



**Hazard Vulnerability Analysis (HVA)  
How to Guide  
2023**

# How To Conduct an HVA

- What Is It and Why
- Internal Process / How To
- Involving External Partners
- Using the Kaiser Permanente Model
- Mitigation Planning
- Using the Data

# The Annual Risk Assessment

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## **Hazard Vulnerability Analysis (HVA)**

- Systematic approach to recognizing hazards that may affect the ability to care for residents.
- The risks associated with each hazard are analyzed to prioritize planning, mitigation, response, and recovery activities.



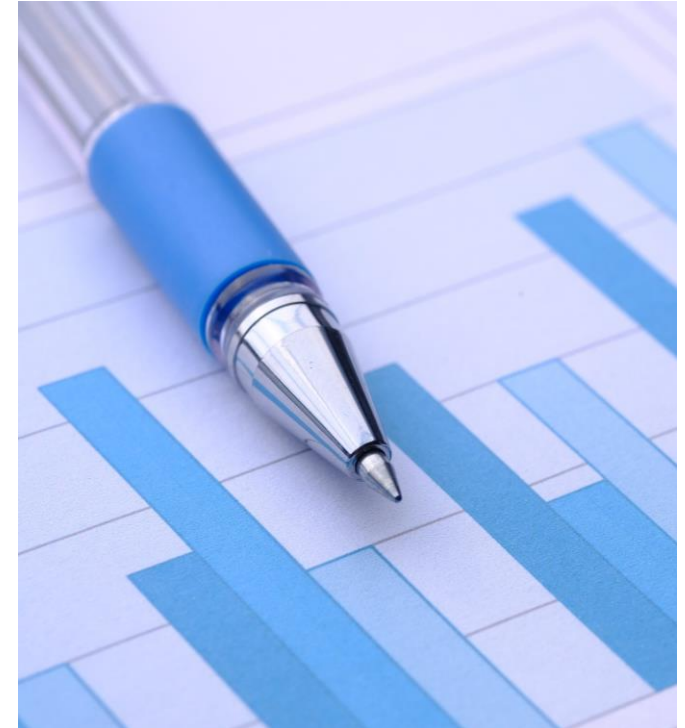
# The Annual Risk Assessment

## Why conduct an HVA?

**LTC Facilities are REQUIRED to do so annually.**

**§ 483.73 (a)(1)-(3): Emergency plan.** The LTC facility must develop and maintain an emergency preparedness program that must be reviewed, and updated at least annually. The plan must do all of the following:

- (1) Be based on and include a documented, facility-based risk assessment, utilizing an all-hazards approach, including missing residents.
- (2) Include strategies for addressing emergency events identified by the risk assessment.
- (3) Address resident population, including, but not limited to, persons at-risk; the type of services the LTC facility has the ability to provide in an emergency; and continuity of operations, including delegations of authority and succession plans.



# Why Conduct an HVA?

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## **Conducting an HVA assists you in developing your:**

- **Preparedness Plans** (what emergency response plans should be in place for known hazards)
- **Exercise / Drill Plans** (what should the focus be for the year)
- **Mitigation Plans** (can infrastructure be hardened to mitigate hazards, or equipment purchased, etc.?)



# How To Conduct an HVA: Choose a Model



<https://asprtracie.hhs.gov/>



HAZARD AND VULNERABILITY ASSESSMENT TOOL  
HUMAN RELATED EVENTS



# Partners and Stakeholders

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- **Keys to success:** coordination and collaboration
- **Keys to being well prepared for emergencies:** Developing relationships, sharing information, effective coordination, and collaboration with local, regional and state emergency management and partners, as well as other organizations
- **Keys to assessing risks properly:** Engaging your stakeholders can help you better understand how the organization operates and what resources it has available in an emergency.



# Examples of Partners and Stakeholders

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## LOCAL

- Local Emergency Management
- Local Fire & Police Departments
- Local Health Department
- Hospitals
- Other local LTC / AL facilities

## STATE/REGIONAL

- VHCA-VCAL
- VA Dept of Emergency Management
- Virginia's Healthcare Coalitions
  - [Learn more](#) about Healthcare Coalitions





# How To Conduct an HVA

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## **Conduct an Internal and Exterior Tour**

