2022-2023

Healthcare Hazard Vulnerability and Jurisdictional Risk Assessment (HVA)

Region 3 Healthcare Coalition Alliance

Approved: June 2018, Updated January 2023

emPower & SVI Data Updated November 2022

REGION 3 HEALTHCARE HAZARD VULNERABILITY and

JURISDICTIONAL RISK ASSESSMENT

2022-2023

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INTRODUCTION

The Region 3 Healthcare Coalition Alliance (Alliance) is made up of three existing Healthcare Coalitions: **Northeast Florida Healthcare Coalition** (NEFLHCC), **North Central Florida Health Care Coalition** (NCFHCC) and **Coalition for Health and Medical Preparedness** (CHAMP). The 18 counties served by the Alliance include: Alachua, Baker, Bradford, Clay, Columbia, Dixie, Duval, Flagler, Gilchrist, Hamilton, Lafayette, Levy, Marion, Nassau, Putnam, St. Johns, Suwannee, and Union Counties. Planning for response and recovery for this 12,000 square mile geographic area can be challenging as it includes immense diversity from rural to urban areas and includes both coastal and inland counties.

BACKGROUND

Each Coalition developed a Hazard Identification and Risk Assessment (HIRA) and comprehensive vulnerability assessment. These HIRA reports used data from each County Comprehensive Emergency Management Plans, CEMP, and the Florida Public Health Risk Assessment Tool, FPHRAT, presented by each Coalition to create the first unified assessment of hazard risk, vulnerability, capabilities, resources, and gaps as they impact and relate to the healthcare system in each sub-region and served as the basis for the Jurisdictional Hazard Vulnerability Assessment (HVA).

In 2017-2018, the Coalition's combined to form the Region 3 Healthcare Coalition Alliance and assembled a team of emergency management, public health, and planning subject matter experts (SME) to combine and evaluate the regional data to create the Region 3 Healthcare Hazard Vulnerability Assessment (HVA) and Jurisdictional Risk Assessment (JRA). Additional data from Health and Human Services' emPower, CDC/ATSDR Social Vulnerability Index, updates of the county CEMPs, lessons learned following any large-scale, regional disaster and other resources is used to conduct annual updates. The response to the COVID-19 pandemic, various tropical storms and hurricanes are used to update and validate the current HVA. While the regional healthcare system has no jurisdictional authority, this Healthcare Risk Assessment is referred to as the Healthcare Hazard Vulnerability and Jurisdictional Risk Assessment (HVA).

PURPOSE

The Region 3 Healthcare Hazard Vulnerability Assessment is used to identify hazards that will have the highest impact on the regional healthcare system. The assessment of hazards and vulnerabilities and their risk to the healthcare system is used to further develop an assessment of the effects specific hazards have on the response capabilities of the regional healthcare system. The data and information identified through the HVA also recommends mitigation strategies to lessen these effects on the healthcare delivery system. The identified gaps and mitigation strategies inform the Coalition's planning, training, project selection, and funding decisions, which is the purpose of this document.

PLAN DEVELOPMENT

The Region 3 Alliance staff works with subject matter experts and the State Healthcare Coalition Working Groups to develop the basic planning template. This cumulative document and all supplemental, supporting documents are presented to all healthcare coalition members during a scheduled Board meeting. The draft plan is then emailed to every member and posted on the Alliance website. Members are asked to provide review and input. Comments and feedback from members are analyzed and included in the final planning document presented to each Board for annual approval. This cumulative assessment is considered a "living document," in that it is subject to an annual review and revision based upon recommendations following any type of test of the plan or change in State or Federal guidelines.

The final plan is provided to all Board members for approval annually. A copy of the approved plan is posted on the Coalition Alliance website (www.FLRegion3HCC.org) for use by all Coalition members.

METHODS and PROCESS

To create the initial HVA document, an SME team (HCC staff, EMS, EM and public health) met to review various HVA tools and determined the Regional Hazard Vulnerability Assessment (image below) found on the ASPR Tracie website and developed by the South Carolina Department of Health and Environmental Control was the template that best meets the needs of Region 3. The JRA portion of this document was developed via a review of the prioritized hazards identified in the HVA.

