120 to Landfall: 2.0 Tabletop Exercise

After Action Report/Improvement Plan

April 29, 2021

120 to Landfall
Coastal Evacuation Exercise

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The After Action Report/Improvement Plan aligns exercise objectives with preparedness doctrine to include the National Preparedness Goal and related frameworks and guidance. Exercise information required for preparedness reporting and trend analysis is included; users are encouraged to add additional sections as needed to support their own organizational needs. **For Official Use Only / Not for Distribution**

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Exercise Overview

Exercise Name	120 to Landfall: 2.0 Tabletop Exercise
Exercise Date	April 26-29, 2021 (includes pre-conduct activities)
Scope	This was a four-hour tabletop exercise conducted virtually and in person at the New Bern Convention Center located at 203 S Front St, New Bern, NC 28560. In addition to conduct activities on April 29, pre-conduct self-paced activities were provided to members of both coalitions for analysis of their communications and information sharing capabilities.
Mission Area(s)	Response
Healthcare Preparedness and Response Capabilities	• Healthcare and Medical Response • Continuity of Healthcare Service Delivery
Threat or Hazard	Category 4 hurricane
Scenario	A category 4 hurricane is predicted to make landfall at Topsail Beach, North Carolina. The hurricane brings sustained winds of 130 mph and storm surge of 15–20 feet. The impact from the storm is forecasted to be widespread on eastern North Carolina's healthcare and critical infrastructure. The hurricane triggers the activation of the Coastal Region Evacuation and Sheltering Plan.
Sponsors	• Eastern Healthcare Preparedness Coalition • Southeastern Healthcare Preparedness Region
Points of Contact	**Eastern Healthcare Preparedness Coalition** Stephanie Seals | 252-814-8294 Stephanie.Seals@vidanthealth.com Chris Starbuck | 252-847-6634 CStarbuc@vidanthealth.com **Southeastern Healthcare Preparedness Region** Hans Edwards | 910-508-4865 Hans.Edwards@nhrmc.org Heather Griffin | 910-398-5022 Heather.Griffin@nhrmc.org

Executive Summary

The exercise was sponsored by the Eastern Healthcare Preparedness Coalition and Southeastern Healthcare Preparedness Region. The exercise was part of the continuous improvement cycle administered by the planning committee to strengthen the preparedness abilities of healthcare, emergency medical services, emergency management, and community partners in both regions. The tabletop exercise was designed to be multijurisdictional and multidisciplinary, involving both private and public sector entities from throughout the Eastern Healthcare Preparedness Coalition and Southeastern Healthcare Preparedness Region.

Planning for the exercise began in January of 2021. Despite on-going real world COVID-19 responsibilities, the planning team and participants throughout both regions were able to successfully complete the exercise in April of 2021. Planning team members worked together to develop the exercise core capabilities, objectives, scenario, and evaluation criteria.

Approximately 60 players from the Eastern Healthcare Preparedness Coalition and 50 from the Southeastern Healthcare Preparedness Region, along with 15 observers from other local, regional, state, and volunteer organizations participated in the exercise. The exercise gave participants an opportunity to identify any gaps and areas for improvement in planning, training, equipment, and other related areas to better serve their communities.

Exercise Objectives and Core Capabilities

The following exercise objectives in Table 1 describe the expected outcomes for the exercise. The objectives are linked to the *Health and Human Services 2017–2022 Healthcare Preparedness and Response Capabilities*, which are distinct critical elements necessary to achieve the specific mission area. The objectives and aligned core capabilities were selected by the exercise planning team.

Exercise Objective	Capability
Identify the established lines of communication and facility points of contact used by healthcare stakeholders for emergency notifications and information sharing.	Healthcare and Medical Response Coordination
Identify the information sharing process for ancillary healthcare providers (e.g., dialysis, home healthcare, assisted living, etc.), emergency management agencies, and regional emergency coordination points, prior to and during an emergency incident.	
Describe the decision-making triggers used by healthcare stakeholders for executing the safe evacuation or shelter-in-place of healthcare facilities during an emergency incident.	
Describe the resource needs for executing a full facility evacuation during an emergency incident.	
Identify the prioritization process for emergency evacuation of patients when transportation resources are limited.	Continuity of Healthcare Service Delivery