- Review External Hazards
- Review Internal (Facility) Hazards

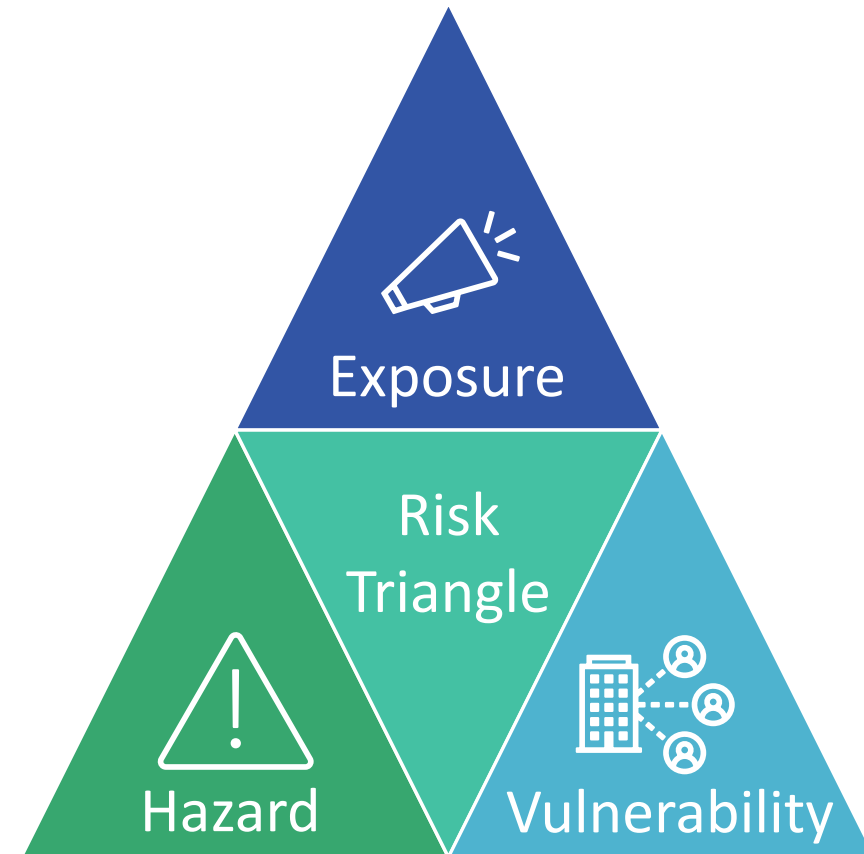
## **Complete the HVA**

## **Develop Mitigation & Preparedness Plans**



# What about the hazards are we assessing?

- Probability
- Impact
- Preparedness
- Internal Response
- External Response



| Hazard Vulnerability Assessment    |                      |                                |                             |                          |               | RISK                           | PROBABILITY                              | SEVERITY      |
|------------------------------------|----------------------|--------------------------------|-----------------------------|--------------------------|---------------|--------------------------------|--|---------------|
| NATURAL HAZARDS                    |                      |                                |                             |                          |               | #DIV/0!                        | #DIV/0!                                  | #DIV/0!       |
| HAZARD                             | PROBABILITY<br>(0-4) | SEVERITY                       |                             |                          |               |                                |  | Relative Risk |
|                                    |                      | IMPACT                         |                             |                          | MITIGATION    |                                |  |               |
|                                    |                      | HUMAN IMPACT                   | PROPERTY IMPACT             | BUSINESS IMPACT          | PREPARED-NESS | INTERNAL RESPONSE              | EXTERNAL RESPONSE                        |               |
|                                    |                      | Possibility of death or injury | Physical losses and damages | Interruption of services | Preplanning   | Time, effectiveness, resources | Community/ Mutual Aid staff and supplies |               |
| Avalanche                          |                      |                                |                             |                          |               |                                |  |               |
| Blizzard                           |                      |                                |                             |                          |               |                                |  |               |
| Coastal Tsunami / Erosion          |                      |                                |                             |                          |               |                                |  |               |
| Dam Failure                        |                      |                                |                             |                          |               |                                |  |               |
| Drought                            |                      |                                |                             |                          |               |                                |  |               |
| Dust / Sand Storm                  |                      |                                |                             |                          |               |                                |  |               |
| Earthquake                         |                      |                                |                             |                          |               |                                |  |               |
| Flooding / Flash (External)        |                      |                                |                             |                          |               |                                |  |               |
| Flooding (Internal)                |                      |                                |                             |                          |               |                                |  |               |
| Damaging Winds                     |                      |                                |                             |                          |               |                                |  |               |
| Hail Storm                         |                      |                                |                             |                          |               |                                |  |               |
| Hurricane                          |                      |                                |                             |                          |               |                                |  |               |
| Ice Storm                          |                      |                                |                             |                          |               |                                |  |               |
| Infection Disease (SARS, Flu, etc) |                      |                                |                             |                          |               |                                |  |               |
| Landslide                          |                      |                                |                             |                          |               |                                |  |               |
| Severe Thunderstorm                |                      |                                |                             |                          |               |                                |  |               |
| Snow / Ice Storm                   |                      |                                |                             |                          |               |                                |  |               |
| Subsidence / Sink hole             |                      |                                |                             |                          |               |                                |  |               |
| Temperature Extremes               |                      |                                |                             |                          |               |                                |  |               |
| Tornado                            |                      |                                |                             |                          |               |                                |  |               |
| Volcanic Eruption                  |                      |                                |                             |                          |               |                                |  |               |
| Wild Fire                          |                      |                                |                             |                          |               |                                |  |               |
| Other 1 (provide hazard name)      |                      |                                |                             |                          |               |                                |  |               |
| Other 2 (provide hazard name)      |                      |                                |                             |                          |               |                                |  |               |

# How to Conduct an HVA

Model shown is based upon the Kaiser tool

# How To Conduct An HVA



ENTER FACILITY NAME

CONSIDERATIONS FOR COMPLETING THE ANALYSIS FORMS

- 1) Change "Facility Name" at the top of this Instruction Tab to populate your facility's name throughout.
- 2) Facilities using this tool shall complete each worksheet as it pertains to their organization.
- 3) When completing the individual risk tabs (Natural, Technological, Human):
  - Complete all worksheets, including Natural, Technological, and Human
  - If a hazard does not pertain to you (e.g., "volcanic eruption", "mass casualty") simply score the "probability" as a zero (0)
  - Assume each event occurs at the worst possible time (e.g, during peak census, lowest staffing levels) when considering Impact and Response
- 4) The Facility Summary tab will automatically provide general overall relative risk by risk type (Natural, Tech or Human).
- 5) The Top 10 Hazards tab will automatically provide the Top Ten by risk type (Natural, Tech or Human) and the Top Ten Overall.
- 6) These top relative risks will help to determine priorities for mitigation efforts, planning efforts and / or needed exercises or training.

