Healthcare and Public Health Sector Risk Assessment Tools

Introduction

The Healthcare and Public Health (HPH) Sector encompasses organizations, facilities, information systems, and a skilled work force that are essential to maintaining the health of the American people. Disruptions to the HPH work force or critical physical and cyber assets, whether stemming from terrorism, natural disasters, or other intentional or accidental acts, may have a significant, negative effect on the Sector's ability to provide and sustain vital healthcare services. To help inform planning, preparedness activities, and resource investments to secure and enhance the resilience of the Sector's vital assets and work force, government and private sector partners within the HPH Sector are collaborating to develop an all-hazards risk assessment methodology tailored to the Sector's unique operating environment.

To enable consistent, repeatable, and objective risk assessments, a suite of self-assessment tools has been created which allows operators of assets within the HPH Sector to identify the threats and hazards facing them, measure the resilience of their operations, understand their importance to the overall healthcare system, and estimate potential consequences resulting from actualized threats and hazards. The tools provide owners/operators in the Sector with objective, authoritative data and standards-based evaluation criteria in an easy-to-follow, guided format. Used separately or together, these tools can be used to inform planning and preparedness activities and resource allocation, creating a more resilient healthcare system.

Components

The HPH Sector Risk Assessment Methodology consists of the following components:
1. **Threat/Hazard Assessment Module Automated Tool (THAM).** A sector-agnostic, data-driven tool to identify the most relevant threats and hazards facing a facility or asset. The THAM also has the built-in capability to compare a collection of facilities against each other and assess them as a whole.
2. **THAM End-to-End Narrative Methodology.** Provides an in-depth description of event types and documentation of the data sources and calculations used to determine each threat and hazard rating within the THAM.
3. **Rapid Infrastructure Survey Tool Vulnerability and Resilience Module (RIST-V).** A survey-style questionnaire to measure the vulnerability of a facility or asset to the entire scope of the threat/hazard environment, based on accepted standards and guidance from throughout the healthcare, emergency preparedness, and physical and cybersecurity fields.
4. **Rapid Infrastructure Survey Tool Consequence and Criticality Module (RIST-C).** An HPH Sector-focused tool to identify the importance of a facility or asset to the proper functioning of the healthcare system as a whole, and to estimate the human, property, and business impacts to a given facility that may result from a specific threat or hazard.

THAM Automated Tool and End-to-End Narrative

The THAM Tool Kit consists of two complementary components. The primary component is the THAM Automated Tool. This Excel-based tool can be used to automatically calculate a Threat/Hazard Rating for numerous event types simultaneously, based simply on entry of the location of the facility/asset being assessed and a few facility characterization questions. For event types that are not location-based (or for which the format of the data is not compatible with the tool), the user is guided step-by-step through instructions to access the necessary web-based threat or hazard data. The end result of the THAM process

is a rating from 1 (Low) to 4 (Very High) for each of 34 external intentional, unintentional, and natural threat and hazard event types catalogued plus 32 internal, facility-specific hazard event types. Each Threat/Hazard Rating provides a relative measurement of likelihood relative to the overall frequency of that specific threat or hazard, but is not comparable across different threats and hazards. The THAM Automated Tool also allows for an aggregated assessment of multiple facilities to determine the most common threats and hazards to the group as a whole, as well as to identify trends and outliers.

Accompanying the THAM Automated Tool is an "end-to-end" narrative description of the full THAM methodology, which includes 1) a comprehensive listing and description of the wide array of the manmade and naturally occurring threats and hazards facing the HPH Sector; 2) a discussion of the objective data sources and calculations used within the methodology to calculate individual Threat and Hazard Ratings by event type; and 3) a description of individual threat/hazard categories and an explanation of how the rating scales were derived for each event type. The data sources provided represent Internet-accessible, nationally scoped, authoritative data sources, and serve to complement local data sources and subject matter expert input that end-users may have privileged access to.

RIST-V

The RIST-V module is an Excel-based tool presented in a simple questionnaire format that allows for assessment of the overall vulnerability of a facility or asset to the threat/hazard landscape and the resilience measures in place to protect against them. The user is guided through a series of "Yes/No" and multiple choice questions regarding the plans, policies, procedures, and measures that are in place to reduce vulnerability and increase resilience, as well as questions about the critical dependencies of the facility or asset on outside services. The questions in the RIST-V were derived from existing assessments (including the Department of Homeland Security's Infrastructure Survey Tool), emergency management and cybersecurity standards (including Joint Commission and CRS Rule requirements and the National Institute of Standards and Technology Cybersecurity Framework), and consultation with subject matter experts from across the HPH Sector.

The RIST-V outputs consist of an overall vulnerability and resilience score—a relative score (from 0 to 100) that depicts the extent of the facility's vulnerability to and mitigations against the all hazards landscape. The overall score is composed of sub-scores in four major areas: resilience management (including business continuity and emergency management), physical security, critical dependencies, and cybersecurity. Using these scores and sub-scores, the owners and operators of a facility or asset can identify aspects of their operation that are contributing to vulnerability, and tie to them specific actions that can be taken to reduce that vulnerability and increase resilience.

Accompanying the RIST-V tool is a simple utility that allows a user to import the results of RIST-V assessments from multiple individual facilities and evaluate them as a whole with a single, aggregated vulnerability and resilience score and sub-scores. The tool also allows for comparison of the facilities' individual scores and sub-scores against each other for the purposes of trend analysis and identification of outliers.

RIST-C

The RIST-C is an Excel-based self-assessment tool that consists of survey questions, in the same "Yes/No" and multiple choice format used in the RIST-V, that are used to provide two separate types of outputs: a Sector criticality score and a trio of facility impact estimates. The criticality assessment portion of the tool determines the level of impact to the HPH Sector as a whole that would result from the loss of function of an individual facility or asset. The questions consist of general measurements of criticality

(such as population served and unique services provided) as well as questions specific to the subsector with which the facility is affiliated (e.g., direct patient healthcare, health plans and payers, pharmaceuticals, etc.). The responses to these questions are compiled into a single criticality score (from 0 to 100) that can be used as a relative measure of the extent of impact the Sector would experience after loss of the facility's services.

The RIST-C also provides estimates of impact to the facility itself, in terms of property loss or damage, business costs, and potential injuries or deaths. These impact estimates, which are specific to a single threat or hazard, are derived from user-provided valuations of property and business activities plus enumerations of specific staff and patient/customer populations. When combined with a specific threat or hazard, the RIST-C calculates the likely effects of the incident on key systems of the facility to determine which specific populations are affected and which costs are likely to be realized, and presents those estimates in three numerical categories: human impact, property impact, and business impact.