Presidential Policy Directive (PPD) 8: National Preparedness. This edition expands the THIRA process to include estimation of resources needed to meet the capability targets.

Federal Emergency Management Agency (FEMA). (2012). [Comprehensive Preparedness Guide 201: Threat and Hazard Identification and Risk Assessment Guide Supplement 1: Toolkit](#).

This toolkit provides resources and information, data sources, and templates to support the conduct of a THIRA as described in the Comprehensive Preparedness Guide 201: Threat and Hazard Identification and Risk Assessment Guide.

Trainings

Columbia University, Earth Institute, National Center for Disaster Preparedness. (2015). [PREP 1112 - Methods of Risk Assessment in Planning for Disasters](#).

This course is free, but requires enrollment. It is designed to introduce learners to the basic process of conducting a hazard and vulnerability assessment for their community and the fundamental concepts of hazard identification and vulnerability assessment in determining public health risk for emergency planning purposes.

Henry, B., and Schwartz, B. (2006). [Hospital Risk Assessment](#). Centre of Excellence in Emergency Preparedness. (Select “Hospital Risk Assessment” from the menu.)

This presentation from a 2006 conference called “Preparing Your Hospital for Disaster” provides several case studies and can help participants understand and estimate the hospital-specific risks associated with various factors.

Saruwatar, M. (2008). [Developing a Facility Hazard and Vulnerability Analysis \(HVA\)](#). National Association of Community Health Centers. LiveProcess.

This training reviews components of a typical HVA, guides health centers through completion of a sample HVA, and discusses how to integrate the HVA into an emergency management plan.

Agencies and Organizations

Note: The agencies and organizations listed in this section have a page, program, or specific research dedicated to this topic area.

Federal Emergency Management Agency. National Preparedness Cycle: Plan.
<https://www.fema.gov/plan>

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response. [5.4 Hazards Vulnerability Analysis](#).

*This ASPR TRACIE Topic Collection was comprehensively reviewed in April 2015 by **John Hick**, MD, HHS ASPR and Hennepin County Medical Center.*

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