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

- Known Risk
- Historical Data (10 Year Time Frame)

Issues to consider for **human impact** include, but are not limited to:

- Acuity and volume of injury/death to staff, residents, & visitors

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

- Status of current plans
- Frequency of drills
- Training and implementation status
- Insurance
- Availability of alternate sources for critical supplies/services



# How To Conduct An HVA

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**Pay attention** to and follow the tabs at the bottom of the workbook



**Please note** that in this instructional presentation, some slides have suggestions or notes in the notes area that may be helpful.

| Hazard Vulnerability Assessment |                      |                                |                             |                          |               |                                | RISK                                    | PROBABILITY | SEVERITY | Relative Risk | Comments |
|---------------------------------|----------------------|--------------------------------|-----------------------------|--------------------------|---------------|--------------------------------|---|-------------|----------|---------------|----------|
| NATURAL HAZARDS                 |                      |                                |                             |                          |               |                                | 0.00                                    | 0.00        | 0.00     |               |          |
| HAZARD                          | PROBABILITY<br>(0-4) | SEVERITY                       |                             |                          |               |                                |   |             |          |               |          |
|                                 |                      | IMPACT                         |                             |                          | MITIGATION    |                                |   |             |          |               |          |
|                                 |                      | HUMAN IMPACT                   | PROPERTY IMPACT             | BUSINESS IMPACT          | PREPARED-NESS | INTERNAL RESPONSE              | EXTERNAL RESPONSE                       |             |          |               |          |
|                                 |                      | Possibility of death or injury | Physical losses and damages | Interruption of services | Preplanning   | Time, effectiveness, resources | Community/Mutual Aid staff and supplies |             |          |               |          |
| Avalanche                       |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Blizzard                        |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Coastal Tsunami                 |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Dam Failure                     |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Drought                         |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Dust / Sand Storm               |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Earthquake                      |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Flooding (Extreme)              |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Damaging Wind                   |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Hail Storm                      |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Hurricane                       |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Infection Disease               |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Landslide                       |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Severe Thunderstorm             |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Snow / Ice Storm                |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Temperature Extremes            |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Tornado                         |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Volcanic Eruption               |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Wild Fire                       |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Other 1 (provide hazard name)   |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Other 2 (provide hazard name)   |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Other 3 (provide hazard name)   |                      |                                |                             |                          |               |                                |   |             | 0.00     |               |          |
| Average Score                   | 0.00                 | 0.00                           | 0.00                        | 0.00                     | 0.00          | 0.00                           | 0.00                                    | 0.00        | 0.00     |               |          |

|                          |   |   |   |
|--------------------------|---|---|---|
| Probability <sup>1</sup> | Historical review of last 10 years and the likelihood that the event will occur within the next 10 years. | 0 | No probability to occur/Not Applicable          |
|                          |   | 1 | Unlikely to occur, but possible in 10 yr period |
|                          |   | 2 | Likely to occur at least once in 10 yr period   |
|                          |   | 3 | Will occur several times within 10 yr period    |
|                          |   | 4 | Will likely occur frequently in 10 yr period    |

Scoring scales change with each column.  
Enter your scores as appropriate.

| Hazard Vulnerability Assessment    |                      |                                |                             |                          |               |                                | RISK                                    | PROBABILITY   | SEVERITY |  |
|------------------------------------|----------------------|--------------------------------|-----------------------------|--------------------------|---------------|--------------------------------|---|---------------|----------|--|
| NATURAL HAZARDS                    |                      |                                |                             |                          |               |                                | 0.00                                    | 0.00          | 0.00     |  |
| HAZARD                             | PROBABILITY<br>(0-4) | IMPACT                         |                             |                          | MITIGATION    |                                |   | Relative Risk | Comments |  |
|                                    |                      | HUMAN IMPACT                   | PROPERTY IMPACT             | BUSINESS IMPACT          | PREPARED-NESS | INTERNAL RESPONSE              | EXTERNAL RESPONSE                       |               |          |  |
|                                    |                      | Possibility of death or injury | Physical losses and damages | Interruption of services | Preplanning   | Time, effectiveness, resources | Community/Mutual Aid staff and supplies |               |          |  |
| Avalanche                          |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Blizzard                           |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Coastal Tsunami / Erosion          |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Dam Failure                        |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Drought                            |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Dust / Sand Storm                  |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Earthquake                         |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Flooding (External)                |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Damaging Winds                     |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Hail Storm                         |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Hurricane                          |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Infection Disease (SARS, Flu, etc) |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Landslide                          |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Severe Thunderstorm                |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Snow / Ice Storm                   |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Temperature Extremes               |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Tornado                            |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Volcanic Eruption                  |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Wild Fire                          |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Other 1 (provide hazard name)      |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Other 2 (provide hazard name)      |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| Other 3 (provide hazard name)      |                      |                                |                             |                          |               |                                |   | 0.00          |          |  |
| <b>Average Score</b>               | 0.00                 | 0.00                           | 0.00                        | 0.00                     | 0.00          | 0.00                           | 0.00                                    | 0.00          |          |  |

Scoring scales change with each column.  
Enter your scores as appropriate.

| Hazard Vulnerability Assessment |                      |                      |                 |                          |               | RISK                           | PROBABILITY                             | SEVERITY | Relative Risk | Comments |
|---------------------------------|----------------------|----------------------|-----------------|--------------------------|---------------|--------------------------------|---|----------|---------------|----------|
| NATURAL HAZARDS                 |                      |                      |                 |                          |               | 0.00                           | 0.00                                    | 0.00     |               |          |
| HAZARD                          | PROBABILITY<br>(0-4) | IMPACT               |                 |                          | MITIGATION    |                                |   |          |               |          |
|                                 |                      | HUMAN IMPACT         | PROPERTY IMPACT | BUSINESS IMPACT          | PREPARED-NESS | INTERNAL RESPONSE              | EXTERNAL RESPONSE                       |          |               |          |
|                                 |                      | Possibility of death | Property damage | Interruption of services | Preplanning   | Time, effectiveness, resources | Community/Mutual Aid staff and supplies |          |               |          |
| Avalanche                       |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Blizzard                        |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Coastal Tsunami                 |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Dam Failure                     |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Drought                         |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Dust / Sand Storm               |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Earthquake                      |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Flooding (Extreme)              |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Damaging Winter Weather         |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Hail Storm                      |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Hurricane                       |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Infection Disease               |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Landslide                       |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Severe Thunderstorm             |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Snow / Ice Storm                |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Temperature Extremes            |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Tornado                         |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Volcanic Eruption               |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Wild Fire                       |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Other 1 (provide description)   |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Other 2 (provide description)   |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Other 3 (provide description)   |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |
| Average Score                   |                      |                      |                 |                          |               |                                |   | 0.00     |               |          |