Table 1. Exercise Objectives and Associated Core Capabilities

Exercise Structure

To ensure all exercise objectives could be accomplished, this exercise was designed with pre-conduct and conduct elements. Prior to exercise conduct day, members of both coalitions were sent weather advisories along with worksheets to complete prior to exercise start. These worksheets focused on activities that should be carried out according to the *Coastal Region Evacuation and Sheltering Standard Operating Guide* during Phase 2 and Phase 3 of a pre-landfall hurricane event. An online survey was established for collecting participant responses. The results were used to evaluate the notification and information sharing exercise objectives as they relate to tasks that occur during early stages of a forecasted hurricane.

On the day of conduct, players will participate in the following two modules:

- Module 1: 72 hours pre-landfall
- Module 2: 24 hours pre-landfall

Players and observers participated virtually by Zoom and in person for plenary sessions and group discussions. Each module began with a multimedia update that summarized key events occurring within that time. After the updates, participants separated into two multi-discipline, multi-organization breakout groups with a facilitator, to review the situation and engage in group discussions of appropriate pre-landfall response issues; discussion questions corresponded to the exercise objectives. For this exercise, the functional groups were as follows:

- Group 1: Eastern Healthcare Preparedness Coalition
- Group 2: Southeastern Healthcare Preparedness Region

After these functional group discussions, participants engaged in a moderated plenary discussion in which spokespersons from each group presented a synopsis of the group's actions, based on the scenario.

Exercise Evaluation

The exercise's evaluation was based on the exercise objectives and aligned capabilities, capability targets, and critical tasks, which are documented in Exercise Evaluation Guides by evaluation staff. Additionally, players completed Participant Feedback Forms and provided input during the hot wash. These documents were used to evaluate the exercise and compile the After Action Report.

Major Findings

Strengths:

- All participants who completed the pre-conduct communication assessment activity were able to identify their required Phase 2 points of contact (according to internal plans and/or the *North Carolina Coastal Region Evacuation and Sheltering Standard Operating Guide*).

- All participants who completed the pre-conduct information sharing process activity were able to identify their required Phase 3 information sharing needs, requirements, and processes (according to internal plans and/or the *North Carolina Coastal Region Evacuation and Sheltering Standard Operating Guide*).
- Many dialysis facilities stated they have plans in place to have patients come in prior to a hurricane to minimize treatment impacts to patients during the evacuation process. They also stated they begin to schedule dialysis services for their patients at facilities further away that are not affected by the storm.
- Participants indicated they have an evacuation trigger that was clearly understood across their organization. Healthcare facilities reported that they utilize local emergency management evacuation orders as a primary facility evacuation trigger. Some participants also noted that they used the predicted weather impacts (wind strength, water levels, etc.) to determine evacuation or shelter-in-place procedures based on their facility's construction and ability to withstand the weather impacts.
- Many long term care facilities indicated they had an evacuation triage system in place. Some facilities reported using a "stretcher-first" triage system that prioritized the evacuation of non-ambulatory patients first during an evacuation. This type of plan prioritizes resources on the hardest to move patients that are generally in the poorest health condition and the most vulnerable. Some hospital facilities stated they use the EVAC 123 kit that prioritizes evacuation and provides tracking in-house, at staging, and reconciliation when they arrive at their destination.

Best Practices

- Many facilities have pre-arranged agreements to utilize local hotels to billet staff during a storm. These facilities have written agreements with hotels, and it was also identified that these accommodations are extended to staff family members in order to provide reassurance to staff members that their family is safe and have access to basic necessities during a storm. By ensuring the safety and security of family members, staff can more easily focus on their patient care responsibilities. This should be noted as a best practice for consideration by all coalition members.
- Linen was identified as a critical resource during a facility evacuation. While receiving facilities may be identified as having the space and staff to accommodate evacuated patients, they may not have all the supporting supplies to include linen. Several facilities identified the best practice of shipping extra linen with each evacuated patient to help alleviate the demand on the receiving facility.

Areas for Improvement:

- There is an inconsistency in the use of available information sharing systems throughout the healthcare system. While some organizations utilize the WebEOC

system as outlined in state and coalition plans, others utilize a SharePoint system because they are either unaware of or do not have access to WebEOC. The use of two separate systems is not conducive for effective and efficient overall incident communication. It affects state and local emergency operations centers' ability to maintain a common operational picture. It also affects the ability to accurately identify incident resource needs as resource requests are circulated using two separate and independent platforms that are not interoperable.