The SME Team then reviewed previous Coalition documents; county Comprehensive Emergency Management Plans (CEMP) and healthcare facility HVA documents to determine a

baseline of the primary natural, manmade and technological hazards events impacting the healthcare system for these north Florida counties.

	Regional HVA									
	EVENT	Probability	Severity = Magnitude + Mitigation						SEVERITY	RISK (Severity x Probability)
			Magnitude (negative consequences of impact)			Mitigation				
			Human Impact	Property Impact	Business Impact	Regional Preparedness	Internal Resources	Regional Resources		
		Likelihood this will occur	*Possibility of Patient Surge*	*Response Costs and Damages*	*Interruption of Services*	*Pre-planning*	*Type, Volume and Availability of Resources*	*Type, Volume and Availability of Resources*	*Relative Impact if this event occurs*	*Relative Threat*
Natural Events	Earthquake likely to cause structural damage									0%
	Flood with potential for disruption/harm									0%
	Heat Wave									0%
	Hurricane/Tropical Storm									0%
	Ice Storm									0%
	Infectious Disease Pandemic									0%
	Large Wild Fire									0%
	Severe Thunderstorm									0%
	Tornado or Microburst									0%
	Winter Weather Event									0%
MCI & Man-Made Events	Armed Individual/Active Shooter incident									0%
	Attack biological weapons									0%
	Attack with chemical weapons									0%
	Incident General Injuries / Trauma (MCI)									0%
	Major HazMat Incident									0%
	MCI from explosives involving radiological materials									0%
	Mental Health Type Incident									0%
	Nuclear Event									0%
	VBIED or IED									0%
Facility & Technological Events	Cyber Terrorism									0%
	Fuel Shortage									0%
	Massive Transportation Disruption / Failure									0%
	Regional Communicaitons Disruption									0%
	Regional Electrical Failure (i.e. blackout)									0%
	Regional Natural Gas Disruption									0%
	Regional Sewer / Water Treatment Failure									0%
	Regional Water Disruption / Interruption									0%

Using the de-identified data from emPOWER **Attachment 1 emPower data** and the Social Vulnerability Index (SVI) **Attachment 2 SVI data** each identified regional hazard was then scored on Probability and Severity to determine the Level of Risk Region 3 faces as a result of each event type occurring in the Region.

Probability = Likelihood it will occur

Severity = Magnitude + Mitigation
Magnitude (Human + Property + Business Impacts)
Magnitude (Regional Preparedness + Internal and Regional Resources)

After scoring all hazards across all categories, the **Risk** or **Relative Threat** to Region 3 was determined as a percentage. The hazards were then ordered from highest to lowest and grouped into Major, Moderate and Minor severity levels.

The hazard severity levels were initially presented to each Coalition Board for feedback and approval. Each Board approved the process and agreed with the results.

Each succeeding annual update consists of a review of the previous year's data (updating where appropriate), and integration of relevant new information as it becomes available. The annual Region 3 Healthcare HVA update also considers lessons learned and corrective actions identified through plan updates and revisions, exercises, and real-world events.

HAZARD RISK AND VULNERABILITY – 2022/2023 REVIEW

A review of hazard risk and vulnerability data from multiple data sources identified the following hazards for healthcare in Region 3. These were the hazards used to complete the Regional HVA Tool.

Table 1: Region 3 Healthcare Hazards – 2022/2023

Region 3 Healthcare Hazards	
Cause	**Hazard**
Natural Hazards (Acts of nature)	Flooding with potential for disruption/harm
	Temperature Extremes
	Hurricane / Tropical Storm (including storm surge)
	Pandemic
	Infectious Disease
	Multi-Jurisdictional Wild Fire
	Tornado or Microburst
	Winter Weather Event
Human Caused (Intentional Actions)	Armed Individual/Active Shooter incident
	MCI Incident General Injuries
	MCI involving chemical, biological or radiological materials
	MCI involving conventional weapons
	Cyber Terrorism
Technological (failure of systems)	Multiple Facility Evacuations
	Widespread Supply Chain Interruption
	Widespread Transportation Disruption / Failure
	Regional Fuel Shortage(s)
	Regional Electrical Failure (i.e. blackout)
	Regional Communications Disruption
	Regional Sewer / Water Treatment Failure
	Regional Water Disruption / Interruption

DATA USED TO DETERMINE HAZARD SEVERITY

Historical data found in each county CEMP and facility HVA provided the information for probability. The use of emPower and SVI data assisted in determining the severity scores for each hazard.

