ASPR TRACIE Evaluation of Hazard Vulnerability Assessment Tools

The Assistant Secretary for Preparedness and Response (ASPR) Technical Resources, Assistance Center, Information Exchange (TRACIE) Evaluation of Hazard Vulnerability Assessment Tools provides a comparison chart showing the similarities and differences among five of the primary hazard vulnerability tools used by public health and health care organizations, and the Federal Emergency Management Agency's (FEMA) Threat and Hazard Identification Risk Assessment (THIRA). Each description includes a summary of its primary use/purpose, as well as information on who developed the tool and how, the format of the tool, the calculations approach, and the benefits and limitations of the tool.

Healthcare and public health organizations use a variety of hazard vulnerability assessment (HVA) tools that are most useful to their facility/jurisdiction. The outcomes of the HVA should then be used during the development of a jurisdictional risk assessment (JRA). The JRA can come in a variety of forms, including the THIRA. Regardless of the type of tool used, HVAs and JRAs (including the THIRA) all assess risk based on the identification of threats and/or hazards and assign a level or severity of risk. However, the THIRA is primarily focused on emergency management and disaster response at the jurisdictional level, and asks states, territories, tribes, local areas, insular areas, and the Urban Area Security Initiatives to perform their respective threat and hazard identification risk assessments (which should take into account HVAs developed by the key stakeholders within the jurisdiction).

Therefore, there may be an entirely different assessment of risk in the jurisdictional THIRA than what may be assigned at the hospital or public health level. There will be similarities in the identification of common hazards across the various assessments; however, the THIRA may result in a higher level of risk assessment than the HVA for the health sector entities.

ASPR TRACIE also has a Hazard Vulnerability/Risk Assessment Topic Collection that clarifies the differences between these assessments and provides additional examples and templates.

Assessment Tool Name	Intended Audience/ Applied Sector	Use/Purpose	Development of Tool	Format	Calculations Approach	Benefits	Limitations
Pennsylvania Public Health Risk Assessment Tool (PHRAT)	Jurisdictions, public health system	▪ To provide an analysis of the health-related impacts of various hazards that can occur in a jurisdiction, and help prioritize planning efforts for those emergencies.	▪ Developed by the Drexel University School of Public Health (contracted by the Pennsylvania Department of Health). ▪ Based on adaptations of other existing resources: University of California, Los Angeles' (UCLA) Hazard Risk Assessment Instrument (HRAI) and Kaiser Permanente's Hazard Vulnerability Analysis (HVA) Tool.	Workbook developed in Microsoft Excel.	▪ Generates an estimate of hazard-specific risk, based on probability and impact severity identified for each hazard. ▪ Severity is measured in five major domains: human health, healthcare services, inpatient healthcare infrastructure, and community health and public health services. ▪ Generates "adjusted risk," which incorporates an assessment of the additional planning required to reduce a hazard's impact on at-risk populations. ▪ A Preparedness Score is generated using the jurisdiction's current capacity in each of the 15 Public Health Preparedness capabilities and 8 Healthcare System Preparedness capabilities.	**Common Features** ▪ Guide and step-by-step instructions provided. ▪ Helps establish planning priorities. ▪ Jurisdiction-specific analysis using automated calculations. ▪ Identifies hazards that pose the greatest risk to a jurisdiction. ▪ Identifies jurisdictional gaps in public health and healthcare preparedness. ▪ Simple implementation, yet comprehensive assessment. ▪ Generates charts/graphs to analyze hazards relative to each other. ▪ Developed using existing tools (UCLA's HRAI and Kaiser's HVA). **Additional/Unique Features** ▪ Addresses at-risk populations. ▪ Analysis based on Baseline Data entered by user. ▪ Available for customization through the Pennsylvania Department of Health.	▪ Public health-specific. ▪ Data may be skewed if entered from multiple sources or by various users.
Health Hazard Assessment and Prioritization (hHAP)	Jurisdictions, public health system	▪ To assess and prioritize planning and mitigation efforts for the most important hazards (in Southern California). – Although the tool is focused on hazards in Southern California, it is designed to be flexible and adaptive, and applicable to other health jurisdictions and numerous potential hazards. ▪ To offer 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. ▪ Provides a six-step hazard vulnerability assessment process.	▪ 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. ▪ Based on adaptations of other existing resources: UCLA's HRAI and Kaiser Permanente's HVA Tool.	Workbook developed in Microsoft Excel.	▪ Identifies, ranks, and prioritizes the health and medical impacts of potential hazards relevant to a specific jurisdiction/agency based on user-provided input (scores). ▪ Focuses on the relative perceived risk, expressed through a relationship and interaction of several Risk Components: probability of hazard occurrence, health severity of the hazard (potential for increase in morbidity, hospitalizations and mortality), impact (consequences) of hazard on health and medical systems and the community, and the protective value of existing response and community preparedness resources. – Each Risk Component has a corresponding metric input for each associated hazard.	**Common Features** ▪ Guide and step-by-step instructions provided. ▪ Helps establish planning priorities. ▪ Jurisdiction-specific analysis using automated calculations. ▪ Identifies hazards that pose the greatest risk to a jurisdiction. ▪ Identifies jurisdictional gaps in public health and healthcare preparedness. ▪ Simple implementation, yet comprehensive assessment. ▪ Generates charts/graphs to analyze hazards relative to each other. **Additional/Unique Features** ▪ Flexible and adaptive for use by other jurisdictions. – Tool can be applied to any potential hazard identified by the jurisdiction. ▪ Pre-loaded tool to include 62 scenario-based hazards. User can add/delete hazards. ▪ Tool can average responses from multiple users. ▪ Requires responses from various response partners in addition to public health and healthcare partners.	▪ Does not incorporate Baseline Data. ▪ Does not address at-risk populations.