Scoring scales change with each column.  
Enter your scores as appropriate.



| Hazard Vulnerability Assessment    |                      |                                |                             |                          |               | RISK              | PROBABILITY       | SEVERITY | Relative Risk | Comments |
|------------------------------------|----------------------|--------------------------------|-----------------------------|--------------------------|---------------|-------------------|-------------------|----------|---------------|----------|
| NATURAL HAZARDS                    |                      |                                |                             |                          |               | 0.00              | 0.00              | 0.00     |               |          |
| HAZARD                             | PROBABILITY<br>(0-4) | SEVERITY                       |                             |                          |               |                   |                   |          |               |          |
|                                    |                      | IMPACT                         |                             |                          | MITIGATION    |                   |                   |          |               |          |
|                                    |                      | HUMAN IMPACT                   | PROPERTY IMPACT             | BUSINESS IMPACT          | PREPARED-NESS | INTERNAL RESPONSE | EXTERNAL RESPONSE |          |               |          |
|                                    |                      | Possibility of death or injury | Physical losses and damages | Interruption of services | Preparedness  | Internal Response | External Response |          |               |          |
| Avalanche                          |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Blizzard                           |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Coastal Tsunami / Erosion          |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Dam Failure                        |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Drought                            |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Dust / Sand Storm                  |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Earthquake                         |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Flooding (External)                |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Damaging Winds                     |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Hail Storm                         |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Hurricane                          |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Infection Disease (SARS, Flu, etc) |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Landslide                          |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Severe Thunderstorm                |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Snow / Ice Storm                   |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Temperature Extremes               |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Tornado                            |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Volcanic Eruption                  |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Wild Fire                          |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Other 1 (provide hazard name)      |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Other 2 (provide hazard name)      |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Other 3 (provide hazard name)      |                      |                                |                             |                          |               |                   |                   |          |               |          |
| Average Score                      | 0.00                 |                                |                             |                          |               |                   |                   |          |               |          |

Scoring scales change with each column.  
Enter your scores as appropriate.

| Hazard Vulnerability Assessment    |                      |                                |                             |                          |               |                                | RISK                                    | PROBABILITY | SEVERITY          |  |
|------------------------------------|----------------------|--------------------------------|-----------------------------|--------------------------|---------------|--------------------------------|---|-------------|-------------------|--|
| NATURAL HAZARDS                    |                      |                                |                             |                          |               |                                | 0.00                                    | 0.00        | 0.00              |  |
| HAZARD                             | PROBABILITY<br>(0-4) | SEVERITY                       |                             |                          |               |                                | Relative Risk                           | Comments    |                   |  |
|                                    |                      | IMPACT                         |                             |                          | MITIGATION    |                                |   |             |                   |  |
|                                    |                      | HUMAN IMPACT                   | PROPERTY IMPACT             | BUSINESS IMPACT          | PREPARED-NESS | INTERNAL RESPONSE              |   |             | EXTERNAL RESPONSE |  |
|                                    |                      | Possibility of death or injury | Physical losses and damages | Interruption of services | Preplanning   | Time, effectiveness, resources | Community/Mutual Aid staff and supplies |             |                   |  |
| Avalanche                          |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Blizzard                           |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Coastal Tsunami / Erosion          |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Dam Failure                        |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Drought                            |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Dust / Sand Storm                  |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Earthquake                         |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Flooding (External)                |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Damaging Winds                     |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Hail Storm                         |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Hurricane                          |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Infection Disease (SARS, Flu, etc) |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Landslide                          |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Severe Thunderstorm                |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Snow / Ice Storm                   |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Temperature Extremes               |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Tornado                            |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Volcanic Eruption                  |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Wild Fire                          |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Other 1 (provide hazard name)      |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Other 2 (provide hazard name)      |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| Other 3 (provide hazard name)      |                      |                                |                             |                          |               |                                |   | 0.00        |                   |  |
| <b>Average Score</b>               | 0.00                 | 0.00                           | 0.00                        | 0.00                     | 0.00          | 0.00                           | 0.00                                    | 0.00        |                   |  |

The tool separates the various hazards into categories: Natural, Technological, and Human-caused.