Table 2: REGION 3 emPower DATA

County	Medicare Beneficiaries	Electric Dependent Beneficiaries
Alachua	50983	1880
Baker	5101	331
Bradford	5307	360
Clay	45460	2233
Columbia	16973	881
Dixie	4256	283
Duval	174108	8060
Flagler	40901	1409
Gilchrist	4195	230
Hamilton	3294	164
Lafayette	1118	72
Levy	11901	612
Marion	117045	4983
Nassau	25166	1102
Putnam	19570	1132
St. Johns	66917	2176
Suwannee	11726	631
Union	2375	179
Totals	**606396**	**26718**

Data from https://empowermap.hhs.gov/ September 2022

Data updated, as of September 2022. No major changes requiring changes to the overall strategies and outcomes of the HVA.

REGION 3 SOCIAL VULNERABILITY DATA

The Social Vulnerability Index (SVI) uses U.S. Census data to determine the social vulnerability of every Census tract. Census tracts are subdivisions of counties for which the Census collects statistical data. The SVI ranks each tract on 15 social factors, including poverty, lack of vehicle access, and crowded housing, and groups them into four related themes. Each tract receives a separate ranking for each of the four themes, as well as an overall ranking. This census tract data is then ranked in a value range of 0 to 1, with higher values indicating a higher level of vulnerability. The table and map below provide an overall view of the social vulnerability rankings in Region 3. The most current data available from the CDC is for 2020.

