



Big Bend Healthcare Coalition

*Franklin ★ Gadsden ★ Gulf
Jefferson ★ Leon ★ Madison ★ Taylor
Wakulla*

**Hazard Vulnerability Analysis
(HVA)
Risk Assessment Tool**

Overview

The first step in effective emergency preparedness and management is defining and analyzing community hazards. Although all hazards should be addressed, resource limitations usually do not allow this to happen in one single planning event. Hazard response capabilities are dynamic and differ by probability of occurrence, resources available for response, and potential healthcare impacts—at both the individual (human) and system/community level. A comprehensive and consistent inter/intra disciplinary hazard assessment can support planning priorities so that the most important hazards, including highly probable and/or major health care impacts, are planned for first, and those least likely to occur or have minor/moderate public impact can be deferred until later. The outcome of the assessment, as a relative threat indicator, can also be used to target mitigation resources and gaps as well as serve as a basis for broader community engagement in preparedness, response, recovery, and mitigation planning.

This HVA is an adjunct to your local emergency management program, and provides important information for assessing vulnerabilities, needs, and determining emergency management program priorities. It does not stand alone, and may be part of multiple tools and resources, e.g., LMS, THIRA, County, Public Health Resource Assessment Tool, and Health Department Capabilities that are utilized to develop local and coalition preparedness, response, and recovery priorities.

Coalition Requirements

Healthcare Coalitions are required to conduct and annually review their Hazard Vulnerability Analysis (HVA). The HVA provides a systematic approach to recognizing hazards that may affect the capabilities of the Coalition members to meet the demand for healthcare and support services during disasters. The risks and vulnerabilities associated with each hazard are analyzed to prioritize planning, response, recovery, and mitigation activities. This process will appropriately involve Coalition partners across all healthcare and support disciplines AND all appropriate community partners.

Coalition/Community Member Participation

The process is designed to be implemented across—and inclusive of input from—multiple community stakeholder groups. Each Coalition agency and/or organization is invited to participate in this assessment as a valuable contributor to the process. Numerous and varied types of hazards will be considered in this process, many of which have a range of potential impacts on the agencies, organizations, and/or communities in different ways. While a single agency/organization or individual is not expected to have full knowledge of the nexus between hazard and impact, familiarity with basic emergency preparedness and response functions is important. In addition, those individuals involved in this assessment should have a foundational knowledgeable about their organization, its primary mission, objectives and goals, as well as response capabilities that can be leveraged during disaster conditions.

Risk Prioritization

The prioritization of the individual Risk Scores can provide a clearer picture of preparedness and operations gaps and needed response resources for each of the counties and the BBHCC at large. Mitigation strategies to achieve short and long term outcome deliverables can be identified, planned and executed. The assessment and prioritization of community based hazards and risk factors are an ongoing process. Changes in population, demographic, environmental and disease specific risk factors, as well as improvements in planning, training, exercising and mitigation based activities completed by the agencies and organizations alter the equation of Risk. This process and supporting tool will be most useful if it is never considered finished. Rather, when measurable changes have occurred, the assessment will need to be updated and the prioritization reevaluated.

Assess Risk Components - Create Relative Risk Score

The lists of hazards that have been selected are evaluated individually and independently from the other identified hazards. A Relative Risk Score (%) is calculated utilizing seven (7) Risk elements comprised of three separate components: Probability (1), Magnitude (3) and Mitigation (3). The Excel tool is programmed to allow the user to manually input numerical values for each of the seven Risk Components for each individual hazard. The Excel tool that we are utilizing will then calculate a Relative Risk Score for each identified hazard by routing the Risk Components into a pre-programmed formula.

The methodology for the calculation of the Relative Risk Score (% of threat) is to first determine the Probability that each hazard may occur within a 5 year planning window. Next, determine the Severity of the hazard based on the inverse relationship of the accumulated magnitude (impact) and the level of mitigation (ability to mitigate/offset the impact). The calculation then multiplies the resultant probability factor and the calculated severity factor to identify the Relative Risk (Threat %) The overall threat level increases with the higher percentages.

To adjust for cumulative Risk determination across counties or disciplines, the tool can be modified by averaging multiple participant responses for a single Risk Component and linked to the corresponding cell in the hazard tabs.

The overall Coalition Relative Risk Score by hazard will be a subjective calculation and analysis as determined by the Board of Directors.