| 3  |   | Hazard Vulnerability Assessment    |                      |                                   |                                   |                             |                   | RISK                                 | PROBABILITY                                    | SEVERITY      |
|----|---|------------------------------------|----------------------|-----------------------------------|-----------------------------------|-----------------------------|-------------------|--------------------------------------|--|---------------|
| 4  |   | NATURAL HAZARDS                    |                      |                                   |                                   |                             |                   | 0.00                                 | 0.00   | 0.00          |
| 5  | 6 | HAZARD                             | PROBABILITY<br>(0-4) | SEVERITY                          |                                   |                             |                   |                                      |  | Relative Risk |
|    |   |                                    |                      | IMPACT                            |                                   |                             | MITIGATION        |                                      |  |               |
|    |   |                                    |                      | HUMAN<br>IMPACT                   | PROPERTY<br>IMPACT                | BUSINESS<br>IMPACT          | PREPARED-<br>NESS | INTERNAL<br>RESPONSE                 | EXTERNAL<br>RESPONSE                           |               |
| 7  | 8 |                                    |                      |                                   |                                   |                             |                   |                                      |  |               |
|    |   |                                    |                      | Possibility of<br>death or injury | Physical<br>losses and<br>damages | Interruption of<br>services | Preplanning       | Time,<br>effectiveness,<br>resources | Community/<br>Mutual Aid staff<br>and supplies |               |
| 9  |   | Hurricane                          |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 10 |   | Infection Disease (SARS, Flu, etc) |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 11 |   | Landslide                          |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 12 |   | Severe Thunderstorm                |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 13 |   | Snow / Ice Storm                   |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 14 |   | Temperature Extremes               |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 15 |   | Tornado                            |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 16 |   | Volcanic Eruption                  |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 17 |   | Wild Fire                          |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 18 |   | Other 1 (provide hazard name)      |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 19 |   | Other 2 (provide hazard name)      |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 20 |   | Other 3 (provide hazard name)      |                      |                                   |                                   |                             |                   |                                      |  | 0.00          |
| 21 |   | Average Score                      | 0.00                 | 0.00                              | 0.00                              | 0.00                        | 0.00              | 0.00                                 | 0.00   | 0.00          |

Some hazards contains notes to help guide you. Hover over the red dot or the cell to see the notes.

| Hazard Vulnerability Assessment<br>TECHNOLOGICAL HAZARDS |                      |                                   |                                |                             |                   | RISK                                 | PROBABILITY                                    | SEVERITY      |
|--|----------------------|-----------------------------------|--------------------------------|-----------------------------|-------------------|--------------------------------------|--|---------------|
|  |                      | SEVERITY                          |                                |                             |                   | 0.00                                 | 0.00   | 0.00          |
| HAZARD   | PROBABILITY<br>(0-4) | IMPACT                            |                                |                             | MITIGATION        |                                      |  | Relative Risk |
|  |                      | HUMAN<br>IMPACT                   | PROPERTY<br>IMPACT             | BUSINESS<br>IMPACT          | PREPARED-<br>NESS | INTERNAL<br>RESPONSE                 | EXTERNAL<br>RESPONSE                           |               |
|  |                      | Possibility of<br>death or injury | Physical losses<br>and damages | Interruption of<br>services | Preplanning       | Time,<br>effectiveness,<br>resources | Community/<br>Mutual Aid staff<br>and supplies |               |
| Carbon Monoxide Release (Internal)                       |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Commercial Power Failure                                 |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Communications Systems Failure                           |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Contamination of Outside Air                             |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Cyber Attack   |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| EHR/Information Systems Disruption                       |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Fire Alarm System (Detection) Failure                    |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Fire Protection System Loss (Suppression)                |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Fire, Internal   |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Flood, Internal  |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Fuel Shortage  |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Generator Failure  |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Hazmat Exposure, External                                |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Hazmat Exposure, Internal                                |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| HVAC Failure   |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Medical Gas Failure                                      |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Medical Vacuum Disruption                                |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Natural Gas Failure                                      |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Nuclear Facility EPZ                                     |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Public Transportation Disruption                         |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Sewer Disruption   |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Steam Disruption   |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Vendors: Inability to deliver supplies                   |                      |                                   |                                |                             |                   |                                      |  | 0.00          |
| Vendors: Inability to respond for repairs                |                      |                                   |                                |                             |                   |                                      |  | 0.00          |

This process requires you to look at all hazards and consider their risk to your facility, not just the ones you have at the top of your head. This may confirm your worries, or it could make you realize there are other higher risks you should be addressing.

Hazard Vulnerability Assessment

HUMAN HAZARDS

RISK PROBABILITY SEVERITY

0.00 0.00 0.00

| HAZARD  | PROBABILITY<br>(0-4) | SEVERITY                       |                             |                          |               |                                |  | Relative Risk |
|---|----------------------|--------------------------------|-----------------------------|--------------------------|---------------|--------------------------------|--|---------------|
|   |                      | IMPACT                         |                             |                          | MITIGATION    |                                |  |               |
|   |                      | HUMAN IMPACT                   | PROPERTY IMPACT             | BUSINESS IMPACT          | PREPARED-NESS | INTERNAL RESPONSE              | EXTERNAL RESPONSE                        |               |
|   |                      | Possibility of death or injury | Physical losses and damages | Interruption of services | Preplanning   | Time, effectiveness, resources | Community/ Mutual Aid staff and supplies |               |
| Active Shooter / Person with a Weapon             |                      |                                |                             |                          |               |                                |  | 0.00          |
| Bomb Threat (Called in)                           |                      |                                |                             |                          |               |                                |  | 0.00          |
| Civil Disturbance                                 |                      |                                |                             |                          |               |                                |  | 0.00          |
| Community Surge                                   |                      |                                |                             |                          |               |                                |  | 0.00          |
| Forensic Admission                                |                      |                                |                             |                          |               |                                |  | 0.00          |
| Hostage Situation                                 |                      |                                |                             |                          |               |                                |  | 0.00          |
| Labor Dispute/Strike                              |                      |                                |                             |                          |               |                                |  | 0.00          |
| Mass Casualty Incident < 5 Patients               |                      |                                |                             |                          |               |                                |  | 0.00          |
| Mass Casualty Incident < 5 Patients needing Decon |                      |                                |                             |                          |               |                                |  | 0.00          |
| Mass Casualty Incident > 5 Patients               |                      |                                |                             |                          |               |                                |  | 0.00          |
| Mass Casualty Incident > 5 Patients needing Decon |                      |                                |                             |                          |               |                                |  | 0.00          |
| Missing Patient (NH Resident)                     |                      |                                |                             |                          |               |                                |  | 0.00          |
| Natural Gas Odor/Leak                             |                      |                                |                             |                          |               |                                |  | 0.00          |
| Sheltering in Place (Staff, Staff Families, Pets) |                      |                                |                             |                          |               |                                |  | 0.00          |
| Suspicious Package or Substance                   |                      |                                |                             |                          |               |                                |  | 0.00          |
| Surge or Influx or Patients (NH Residents)        |                      |                                |                             |                          |               |                                |  | 0.00          |
| Community or Regional Terrorism (CBRN)            |                      |                                |                             |                          |               |                                |  | 0.00          |
| VIP Admission                                     |                      |                                |                             |                          |               |                                |  | 0.00          |
| Workplace Violence                                |                      |                                |                             |                          |               |                                |  | 0.00          |
| <i>Other 1 (provide hazard name)</i>              |                      |                                |                             |                          |               |                                |  | 0.00          |
| <i>Other 2 (provide hazard name)</i>              |                      |                                |                             |                          |               |                                |  | 0.00          |
| <i>Other 3 (provide hazard name)</i>              |                      |                                |                             |                          |               |                                |  | 0.00          |
| <b>Average Score</b>                              | 0.00                 | 0.00                           | 0.00                        | 0.00                     | 0.00          | 0.00                           | 0.00                                     | 0.00          |