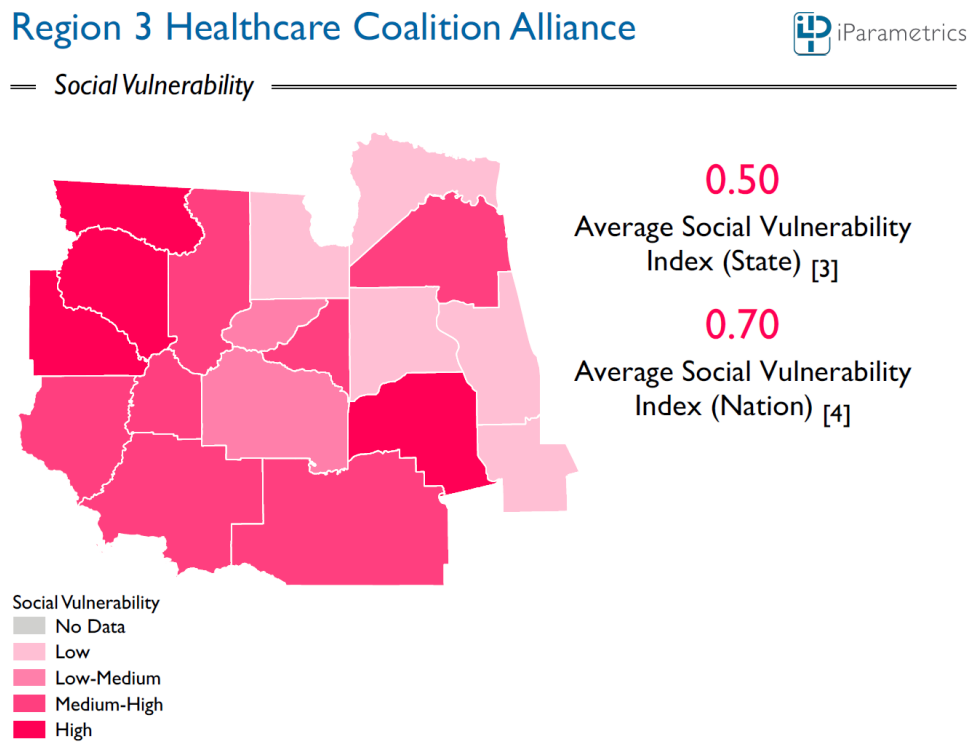


Table 3: Region 3 SVI Vulnerability Scores

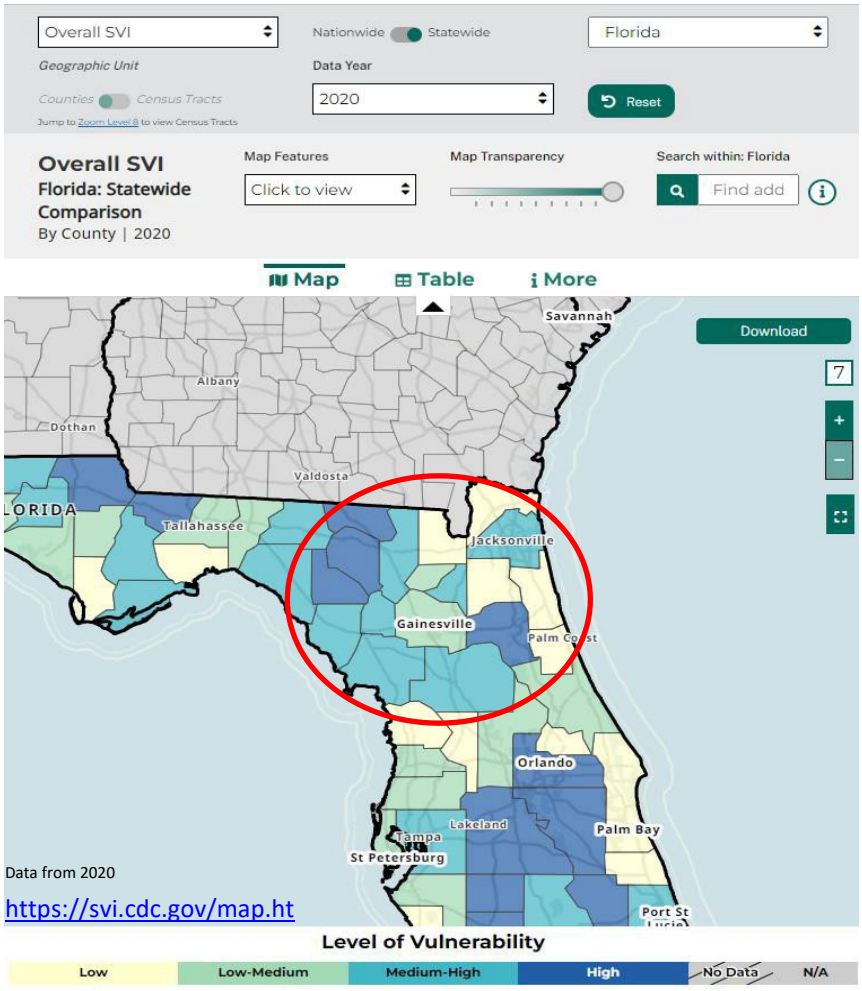
County	SVI Score	Level of Vulnerability
Alachua	0.6229	Medium to High
Baker	0.4752	Low to Medium
Bradford	0.8778	High
Clay	0.4398	Low to Medium
Columbia	0.9252	High
Dixie	0.7998	High
Duval	0.8097	High

Flagler	0.332	Low to Medium
Gilchrist	0.8491	High
Hamilton	0.9787	High
Lafayette	0.8014	High
Levy	0.7712	High
Marion	0.8845	High
Nassau	0.3421	Low to Medium
Putnam	0.9771	High
St. Johns	0.1957	Low
Suwannee	0.9185	High
Union	0.6534	Medium to High

Data from 2020 https://svi.cdc.gov/map.html

Updated November 2022

Figure 1: Region 3 Alliance SVI Vulnerability Levels



HAZARD RANKING

Results of the probability and severity scoring using the Regional HVA tool determined the following priority levels of hazards.