Acknowledgements

The BBHCC Hazard Vulnerability Analysis Tool is primarily based on a Kaiser Permanente instrument and has been re-designed and modified specifically for the Big Bend Healthcare Coalition. Additionally, elements of the BBHCC HVA tool have been extracted from a tool created by the Los Angeles County Department of Public Health, Emergency Preparedness and Response Program's Policy & Planning Unit, and elements from UCLA School of Public Health Center for Public Health and Disasters Hazard Risk Assessment. The instructions are in part developed from modifications from: "Focus on Prevention: Conducting a Hazard Risk Assessment", Brnich, M, Mallett, L., U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Pittsburgh Research Laboratory. Pittsburgh, PA, July 2003.

Tool Available in Excel Format.
www.LTCprepare.org
(search for Hazard Vulnerability)

BBHCC HAZARD VULNERABILITY ANALYSIS RISK ASSESSMENT TOOL

INSTRUCTIONS AND SCORING DESCRIPTION

The design and contents of this Tool have been specifically formulated for the Big Bend Healthcare Coalition. It is designed to ensure that we are evaluating Risk on a consistent basis across the coalition spectrum of healthcare and support services. This tool, when utilized in concert with other Risk assessments conducted at the local level will provide a comprehensive Risk indicator that will support and guide our preparedness, response, recovery, and mitigation efforts.

- Each coalition member performs as either a “Direct” healthcare provider or a “Support” service provider of the Healthcare System.
- Each member should score each hazard event category from the perspective of their agency/organization
- Assume each hazard event incident occurs at the worst possible time (e.g. during peak patient, client, or service delivery loads).
- Evaluate the potential impact and mitigation factors for each Risk Component utilizing the rating values provided.
- The Rating descriptions are not black and white and are guidelines for you to utilize based on your best judgment, knowledge, and experience
- The “issues to consider” are also suggested guidance in determining the appropriate rating value.
- It is understood that some of the hazards will be by-products of or occur within the scope of a different hazard. What is important is the impact that individual hazards can have, and what factors are present to mitigate those impacts
- **Risk Component #1 – Probability has been pre-populated by your local Emergency Manager, in consultation with the Public Health (ESF 8) officials, and others within your county as appropriate.** This will ensure that coalition members in a specific county all have a similar context for the hazard probability in their particular county. It is assumed that the probability factor for the individual hazards will differ between our 8 counties.

When the tools are completed by the coalition members they will be analyzed at the county level, discipline level e.g., hospitals, EMS services, public health, and aggregated to provide the salient risk factors and vulnerabilities within the coalition. It will also inform us of the mitigation features that are in place or provide us with insights into the potential gaps that will need to be addressed.

Risk Component #1: Probability of Hazard Occurrence

For each hazard, assign a number value from 0 - 3, indicating the estimated likelihood of that hazard occurring in a 15 year planning window. See the following scale for scoring the probability

Score	Description
N/A-0	The Hazard potential is beyond the 15 year window.
Low (1)	The Hazard is not likely to occur within the next 15 years, but it is possible.
Moderate (2)	The Hazard is likely to occur at least once within the next 15 years.
High (3)	The Hazard is likely to occur several times within the next 15 years.

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

1. Historical Records (local, state, and national)
2. Known or potential risk vulnerability
3. Manufacturer/vendor statistics and experience
4. Prior experience and outcomes
5. Evolving risk/vulnerabilities from State/Federal resources (Fusion Centers-Homeland Security)
6. Demographic shifts
7. Transportation routing
8. Commercial or residential development

Risk Component #2: (Magnitude) Hazard Impact on Humans

This Risk Component assigns a numeric value specific to the potential of each hazard to have a negative effect on the health of the, general, and/or vulnerable populations within the county. Specifically consider if this hazard would cause an increase in the number of ill, hospitalized and/or deceased individuals? See the following scale for scoring the potential impact:

Score	Description
N/A- (0)	There is no elevated health or medical impact associated with this hazard.
Low(1)	The hazard presents a minimal threat to the safety, health and well-being of the community.
Moderate (2)	The hazard may contribute to moderate to considerably elevated rates of severe disease, injury, hospitalizations or deaths.
High (3)	May result in considerable to significantly elevated rates of severe injury, disease, hospitalizations and deaths.