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UCLA Hazard Risk Assessment Instrument (HRAI)	Public health agencies (state and local)	▪ To provide guidance in determining the likelihood of a hazard occurring, assess community vulnerabilities and current resources, and prioritize resources in planning for disasters. Key hazards are identified and their potential consequences are estimated.	▪ Developed by the UCLA Center for Public Health and Disasters. ▪ Is based on the expertise of the authors and incorporates disaster-related data in order to illustrate its systematic methodology.	Worksheets provided as appendices.	▪ Consists of four steps: probability of mishap, severity of consequences, scoring of the consequences, and risk analysis.	**Common Features** ▪ Guide and step-by-step instructions provided. ▪ Helps establish planning priorities. ▪ Identifies hazards that pose the greatest risk to a jurisdiction. ▪ Identifies jurisdictional gaps in public health and healthcare preparedness. **Additional/Unique Features** ▪ Analysis based on Baseline Data entered by user.	▪ Public health-specific. ▪ Developed in 2006. ▪ Tool is provided as a PDF only. Cannot easily enter data or manipulate tool. ▪ Does not automatically generate calculations or graphs/charts. ▪ Does not address at-risk populations.
Kaiser Permanente Hazard Vulnerability Analysis (HVA) Tool	Hospitals and healthcare facilities, emergency management	▪ To identify hazards, through a systematic approach, that may affect demand for hospital services or its ability to provide those services.	▪ Developed by Kaiser Permanente.	Workbook developed in Microsoft Excel.	▪ The tool takes inputs from the facility's HVA group on the probability and impact of threats, and mitigation and preparedness measures the facility has taken to determine a level of risk for each hazard. ▪ The risks associated with each hazard can be analyzed and used to prioritize planning, mitigation, response, and recovery activities.	**Common Features** ▪ Helps establish planning priorities. ▪ Identifies hazards that pose the greatest risk to a facility. ▪ Identifies jurisdictional gaps in public health and healthcare preparedness. ▪ Generates charts/graphs to analyze hazards relative to each other. **Additional/Unique Features** ▪ N/A	▪ Hospital and healthcare facility-specific. ▪ Does not provide a guidance manual. ▪ Instructions on tool are not comprehensive. ▪ Does not incorporate Baseline Data. ▪ Does not address at-risk populations.
Community Hazard Vulnerability Assessment (CHVA)	Healthcare facilities, jurisdictions, emergency management, public health agencies (state and local)	▪ To provide comprehensive analysis of the health, property, and business-related impacts of various hazards that can occur within a jurisdiction or to a healthcare facility. Results can be used to focus finite resources. ▪ To help prioritize planning efforts for those emergencies. ▪ To provide a mechanism for external partners to rate the event based off of the four phases of emergency management. ▪ To illustrate operational and regulatory impact of events. ▪ To align efforts in emergency management and operational continuity.	▪ Developed by Children's Hospital Colorado, in collaboration with a Wisconsin workgroup consisting of state and local emergency management and public health departments, tribal health and hospital emergency planners. ▪ Based on adaptations of other existing resources: Kaiser Permanente's HVA Tool.	Workbook developed in Microsoft Excel.	▪ The tool allows the user to evaluate events three different ways: Risk Occurrence, Risk Response, or Non-weighted. It is up to the user to determine which rating scale or a combination thereof, they will use. (The non-weighted risk removes the weighting scale but provides a larger range of numbers).	**Common Features** ▪ Helps establish planning priorities. ▪ Identifies hazards that pose the greatest risk to a facility or community. ▪ Identifies jurisdictional gaps in public health and healthcare preparedness. ▪ Generates charts/graphs to analyze hazards relative to each other. **Additional/Unique Features** ▪ Analysis based on Baseline Data entered by user. ▪ Incorporates the four phases of emergency management and takes an all hazards approach to address national and local planning scenarios. ▪ Fully customizable for use by other organizations and industries (e.g., schools) based on specific needs. ▪ Includes 120 events for comprehensiveness (however, not all need to be used). Extra "preprogrammed" event lines are available in each section. ▪ Includes data input columns for both Occurrence and Response for more precise calculations; the justification being that just because an event occurs does not mean the facility has to respond. ▪ Includes a Non-Weighted Risk column for facilities that do not like a percentage based rating.	▪ Does not address at-risk populations.