- Registries for vulnerable populations are not centrally collated within the state. Because a central registry for vulnerable populations in North Carolina does not exist, notification and/or location of the affected individuals is a difficult task. Instead, separate and independent county-by-county registries are maintained by each of the 100 counties within the state of North Carolina. Participants discussed potential inconsistencies in the processing and management in the county registries which may cause registries to be incomplete or outdated, which in turn could lead to individuals being missed in the emergency alert or evacuation process.
- While the primary evacuation trigger cited by most participants was guidance issued by local emergency management, many participants could not present additional triggers that they would use instead of, or in addition to, local emergency management directives. Local emergency management evacuation orders are based on a broad spectrum of considerations and primarily aimed at the totality of businesses and residents in a specific area. They do not issue evacuation guidance for individual buildings or organizations. Local emergency management evacuation orders may not take into consideration unique challenges associated with the evacuation of specific healthcare facilities such as the additional time required, unique transportation requirements, and health/medical considerations.
- There may be a shortage of suitable transportation assets for evacuating facilities because there is an "over dependence" on EMS resources during an evacuation of coalition healthcare facilities. Several facilities recognized that local EMS agencies may be occupied on other emergency storm-related tasks and unable to assist with facility evacuations. Charter tour buses, school buses, and transit buses were all listed as potential transportation tools. However, several long-term care facilities suggested that their clients would not be able to be transported using this equipment because of medical conditions as well as patient transportation regulations. Participants estimated that a widespread evacuation involving a significant number of affected patients would easily overwhelm existing EMS abilities even if ambulances were available. Without facilities having pre-arranged agreements with out-of-area patient transport services, to include convalescent care transport providers, and early evacuation coordination, there could be a long delay in safely evacuating all facilities in a timely manner.

- Recommendations for updates to the CRES-SOG for healthcare related evacuations can be made to EM. Recommendations to include removing outdated terminology and providing further information and incorporation of State Medical Support Shelters.

Analysis of Core Capabilities

Aligning exercise objectives and core capabilities provides a consistent taxonomy for evaluation that transcends individual exercises to support preparedness reporting and trend analysis. The following sections provide an overview of the performance related to each exercise objective and associated core capability, highlighting strengths and areas for improvement.

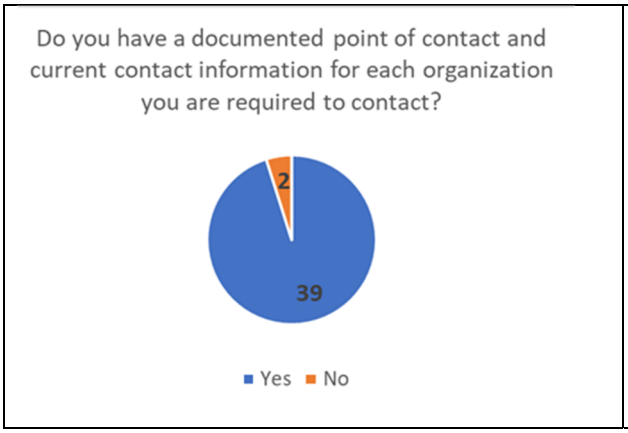
Healthcare and Medical Response Coordination

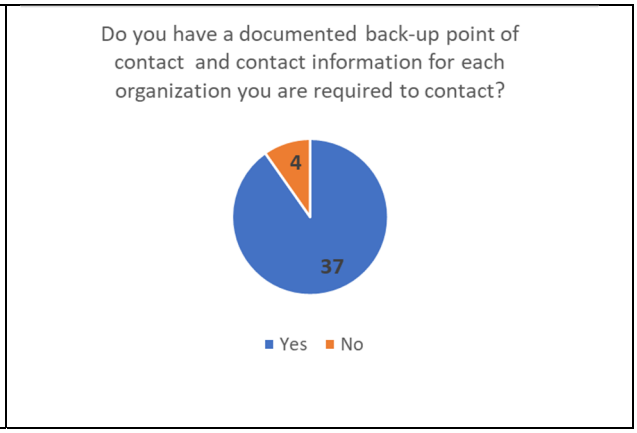
Objective 1: Identify the established lines of communication and facility points of contact used by healthcare stakeholders for emergency notifications and information sharing.