Issues for consideration include, but are not limited to:

1. Potential for increase in hospitalizations
2. Potential for increased morbidity or mortality
3. Hazard impacts on specific vulnerable populations
4. General potential for illness, injuries, or death within the general population
5. Population demographics Size, Scope, Severity, and Duration of the Hazard
6. Hazard Factors that could contribute to disease transmission
7. Hazard elements that could contribute to illness, injuries, or death

Risk Component #3: (MAGNITUDE) Hazard Impact on the Healthcare and Support System

This Risk Component estimates and scores the potential negative impact of the hazard on the capabilities related to the healthcare and support continuum of care; i.e. hospitals, EMS, first responders, public health, primary care, long term care, specialty clinics, pharmacies, blood banks, DME suppliers, of the county.,etc. For example, consider the hazard's effects that could contribute to medical surge, or the potential reduction, or loss of essential capabilities within the continuum of care. Consider the hazard's effect on preventing employees from reporting to work; Effect on essential healthcare and support functions; Interruption or loss of essential services, loss or delay in obtaining critical supplies and resources; Facilities damaged, temporarily relocated and/or unusable

Score	Description
N/A (0)	There is no anticipated effect or impact associated with this hazard
Low (1)	The hazard presents a minimal to minor threat to disrupt and/or prevent the day-to-day delivery of the healthcare and support system Negligible projected impact on personnel, resources, and/or facilities No need to activate COOP
Moderate (2)	The hazard presents a minor to moderate threat to disrupt and/or prevent the day-to-day service delivery of the healthcare and support system Some deferment of non-essential services Limited to moderate projected impact on personnel, resources, and/or facilities – routine acquisition of additional personnel, resources, or utilization of Alternate Care Sites. Some COOP implementation

High (3)	<p>The hazard presents a significant to serious threat to disrupt and/or prevent the day-to-day service delivery of the healthcare and support system.</p> <p>Requirement to defer all non-essential services</p> <p>Re-allocation of all personnel to performing essential emergency services</p> <p>Resources would be rapidly overwhelmed due to the impact on staff and/or facilities; extreme absenteeism, illness, death, infrastructure and building damage.</p> <p>Potential full COOP implementation</p> <p>May require use of Alternate Care Sites/Evacuation/ or significant patient movement</p>
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Issues for Consideration include, but are not limited to:

1. Scope and severity of staff Impact - illness, injury, death, or personal family circumstances thus preventing employees from reporting to work;
2. Disruption in supply chain; shortage of supplies or lack of vendor availability
3. Need for executing full or partial Continuity of Operations Plan; Requires partial facility closure or relocation
4. Loss or reduction of essential functions
5. Facilities damaged or temporarily relocated and/or unusable
6. Unable to access patients, clients, or citizens
7. Patients, clients, citizens unable to access facility or services
8. Displacement or loss of healthcare/support services due to execution of COOP plan. .
9. Disruption to the Continuum of Care
10. Hazard impact requires the utilization of Alternate Care Sites
11. Hazard impact results in medical surge in one or more areas of the continuum of care.
12. Healthcare demand exceeds care and support capabilities (medical surge)
13. Cost of Reconstitution
14. Duration of Closure; Time to repair and recover
15. Cost to set-up temporary facilities/service delivery
16. Significant financial impact/burden

Risk Component #4: (Magnitude) Community Impact

Each hazard impacts the surrounding community in unique and specific ways. As the interaction between each hazard and each community is unique, this risk component incorporate hazard impacts which have a direct effect on Community Resilience. Resilience has been defined as the “ability to effectively prepare for, respond to, and successfully recover from hazards which affect the community’s ability to quickly; return citizens to work, minimize disruption to life and economies, reopen schools and businesses, and prevent and mitigate cascading failures, often characteristic of critical infrastructure impacts.

Score	Description
N/A (0)	There is no potential impact associated with this hazard.
Low (1)	<p>The hazard presents a low to moderate threat to the safety, health and well-being of the county.</p> <p>There is a negligible potential to disrupt normal to day-to-day activities and may cause some suspension of routine community activities</p>
Moderate (2)	May result in a moderate to significant impacts and disruptions of routine community activities, including communication functionality and capabilities. Will cause a delay or suspension of social services and resources.

- High (3) Significant and/or long term disruption to routine community activities, including communication functionality and capabilities.
Destruction or significant delay and/or suspension of social services, resources and public infrastructure.

