DEPARTMENT OF HEALTH

# Appendix B: Hazard Vulnerability Analysis and Tool

This document uses a quantitative Hazard Vulnerability Analysis (HVA) method to evaluate the effects of various hazards on a facility or agency. The facility/agency may find a qualitative HVA method equally as effective. Either method may meet regulatory requirements.

Using this tool, each potential hazard is evaluated and scored for probability, risk, and preparedness. The factors are then multiplied to give an overall total score for each hazard. Note that a hazard with no probability of occurrence for a given facility/agency is scored as zero and will automatically result in a zero for the total score.

**It is important to read all instructions before using/completing the HVA tool.**

## Tool

Kaiser Permanente has developed a Hazard Vulnerability Analysis tool which is available for download as a planning resource.

**Individuals or facilities/agencies using this tool are solely responsible for any hazard assessment and compliance with applicable laws and regulations.**

Download the Kaiser Permanente HVA Tool (https://calhospital.org/updated-hva-tool-kaiser-permanente/)

**Facilities should review and update their HVA annually.**

## Hazard Vulnerability Analysis instructions

Evaluate every potential event in each of the three categories of probability, risk, and preparedness. Add additional events as necessary.

Issues to consider for probability include, but are not limited to:

- Known incidents or disasters.
- Historical data.
- Manufacturer/vendor statistics.

Issues to consider for risk include, but are not limited to:

- Threat to life and/or health.
- Disruption of services.

- Damage/failure possibilities.
- Loss of community trust.
- Financial impact.
- Legal issues.

Issues to consider for preparedness include, but are not limited to:

- Status of current plans.
- Training status.
- Insurance.
- Availability of back-up systems.
- Community resources.

It is recommended that each facility/agency evaluate the prioritization and determine the minimum score in which no action is necessary. List hazards in descending order based on the total score, this will prioritize the hazards in need of the facilities/agency's attention and resources for emergency planning. The focus will then be on the hazards of higher priority. The minimum score determined that there is some probability and risk of the event occurring, but the facility/agency has decided to exclude it from the planning process. It must be noted that the acceptance of all risk is at the discretion of the facility/agency.

# Probability

Specific disasters, by nature, are not predictable. However, over the long-term, they can be assigned a probability of occurring. Familiarity with the geographic area and research will identify which disasters the facility must be most prepared for. It is important to consider both likely and unlikely events in the preparedness process.

Regularly occurring natural disasters are typically well known within a community. The county emergency manager will often be able to provide data that include flood plains, severe weather patterns, and snow fall trends. In addition, county emergency managers may have already done a community-based hazard vulnerability analysis. The community HVA may also identify other hazards including dangerous industry, critical infrastructure, and toxic materials. This may not cover all hazards for a facility/agency, but it will provide a start. See Appendix N for links to the Health Care Coalitions website and contact your Regional Health care Preparedness Coordinator for the regional HVA.

Long term care facilities/agencies have become increasingly dependent on technology to provide their normal services. As a result, a failure of a given technological system can put a facility into an internal state of disaster. Beyond the walls of a facility/agency itself, technology and infrastructure in the community can fail or lead to an incident creating victims in need of medical care or otherwise affecting the LTC facility/agency. External transportation failures can lead to unavailability of supplies, which can also be disastrous. To determine the probability of these events, examine the internal technology in the facility/agency and the availability of backup systems. Service records and system failure reports can be used to evaluate the likelihood that these incidents may occur. Types of industry in the community should also be considered in this assessment for a technological disaster with broad community impact.

Establishing the probability of occurrence of these events is partly objective or statistical and partly intuitive or highly subjective. Each hazard should be evaluated in terms that will reflect its likelihood. The tool presented in this document, for example, uses qualitative terms of high, medium, low, or no probability of occurrence. An exact value may be used, but is not required, to quantitatively assess the probability.

# Risk

Risk is an assessment of the potential impact that any given hazard may have on the organization. Risk must be analyzed to include a variety of factors, which may include, but are not limited to the following:

- Threat to human life
- Threat to health and safety
- Property damage
- Infrastructure issues
- Economic loss
- Loss of community trust/goodwill
- Legal consequences

The threat to human life and the threat to health and safety are so significant that they are given separate consideration on the hazard vulnerability analysis document. Consider each possible disaster scenario to determine if either of these threats is a factor.

The remaining three categories on the analysis tool classify risk factors as high, moderate, or low based on the disruption to the facility/agency in. From the bulleted list above, property damage, systems failure, economic loss, loss of community trust, and legal ramifications are all considered together to determine the level of risk.

Property damage in a disaster situation may often be a factor, although the degree of damage can vary. In the most severe scenario of this type, the property damage will also include equipment and supplies within the facility. Other hazards may impact only a portion of the building, for example, flooding only in the basement or severe weather resulting only in a few broken windows.

Infrastructure issues may have been the cause of the emergency in the first place. A major utility failure may require backup equipment or service that is significantly less convenient or may not be sustainable for a lengthy time. Even though an alternate system is available, the failure will typically cause a facility to implement emergency plans. Infrastructure failure, however, is not necessarily an isolated occurrence. It can be the result of another hazard, such as flooding damage to an emergency generator.

In any disaster, economic loss is a possibility that deserves consideration. If a facility/agency cannot provide services because of disaster, revenue will be affected. It may result from damage to the physical site or equipment, inability to access the facility/agency due to transportation or crowd control issues, or a negative public relations impact. Long term care facilities/agencies are businesses like any other, and economic disruptions can be managed for only a limited time. Each hazard must be analyzed for its adverse financial impact.

An issue of loss of goodwill has the potential for legal ramifications in the aftermath of a disaster. If errors were made in the management of the emergency, and lives were lost or injuries occurred, the facility/agency could face legal action. Facilities and agencies should consult risk management and legal counsel if questions exist about legal in this area.

# Preparedness

Finally, the facilities'/agencies' preparedness for a given disaster should be assessed. This process should involve the input of community agencies. The LTC facility/agency will not be responding to an emergency in a vacuum, and there may be community resources to support the facility/agency.

Long term care facilities/agencies have done disaster planning for many years and are well prepared to manage many types of emergencies. However, there are always opportunities for improvement. The status of emergency plans and the training status of staff members to respond to any given hazard is a factor to consider in evaluating preparedness.

The LTC facility/agency may carry insurance to compensate for losses suffered because of some emergencies. Backup equipment and processes help with additional protection against certain occurrences during infrastructure failure. The availability of backup equipment and processes should be factored into the determination of the current preparedness status.

Planners within the facility/agency should evaluate preparedness critically and realistically. Appropriate evaluation of preparedness will direct the facilities/agencies effort and resources earmarked for emergency management.

***Look at various Annexes for localized policy and procedures (e.g., fire, flood, chemical spill, etc.) ***