| Hazard Vulnerability Assessment<br>HUMAN HAZARDS  |                      |                                |                             |                          |               | RISK                           | PROBABILITY                             | SEVERITY      |
|---|----------------------|--------------------------------|-----------------------------|--------------------------|---------------|--------------------------------|---|---------------|
|   |                      |                                |                             |                          |               | 0.00                           | 0.00                                    | 0.00          |
| HAZARD  | PROBABILITY<br>(0-4) | SEVERITY                       |                             |                          |               |                                |   | Relative Risk |
|   |                      | IMPACT                         |                             |                          | MITIGATION    |                                |   |               |
|   |                      | HUMAN IMPACT                   | PROPERTY IMPACT             | BUSINESS IMPACT          | PREPARED-NESS | INTERNAL RESPONSE              | EXTERNAL RESPONSE                       |               |
|   |                      | Possibility of death or injury | Physical losses and damages | Interruption of services | Preplanning   | Time, effectiveness, resources | Community/Mutual Aid staff and supplies |               |
| Active Shooter / Person with a Weapon             |                      |                                |                             |                          |               |                                |   | 0.00          |
| Bomb Threat (Called in)                           |                      |                                |                             |                          |               |                                |   | 0.00          |
| Civil Disturbance                                 |                      |                                |                             |                          |               |                                |   | 0.00          |
| Community Surge                                   |                      |                                |                             |                          |               |                                |   | 0.00          |
| Forensic Admission                                |                      |                                |                             |                          |               |                                |   | 0.00          |
| Hostage Situation                                 |                      |                                |                             |                          |               |                                |   | 0.00          |
| Labor Dispute/Strike                              |                      |                                |                             |                          |               |                                |   | 0.00          |
| Mass Casualty Incident < 5 Patients               |                      |                                |                             |                          |               |                                |   | 0.00          |
| Mass Casualty Incident < 5 Patients needing Decon |                      |                                |                             |                          |               |                                |   | 0.00          |
| Mass Casualty Incident > 5 Patients               |                      |                                |                             |                          |               |                                |   | 0.00          |
| Mass Casualty Incident > 5 Patients needing Decon |                      |                                |                             |                          |               |                                |   | 0.00          |
| Missing Patient (NH Resident)                     |                      |                                |                             |                          |               |                                |   | 0.00          |
| Natural Gas Odor/Leak                             |                      |                                |                             |                          |               |                                |   | 0.00          |
| Sheltering in Place (Staff, Sta                   |                      |                                |                             |                          |               |                                |   | 0.00          |
| Suspicious Package or Substa                      |                      |                                |                             |                          |               |                                |   | 0.00          |
| Surge or Influx or Patients (NI                   |                      |                                |                             |                          |               |                                |   | 0.00          |
| Community or Regional Terro                       |                      |                                |                             |                          |               |                                |   | 0.00          |
| VIP Admission                                     |                      |                                |                             |                          |               |                                |   | 0.00          |
| Workplace Violence                                |                      |                                |                             |                          |               |                                |   | 0.00          |
| Other 1 (provide hazard name)                     |                      |                                |                             |                          |               |                                |   | 0.00          |
| Other 2 (provide hazard name)                     |                      |                                |                             |                          |               |                                |   | 0.00          |
| Other 3 (provide hazard name)                     |                      |                                |                             |                          |               |                                |   | 0.00          |
| Average Score                                     | 0.00                 | 0.00                           | 0.00                        | 0.00                     | 0.00          | 0.00                           | 0.00                                    | 0.00          |

There are spaces provided in each category to add additional hazards so you can customize the tool to your facility and address all the potential hazards that exist.