Items for Consideration include, but are not limited to:

Disruption of routine community activities:

- Schooling and Education
- Employment and Business
- Religious Services
- Sports, Entertainment, and other public gatherings
- Damage or disruption of communication and infrastructure systems.
- Interruption of critical social support services and resources

Risk Component #5: (Mitigation) Preparedness Capabilities

This Risk Component evaluates and scores the level of existing plans, training, exercise participation, material and staffing resources and other agency/organization specific capabilities that prepare the agency/organization for response and recovery operations. For each hazard, consider the availability and status/sufficiency of: current response plans ; Collaborative and Integrated planning with other partners; Previous trainings; Participation in exercises; Availability of back-up systems; Existence of staff and systems to detect, assess, investigate and respond to the identified hazard events.

Assign a score for each hazard using the following scale:

Score	Description
High (1)	There is an updated plan which has been communicated to staff and includes staff training and regular exercises Planning, training, and exercises is conducted with dependent and interdependent partners There are the appropriate number of specialized equipment and resources Contingency plans are in place and have been tested
Moderate (2)	There is a current plan, but is not regularly updated and staff roles and responsibilities are not universally understood There has been some level of integrated planning, training, and exercise across partner agencies. Contingency planning has been limited.
Low (3)	There is a limited non hazard specific emergency operations plan Participation in Hazard specific exercises and drills is not regular and consistent. Staff/Partner training on and awareness of the response plans is limited The agency/organization does not have a viable Continuity of Operations Plan The agency/organization has a limited understanding of its potential role or opportunity to assist in a potential response

Items for consideration include, but are not limited to:

- Documented availability of critical staff, supplies, and resources
- Status and completeness of current plans
- Appropriate MOU's and MOA's have been executed and are regularly updated and exercised.
- Level of employee awareness relative to response roles and responsibilities
- Level of participation in internal and external exercises
- Employee training levels on response functions and roles

- Level of hazard specific training
- Level of alignment with preparedness capabilities
- Level of integrated planning with response partners
- Level of participation in local emergency management planning, training, and exercises
- Contingency plans in place to manage excess demand, loss of essential functions, key personnel
- Planning, training, and exercises are aligned with current risk/vulnerability assessments.
- Level of integration and communication with local Emergency Management

Risk Component #6: (Mitigation) Internal Response

This Risk Component evaluates and scores the existing plans, resources and other agency/organization specific capabilities that would be available during an anticipated response to each hazard. Not all hazards will require a multi-agency response. However, regardless of scale or scope of response, this score should reflect the readiness and response capacities of each individual healthcare and support agency/organization.

Score	Description
N/A (0)	
High (1)	There is a comprehensive and updated all-hazards response plan which identifies and incorporates the requisite systems and resources to fulfill and sustain the essential and secondary functions during the hazard. Redundant and back-up systems for primary service or support functions are in place.
Moderate (2)	There is a moderate level of all-hazards planning and response capacity to fulfill the primary response and essential services during the onset of this hazard There is a limited capability to continue or sustain operations or provide services during this hazard
Low (3)	There is a low level of planning and response capacity to fulfill the primary response and essential services during the onset of this hazard There is a marginal capability to continue or sustain operations or provide services during this hazard

Items for consideration include, but are not limited to:

- Sufficient Staffing and resources in place or available to sustain services for an extended period of time
- Staffing plan in place to augment excess demand for services
- Availability of redundant and back-up systems
- Sufficient MOU's and MOA's in place to meet anticipated needs and shortfalls in resources or capabilities.
- Existence of staff and systems to detect, assess, investigate and respond to the identified hazard
- Ability to staff or support alternate care sites as necessary.
- Presence of a comprehensive and tested Continuity of Operations Plan
- Level of integration, coordination, and communication with local Emergency Management
- Agreements are in place with multiple partner agencies to provide needed resources, supplies, and staffing augmentation and they have been tested and validated

Risk Component #7: (MITIGATION) External Community Response

This Risk Component evaluates and scores the existing plans, partnerships, networks, agreements, and other community based resources that would be available during a response to mitigate (or lessen the impact of) against potential hazards and threats. For each hazard, consider existing community-based "resiliency" resources utilized by your agency/organization. Community resilience is the ability to effectively prepare for, respond to and successfully recover from an emergency. Depending on the size, scale and scope of the hazard driven emergency, few or many community and/or faith-based organizations may be called upon to provide service and care to those impacted. For each hazard, consider the resources available in the community at large that are potentially available during the response to a given emergency. Possible resources to be considered might include: Existing communication and response plans available to local community/faith based organizations; Networks and resources available by existing CBOs, NGO's, and others to support your agency/organization operations up and running during an event.