Table 4: Prioritized Healthcare Hazards for Region 3

Region 3 Healthcare Hazards	
Level of Risk	**Hazard**
Major	**Hurricane / Tropical Storm (including storm surge)***
	Regional Electrical Failure (i.e. blackout)
	Flooding with potential for disruption / harm (Includes Sea Level Rise)*
	Cyber Terrorism
	Infectious Disease
	MCI Incident General Injuries
Moderate	**Regional Communications Disruption**
	Multi-Jurisdictional Wild Fire
	Widespread Supply Chain Interruption
	Armed Individual/Active Shooter incident (Large Scale)
	Tornado or Microburst
	Pandemic
	Multiple Facility Evacuations
	Regional Sewer / Water Treatment Failure
	Regional Water Disruption / Interruption
	MCI involving chemical, biological or radiological materials
Minor	**Widespread Transportation Disruption / Failure**
	Regional Fuel Shortage(s)
	Temperature Extremes
	MCI involving conventional weapons
	Winter Weather Event

Significant Inundation Hazards

The Region 3 Healthcare Coalition Alliance HVA measures hazard impacts for localized healthcare facilities based on three specific hazard categories. Due to Florida's geographical position, the entire state is vulnerable to extreme water inundation and this document aims to improve mitigation efforts of healthcare facilities when addressing these hazard events. The three specific hazards measured for this document are: Storm Surge, Flooding, and Sea Level Rise. In Table 4 above, hazards associated with these three categories are marked by an asterisk. County-specific maps of the impact on healthcare facilities are included in Attachment 1 of this document.

Storm Surge

Storm surge is the abnormal rise in seawater level during a storm, measured as the height of the water above the normal predicted astronomical tide. The surge is caused primarily by a storm's winds pushing water onshore. The amplitude of the storm surge at any given location depends on the orientation of the coastline with the storm track; the storm's intensity, size, and speed; and the local bathymetry.

Storm surge is an acute hazard that exists for several days following a storm. For each category of a storm (1-5), there is a maximum amount of water that would inundate a given area, which is depicted by a storm surge map. To interpret these maps, consider each type of coded area as the area that would be inundated due to that category of the storm and any other higher categories of a storm. For example, areas coded as "category 1" would be impacted by any storm categories, and areas coded as "category 5" would only be impacted in the event of a category 5 storm.

Storm Flooding

Another type of map is a depth of flood map, which depicts the depth of water that would occur for a given type of storm event. These storm events are categorized by the chance of their occurring within a given timeframe. For example, a 100-year flood is a flood that would occur once every 100 years, so in any given year, there is a 1% chance of that type of flood occurring. A 500-year flood would occur once every 500 years, which means there is a 0.2% chance of such a flood occurring in any given year. In this analysis, separate maps are used for these different storm events, and the water depth is depicted over the areas of the map that would be impacted by that type of storm. To interpret these maps, consider darker areas to be covered with more water than lighter areas.

Sea Level Rise

Sea Level Rise is an increase in the average level between high tide and low tide where the surface of the sea meets a shoreline. It is caused by the addition of water to the ocean in the form of melting glaciers and the physical expansion of water volume that occurs as temperature increases. The rate of sea level rise has changed over the course of the past century, and this change in rate is a result of changes in the amount of carbon dioxide in the atmosphere, which contributes to changes in temperature. Sea level rise is a chronic hazard that causes areas of land to be slowly covered by water and is independent of storms.

Tidal Flooding

Tidal flooding is the inundation of land due to an increase in seawater level that occurs during an increasing tide, measured as the height of the water above the average sea level. High tide flooding is expected to increase in the future due to greater fluctuations in the piling up of water in different parts of the ocean in response to sustained storm-force winds blowing from one direction combined with low barometric pressure, particularly in narrow bays.

Tidal flooding maps show the extent of water over a land area that would be caused by a given high tide threshold. The local sea level and tide data has been interpolated between the two closest NOAA tide gauges. To interpret these maps, consider darker areas to be covered with more water than lighter areas. Tidal flooding maps may also geographically display the number of tidal flood days expected for different scenarios and planning horizons.