# Case Study: Coastal Facility



| Hazard Vulnerability Assessment |                                |                             |                          |                 |                                |   | RISK              | PROBABILITY   | SEVERITY |
|---------------------------------|--------------------------------|-----------------------------|--------------------------|-----------------|--------------------------------|---|-------------------|---------------|----------|
| HAZARD                          | NATURAL HAZARDS                |                             |                          |                 |                                |   | 0.00              | 0.00          | 0.00     |
|                                 | PROBABILITY<br>(0-4)           | IMPACT                      |                          |                 | SEVERITY                       |   |                   | Relative Risk |          |
|                                 |                                | HUMAN IMPACT                | PROPERTY IMPACT          | BUSINESS IMPACT | PREPAREDNESS                   | MITIGATION                              | EXTERNAL RESPONSE |               |          |
|                                 | Possibility of death or injury | Physical losses and damages | Interruption of services | Preplanning     | Time, effectiveness, resources | Community/Mutual Aid staff and supplies |                   |               |          |
| Hurricane                       | 3                              | 2                           | 1                        | 2               | 1                              | 1                                       | 2                 | 28%           |          |
|                                 | 3                              | 2                           | 2                        | 4               | 3                              | 3                                       | 2                 | 50%           |          |

**Example of How to Enter Information into the Tool and Its Impact on Scoring:**

**Facility A – Relative Risk Score = 28%**

**Probability** - A facility is right on the shore and based on historical data and the local town's mitigation plan, a hurricane is likely to occur at least once in 10 years = **Enter 3**

**Human impact** - If a hurricane happens the human impact is determined to be potentially low acuity but has the possibility of high volume = **Enter 2**

**Property impact** is considered minor damage and less than two-week recovery, as they have hurricane shutters and have weathered hurricanes previously = **Enter 1**

**Business impact** is considered as there is expected disruption to non-essential services and/or possible disruption to essential transportation for vendors and supplies = **Enter 2**

**Preparedness** - The facility has detailed plans (for all phases of the hurricane approach) and practices annually just before hurricane season = **Enter 1**

**Internal response** - The facility has robust staff, family, and even staff pet sheltering plans, disaster staffing plans, and are confident they will be able to assemble sufficient resources to shelter in place = **Enter 1**

**External response** - After discussion with the local fire department and emergency management agency, the facility realizes that although resources may be available in the town, they may not be able to prioritize the facility and may struggle with access due to expected flooding = **Enter 2**

**Facility B – Relative Risk Score = 50%**

**Probability** - Same as Facility A

**Human impact** - Same as Facility A

**Property impact** is considered moderate damage and less than 1-month recovery, as they only have a few hurricane shutters and have one generator that only runs part of the building = **Enter 2**

**Business impact** is considered as there is expected termination of both non-essential and essential services = **Enter 4**

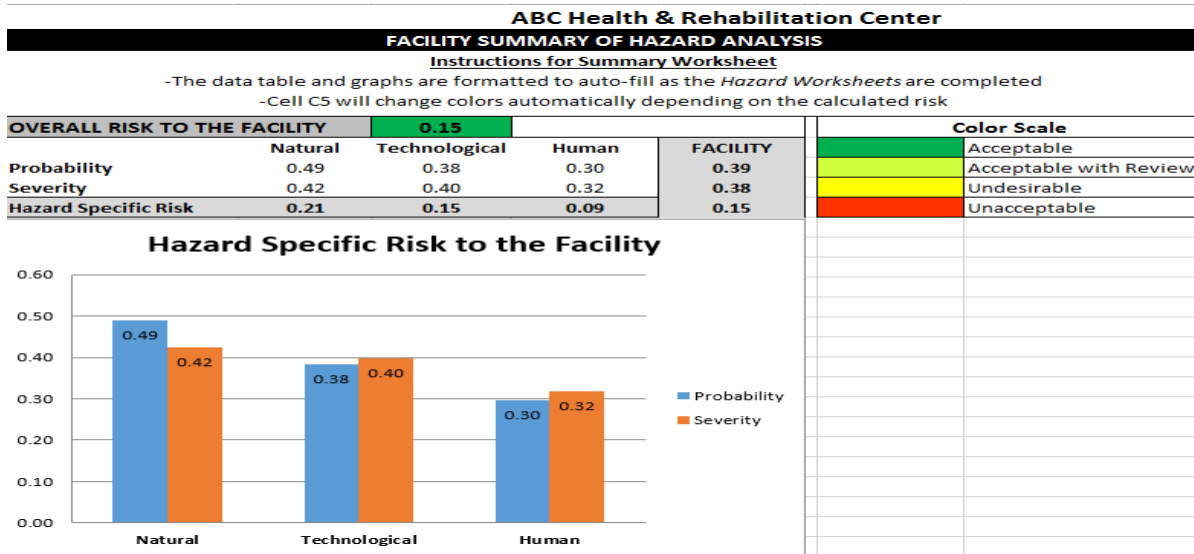
**Preparedness** - The facility is in the process of creating the plans and training for a hurricane response but has not disseminated to or trained staff = **Enter 3**

**Internal response** - The facility has continuing and regular struggles with having enough supplies and staff to cover shifts = **Enter 3**

**External response** - Same as Facility A



# The Annual Risk Assessment



The facility summary delineates the relative risks of the different categories and provides an overall risk rating for the facility.

This is a culmination of your assessments and data entry. This does not provide benchmark type data for comparison against other facilities as the risks and hazards are historically unique to the facility. Examples of scoring impact from one facility versus another, even when in the same community can be exemplified by but not limited to – age of the building, staff training, infrastructure mitigations implemented (i.e., number of generators), and more.