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Comprehensive Preparedness Guide 201: Threat and Hazard Identification and Risk Assessment (THIRA) Guide Supplement 1: Toolkit	Jurisdictions, emergency management	▪ To provide resources (e.g., data sources and templates) that will assist jurisdictions in locating information on processes and guidance related to the identification of threats and hazards along with subsequent risk assessment. ▪ To support the conduct of a THIRA as described in the first edition of the Comprehensive Preparedness Guide (CPG) 201: Threat and Hazard Identification and Risk Assessment Guide. – Note: 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. The CPG 201: Threat and Hazard Identification and Risk Assessment Guide (Second Edition) expands the THIRA process to include estimation of resources needed to meet the capability targets.	▪ Developed by FEMA. ▪ Builds on existing local, state, tribal, and territorial hazard identification risk assessments. ▪ An example of how the THIRA was developed into a fillable tool format by West Virginia is available through ASPR TRACIE: – THIRA Template – Healthcare THIRA Template	A toolkit of hyperlinked resources provided in a PDF format. THIRA templates also provided as appendices.	▪ The toolkit is broken down into research areas to facilitate understanding of the THIRA process as a whole, as well as each step of the process. The literature collection, though not exhaustive, is primarily focused on materials published and released directly by FEMA and commonly referenced materials. ▪ The CPG 201: THIRA (Second Edition) provides a four-step process: identify the threats and hazards of concern, give the threats and hazards context, establish capability targets, and apply the results.	**Common Features** ▪ Helps establish planning priorities. ▪ Allows jurisdictions to estimate impacts from threats and hazards to the community across the 31 core capabilities and all mission areas (prevention, protection, mitigation, response, and recovery). **Additional/Unique Features** ▪ Toolkit that provides multiple resources and templates.	▪ Emergency management-specific. ▪ This is a toolkit/guidance document, not an actual tool to enter data. However, it includes templates that can be recreated by a jurisdiction. ▪ Does not automatically generate calculations or graphs/charts. ▪ List of resources is not comprehensive (based primarily on documents published by FEMA). ▪ Does not address at-risk populations.