Facility Types

The healthcare facilities chosen for the data in Attachment 1 include the in-patient and dialysis facilities for the region. In-patient and dialysis facilities are of critical importance to the regional healthcare network. The spatial analysis was performed using the exposure of the significant inundation hazards as described above, for all facility types where present. These facilities were identified through the Agency for Health Care Administration.

Assisted Living Facility

Assisted living facilities (ALFs) are designed to provide personal care services in the least restrictive and most home-like environment. These facilities can range in size from one resident to several hundred and may offer a wide variety of personal and nursing services designed specifically to meet an individual's personal needs.

Assisted living facilities are licensed to provide routine personal care services under a "Standard" license, or more specific services under the authority of "Specialty" licenses. ALFs meeting the requirements for a Standard license may also qualify for specialty licenses. The purpose of "Specialty Licenses" is to allow individuals to "age in place" in familiar surroundings that can adequately and safely meet their continuing healthcare needs.

End-Stage Renal Disease Center

End-Stage Renal Disease Centers provide comprehensive renal replacement therapy (dialysis) to individuals with end-stage renal disease (ESRD). Dialysis treatment includes all supervision and management of the dialysis treatment routine, durable and disposable medical supplies, equipment, laboratory tests, support services, parenteral drugs, applicable drug categories, and all necessary training and monitoring for recipients receiving dialysis treatment.

End-Stage Renal Disease Centers are included because these facilities often provide dialysis services to patients from in-patient facilities.

Hospice

Facility type/entity that provides a continuum of palliative and supportive care for terminally ill patients and the patient's family.

Hospital

A hospital offers more intensive services than those required for an individual's room, board, personal services, and general nursing care. Hospitals provide space for facilities and beds for use beyond 24 hours. Individuals needing a hospital may require medical, surgical, psychiatric, testing, diagnosis, treatment, or care for illness, injury, deformity, infirmity, abnormality, disease, or pregnancy. Other services provided in hospitals include clinical laboratory services, diagnostic X-ray services, and treatment facilities for surgery, obstetrical care, or other definitive medical treatment of a similar extent.

Intermediate Care Facility for the Developmentally Disabled

Intermediate Care Facilities provide care and residence for individuals with developmental disabilities. A developmental disability is a disorder or syndrome that is attributable to intellectual disability, Down Syndrome, cerebral palsy, autism, spina bifida, or Prader-Willi syndrome that manifests before the age of 18 and constitutes a substantial handicap that can reasonably be expected to continue indefinitely.

Nursing Home

Nursing Homes provide 24-hour-a-day nursing care, case management, health monitoring, personal care, nutritional meals, and special diets. Nursing Homes provide physical, occupational, and speech therapy, social activities, and respite care for those who are ill or physically infirm.

Residential Treatment Center for Children and Adolescents

Residential Treatment Centers for Children and Adolescents (RTC) are 24-hour residential programs, including therapeutic group homes. These centers are designed to provide mental health treatment and services to children under the age of 18 who have been diagnosed as having mental, emotional, or behavioral disorders.

**Treatment Centers that are classified as Therapeutic Group Homes are limited to 12 beds.

Residential Treatment Facility

Residential Treatment Facilities (RTF) are community-based residences for individuals exhibiting symptoms of mental illness who need a structured living facility. Residents are limited to those 18 years of age or older. These facilities are designed to provide long-term residential care with an overlay or coordination of mental health services. A state license covers five levels of care that range from having nurses on staff for 24 hours a day to independent apartment residences that receive only weekly staff contact.

MITIGATION STRATEGIES

There have been multiple major disaster declarations in the region since 2003. As a result of these disasters, mitigation funding has been awarded across the region. The mitigation strategies below are to assist the Alliance to focus training, exercise and equipment funding to assist with mitigation efforts to decrease the vulnerability of the healthcare system.