# The Annual Risk Assessment

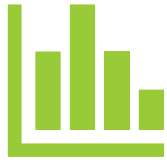
| ABC Health & Rehabilitation Center |      |      |                                    |      |      |   |      |      |
|------------------------------------|------|------|------------------------------------|------|------|---|------|------|
| Natural Disasters                  |      |      | Technological Disasters            |      |      | Human Events                                      |      |      |
| TOP 10 HVA                         | RANK | Risk | TOP 10 HVA                         | RANK | Risk | TOP 10 HVA  | RANK | Risk |
| Infection Disease (SARS, Flu, etc) | 1    | 63%  | Natural Gas Failure                | 1    | 63%  | Suspicious Package or Substance                   | 1    | 34%  |
| Hurricane                          | 2    | 56%  | Medical Vacuum Disruption          | 2    | 56%  | Active Shooter / Person with a Weapon             | 2    | 31%  |
| Coastal Tsunami / Erosion          | 3    | 47%  | Communications Systems Failure     | 3    | 47%  | Community Surge                                   | 3    | 31%  |
| Earthquake                         | 4    | 47%  | Fire, Internal                     | 4    | 47%  | Mass Casualty Incident > 5 Patients               | 4    | 31%  |
| Snow / Ice Storm                   | 5    | 47%  | Hazmat Exposure, External          | 5    | 47%  | Sheltering in Place (Staff, Staff Families, Pets) | 5    | 31%  |
| Wild Fire                          | 6    | 47%  | Sewer Disruption                   | 6    | 47%  | VP Admission                                      | 6    | 31%  |
| Dam Failure                        | 7    | 38%  | Water Supply Disruption (Potable)  | 7    | 47%  | Hostage Situation                                 | 7    | 25%  |
| Dust / Sand Storm                  | 8    | 31%  | Contamination of Outside Air       | 8    | 38%  | Missing Patient (NH Resident)                     | 8    | 25%  |
| Damaging Winds                     | 9    | 31%  | Flood, Internal                    | 9    | 38%  | Bomb Threat (Called in)                           | 9    | 19%  |
| Hail Storm                         | 10   | 31%  | EHR/Information Systems Disruption | 10   | 31%  | Mass Casualty Incident < 5 Patients               | 10   | 19%  |



The tool also breaks down the Top 10 Hazards by each category. The Risk ranking is relative only to the other hazards assessed in the tool. It is intended to provide a ranking methodology to allow for prioritization and subsequent planning.

# Mitigation Plans: How To

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## **Develop following your HVA annually**

- There may be carry over year-to-year



## **Determine “Top Relative Risks”**

- Using the HVA as a tool, what risks are rated high?
- Could be “Top 10” or any item > Greater Than 50% Risk, etc.



## **Review what can be done to minimize the risk?**

- Infrastructure Improvement
- Equipment Purchase
- Planning
- Training
- Collaboration with other Partners



# Mitigation Plans

| EVENT TYPE                  | EVENT                             | Relative Threat *  | Comments  | 2017 Mitigation Plans to Consider  |
|-----------------------------|-----------------------------------|--|---|--|
| Natural Hazards             | Tornado                           | 48 %   | Naturally occurring events cannot be avoided; however, this facility has committed action plans when these events occur and conducts robust pre-planning prior to storm seasons, and forecasted events. As detailed and evidenced in our Emergency Operations Plan.<br>Likely to occur; minimal human or property impact but business impact "high" due to need to export | <ul style="list-style-type: none"> <li>Staff training on these plans</li> <li>Provide transportation evacuation survey to EMS provider that shows what type of ambulances and vehicles may be needed in an evacuation</li> <li>Consider plans, equipment and evaluate process in this first year for snow removal</li> </ul>   |
|                             | Hurricane                         | 48 %   |   |  |
|                             | Earthquake                        | 48 %   |   |  |
|                             | Blizzard                          | 52 %   |   |  |
| Generator Failure           | 48 %                              | Two generators with no redundancy (ea serve 1/2 of bldg); no external connection; external generator could be used but needs 50 ft connection and set-up | <ul style="list-style-type: none"> <li>Consider infrastructure improvements to have outside quick connect and set-up MOUs, etc.</li> </ul>  |  |
| Loss of Water               | 52 %                              | Only one main feeds campus, consider alternate water supply connections, storage, etc.   | <ul style="list-style-type: none"> <li>Consider infrastructure improvements to have outside quick connect and set-up MOUs, etc.</li> <li>Consider more on-site water storage (only 60 gallons of water in storage today)</li> </ul>   |  |
| Human Hazards               | Bomb Threat                       | 48 %   | Ranked "moderate" due to concerns due to no planning in place and location near large population center & staff concerns.   | <ul style="list-style-type: none"> <li>Develop Plans and review with local PD</li> <li>Provide EOC and PD with Floor Plans</li> <li>Have Local PD review security of building, considering locked doors, access points, use of electronic sign in ("Fast Pass"), access to PD of Cameras, etc.</li> <li>Review PD access to all parts of the building, including Knox Box use (not great for PD), Card access for PD, etc.</li> <li>Develop and Implement a training plan for STAFF by the Local EM and PD (including training, drills, etc.)</li> </ul> |
|                             | Active Shooter/ Hostage Situation | 48 %   |   |  |
| Hazardous Materials Hazards | Chemical Exposure, Internal       | 48 %   | Have chemicals on site, have some response plans but in process of re-doing SDS binders to update and make accessible to all  | <ul style="list-style-type: none"> <li>Update and distribute SDS Binders, educate staff</li> <li>Review in-house spill kits, consider adding to them</li> <li>Review training of in-house staff, consider review training – possibly by manufacture of spill kit equipment</li> </ul>  |

## SAMPLE MITIGATION PLAN

Once this page is completed to print it then add it to your EPP prior to changing the HVA data again.

If the HVA numbers get changed the hazards and risks on this page will reorder automatically but the comments and mitigation information will remain.

# Using data from your HVA to influence your Program and Planning

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## **Preparedness Plans**

- Are emergency response plans in place for known hazards
- Do they need updating

## **Exercise / Drill Plans**

- What should the exercises / drills focus be for the year

## **Mitigation Plans**

- Can infrastructure be hardened to mitigate hazards, or equipment purchased, training be conducted, etc.



# Questions?

For questions or more information regarding the risk assessment HVA process, contact:

VHCA EMPrep: [emprep@vhca.org](mailto:emprep@vhca.org)



# Thank You!

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## **April R. Payne, MBA, LNHA**

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