Score	Description
N/A (0)	
High (1)	There is a high level of interdependent and coordinating relationships with government and/or community agencies/organizations. These relationships are functionally appropriate with a high level of understanding of the shared roles and responsibilities for mitigating community disasters. Planning, resources and staffing are at a high level for sustaining community resiliency.
Moderate (2)	There is a moderate level of dependent or interdependent relationships with government, and/or community-based relationships. There is an understanding of their roles, responsibilities, and resources that can be utilized during hazard events. Some plans are in place to coordinate these collaborative opportunities in addressing "community resiliency".
Low (3)	There is some dependent or interdependent relationships and coordination with government and/or community-based organizations. There is not a general plan that addresses "community resiliency".

Items for consideration include, but are not limited to:

Type of agreements and partnerships with other community agencies, including Community Based Agencies, Faith-Based Organizations and Non-Government Organizations.

1. Level of Coordination or dependence upon local and state governmental agencies
2. Level of coordination with CBO's, NGO's, and FBO's in formal resilience-building activities
3. Overall Community level preparedness based on performance measures and metrics.
4. Coordination with community healthcare and support agencies
5. Access to and utilization of Community volunteers
6. Access to Community-based equipment and supplies
7. Knowledge of vendor pre-incident response plans/contracts
8. Utilization of Other Community Resources

NATURALLY OCCURRING EVENTS

AGENCY/ORG:	Big Bend Healthcare Coalition				PROJECT:	COP 40		
		MAGNITUDE/ IMPACT			MITIGATION			
HAZARD EVENT	PROBABILITY	HUMAN	HEALTH CARE SYSTEM	COMMUNITY	PREPAREDNESS	INTERNAL RESPONSE	EXTERNAL COMMUNITY RESPONSE	RISK
	<i>Likelihood of occurrence in a 5 year planning window</i>	<i>Health impact on general and vulnerable populations</i>	<i>Potential impact on day to day operations and the interruption of essential services</i>	<i>Impact on daily community life, business, economies, schools, and institutions</i>	<i>Level of Integrated Planning, Training, & Exercise</i>	<i>Timely, effective, with appropriate staffing, supplies, and resources</i>	<i>Community Support, Mutual Aid, staffing and supplies</i>	<i>Relative Threat*</i>
SCORE	<i>0 = N/A 1 = Low 2 = Moderate 3 = High</i>	<i>0 = N/A 1 = Low 2 = Moderate 3 = High</i>	<i>0 = N/A 1 = Low 2 = Moderate 3 = High</i>	<i>0 = N/A 1 = Low 2 = Moderate 3 = High</i>	<i>1 = High 2 = Moderate 3 = Low</i>	<i>1 = High 2 = Moderate 3 = Low</i>	<i>1 = High 2 = Moderate 3 = Low</i>	<i>0% - 100%</i>
Hurricane	2.00	3.00	3.00	3.00	2.00	2.00	2.00	56%
Pandemic	1.00	3.00	3.00	3.00	2.00	2.00	3.00	30%
Flood, Local	3.00	2.00	1.00	1.00	2.00	2.00	3.00	61%
Infectious Disease (SARS, Ebola, etc)	1.00	2.00	2.00	2.00	3.00	3.00	3.00	28%
Severe Thunderstorm	3.00	1.00	1.00	1.00	2.00	2.00	2.00	50%
Snow/Ice/ Hail Storm	1.00	1.00	2.00	2.00	2.00	2.00	2.00	20%
Temperature Extremes (Heat/Cold)	3.00	2.00	1.00	1.00	2.00	2.00	2.00	56%
Tornado	2.00	3.00	3.00	3.00	2.00	2.00	3.00	59%
Wild Fire	2.00	2.00	2.00	2.00	2.00	2.00	2.00	44%
AVERAGE SCORE	2.00	2.11	2.00	2.00	2.11	2.11	2.44	47%
FORMULAS:	SEVERITY = MAGNITUDE - MITIGATION				RISK = (PROBABILITY * SEVERITY)			
Green indicates the Agency will complete PROBABILITY					*Threat increases with percentage			

Tool Available in Excel