Table 4: Mitigation Strategies

Healthcare Impacts	Mitigation Strategies
Facility Evacuations	• Develop a Regional Evacuation Plan • Continuity of Operations Plans for facilities & ancillary services • MOA's for primary and secondary providers
Medical Surge	• Continued Med Surge Planning/Training/Exercising • Supply Chain Assessment • MOA's between facilities for supplies & staff • New / Refresh Equipment Caches • Increase bystander training & resources (i.e. Stop the Bleed)
Patient Movement Transportation Shortage	• Identify new providers • MOUs for those providers and reimbursement processes • Develop alternative plans
Power Failure (HVAC, EMR, Medication Dispensing)	• Special needs outreach -Identifying vulnerable populations • Plans for evacuation, patient movement, etc. • MOUs for supplies, evacuations, surge, etc. • Training for patient movement (med sled, blankets, etc.) • Plan for paper medical records • Continuity of Operations Plans for facilities & ancillary services
Mental / Behavioral Health	• Identify applicable resources: crisis teams, comfort animals, etc. • Training for responders (incident stress, psychological 1st aid etc.)
Loss of Infrastructure (Transportation / Communications)	• Plans & training for paper medical records • Standardized paper records • P.A.C.E Planning (Primary, Alternate, Contingency, Emergency)
Supply Shortages	• Supply Chain Assessment • MOU's to share resources • Identifying secondary vendors/suppliers • Continuity of Operations Plans for facilities & ancillary services
Staff Shortages	• Credentialing processes defined (and agreed upon) • Liability Coverage & Reciprocity defined • MOU's to share staff • Continuity of Operations Plans for facilities & ancillary services
Loss of primary & ancillary services	• Alternate Medical Treatment Sites
MCI and specialty surge events: Pediatric, burn infectious diseases, chemical and radiation	• EMS equipment for pediatric and burn surge response • Hospital equipment for pediatric and burn surge • Mass Fatality Planning/Training/Exercising

USE OF HEALTHCARE HVA-JRA DATA

Future activities planned for this analysis include identifying the capabilities of the regional healthcare system to respond to the identified impacts found in this document. Evaluation of these capabilities will better define the gaps across the region, which will better inform the future planning, training, exercises, and special funding projects for the Region 3 Healthcare Coalition Alliance. The mitigation strategies identified in this report provide the basis for future training and exercise planning for the Coalitions as documented in the annual Alliance Integrated Preparedness Plan (IPP). The Alliance IPP demonstrates the incorporation of the identified strategies into the training and exercise planning process.

The annual work plan is determined from the grant requirements, as well as the gaps found using this document's data. Future training and exercise priorities are based on the results of the data found in this document. A majority of the HCC budget provides training, exercises, and equipment projects for members to fill facility and regional gaps. These activities are reflected in the annual work plan. The goal of the HCC is to help develop a more resilient healthcare system, which includes activities to prepare for the hazards that have the greatest impact on the regional healthcare system.

DISTRIBUTION OF REGION 3 HEALTHCARE HVA-JRA RESULTS

This Region 3 Healthcare Hazard Vulnerability and Jurisdictional Risk Assessment is provided to all Coalition members via email. Coalition membership includes Emergency Management, EMS and Public Health officials, and other organizations involved in the healthcare delivery system.

Additionally, the HVA is posted on the Alliance website for use by Coalition members. Members are encouraged to use this data to develop projects that will improve the capabilities of the regional healthcare response.

Attachment 1: Regional Risk Index and Public Obligations by Category of Work

Region 3 Healthcare Coalition Alliance

iParametrics

Federal Emergency Management Agency

1 Biological

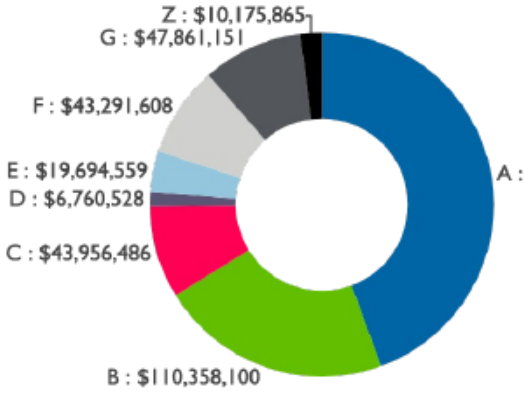
11 Hurricane

5 Severe Storm

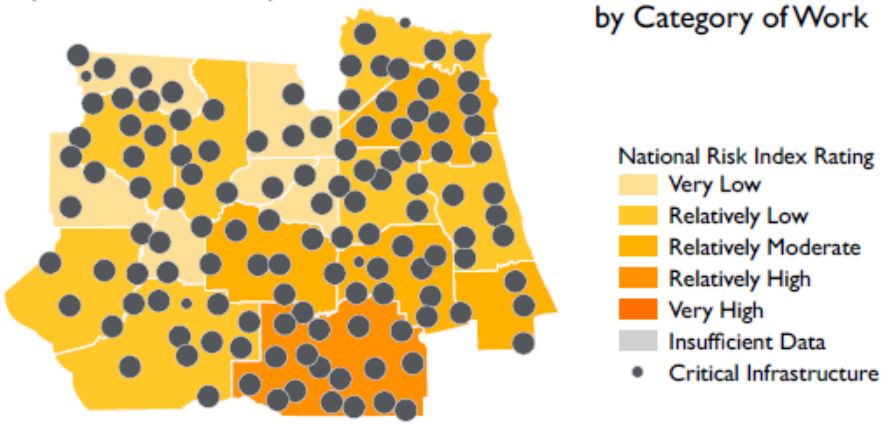
Major Disaster Declarations (2003 to Present)

$507,426,737

Public Assistance Obligations (2003 to Present)



Public Assistance Obligations by Category of Work



Class	Very Low	Relatively Low	Relatively Moderate	Relatively High	Very High	Insufficient Data
Airport	7	47	106	26	NA	NA
College or University	8	20	13	2	NA	NA
Drinking Water Treatment Plant	44	373	828	270	NA	NA
Electric Substation	41	131	250	57	NA	NA
Government Building [1]	58	198	325	98	NA	NA
Port	51	26	71	26	NA	NA
Power Plant	6	17	29	3	NA	NA
Public School	104	234	269	53	NA	NA
Public Transit Station [2]	NA	4	4	NA	NA	NA

[1] Government buildings include courthouses, EMS and fire stations, local law enforcement locations, and major state government buildings
[2] Public transit stations include fixed rail transit stations

Last Updated: December 14, 2022
Data Sources: Federal Emergency Management Agency, United States Census Bureau, Center for Disease Control, Homeland Infrastructure Foundation-Level Data, Federal Aviation Administration

Attachment 2: Region 3 Healthcare Facility Hazard Exposure Maps by County

Map series Methodology

Storm Surge

The data for storm surge was acquired through the Statewide Regional Evacuation Study. In 2021, the NEFRC worked with the other ten Regional Planning Councils and the Florida Division of Emergency Management to update the storm surge zones for counties to update their evacuation zones. However, prior in 2016, the National Hurricane Center updated their Sea, Lakes, and Overland Surge from Hurricanes (SLOSH) Basins by utilizing the best available County Digital Elevation Models (DEM) which map the ground elevation at a high resolution, the maximum inundation of different storm surge events was mapped. This development in data prompted the update of the Statewide Regional Evacuation Study in 2021.

100-Year Flood:

FEMA provides a definition for flood zones as flood hazard areas identified on the Flood Insurance Rate Map identified as the Special Flood Hazard Area (SFHA). SFHA are defined as the areas that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30.

500-Year Flood

FEMA describes the moderate flood hazard areas, labeled Zone B or Zone X(shaded) and are also illustrated on the Flood Insurance Rate Map. These zones are between the limits of the base flood and the 0.2% annual chance (or 500 year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded).

Sea Level Rise

Sea Level Rise maps show the extent of water over a land area that would be caused by a given rise in sea level. The National Oceanic and Atmospheric Administration (NOAA) produces predictions of sea level rise based on different scenarios, which range from lower to higher projections. This analysis uses the Intermediate-Low and Intermediate-High Sea Level Rise Projections for the years 2040 and 2070 (called planning horizons) and displays them.

County maps are in the approval process and will be added once finalized.