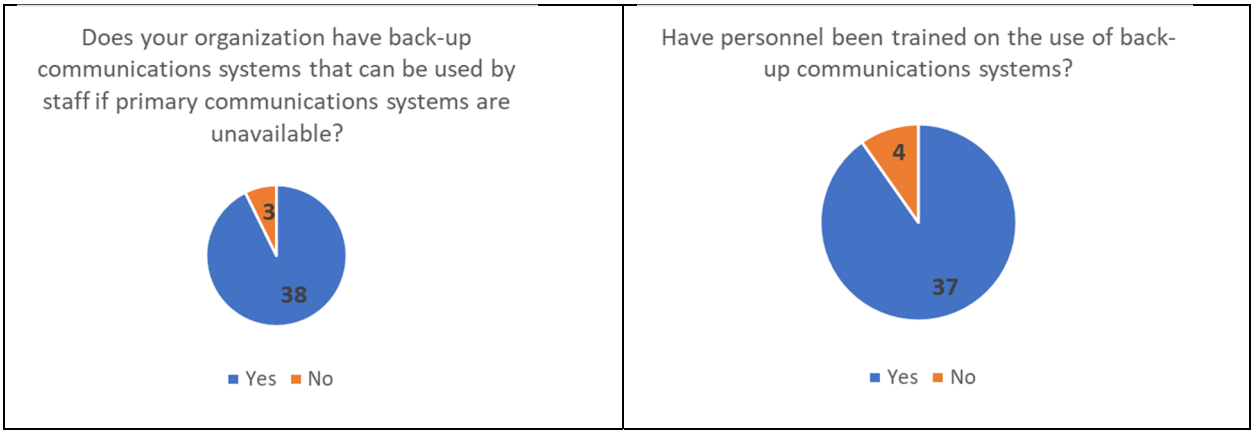
The strengths and area for improvement for the capability aligned to this objective are described in this section.

Strengths

Strength 1: Forty-one organizations participated in the pre-conduct communications inventory activity. All participants were able to identify their required Phase 2 points of contact (according to internal plans and/or the *North Carolina Coastal Region Evacuation and Sheltering Standard Operating Guide*). Participants addressed the following questions with identified results:







Strength 2: Participants discussed the use of amateur radio during an emergency as a backup communication system. Dare County has found the amateur radio to be a crucial component to provide communication resiliency in the event 800 MHz systems are compromised or otherwise inoperable. Dare County has augmented their communication system with the purchase of amateur radios for each EMS station. The installation of the amateur radios in each station has improved the common operational picture and overall situational awareness with the distribution of incident messaging when other systems may fail.

Area for Improvement

Area for Improvement 1: Several organizations stated that it was difficult to attend the multiple coordinating conference calls that occur before landfall of a storm.

Reference: Eastern Healthcare Preparedness Coalition (EHPC) Communications Best Practice Guide & Information Sharing Plan

Analysis: During the time prior to landfall, healthcare facilities have the potential to attend multiple planning and coordinating conference calls. The coalition leads some of these calls, and others are led by local and state emergency management or hospital management companies. The current *EHPC Communications Best Practice Guide & Information Sharing Plan* has a section that details the daily regional coordination call scheduled for 11 a.m. daily (see Information Sharing, Regional Conference Calls – Page 21). This section does not capture any additional conference calls.

Occasionally, these calls are held at competing times. It is difficult for facilities to know which calls to attend or which calls are the most useful to help them prepare for the oncoming storm. As a consequence, facilities could miss opportunities to share critical information and coordinate activities and resources by attending a meeting less relevant to their situation. Also, facility planners may find themselves overly burdened with attending meetings instead of managing their own facility. Coalition members want to make efficient use of their time while on calls so that they still have time to assist and lead their facility preparedness and evacuation efforts.

Recommended Corrective Action 1.1: Develop an inventory of all agency, local, coalition, and state conference calls that occur prior to landfall of a storm and determine the possibility of combining or eliminating duplicate calls to create a more efficient information sharing process.

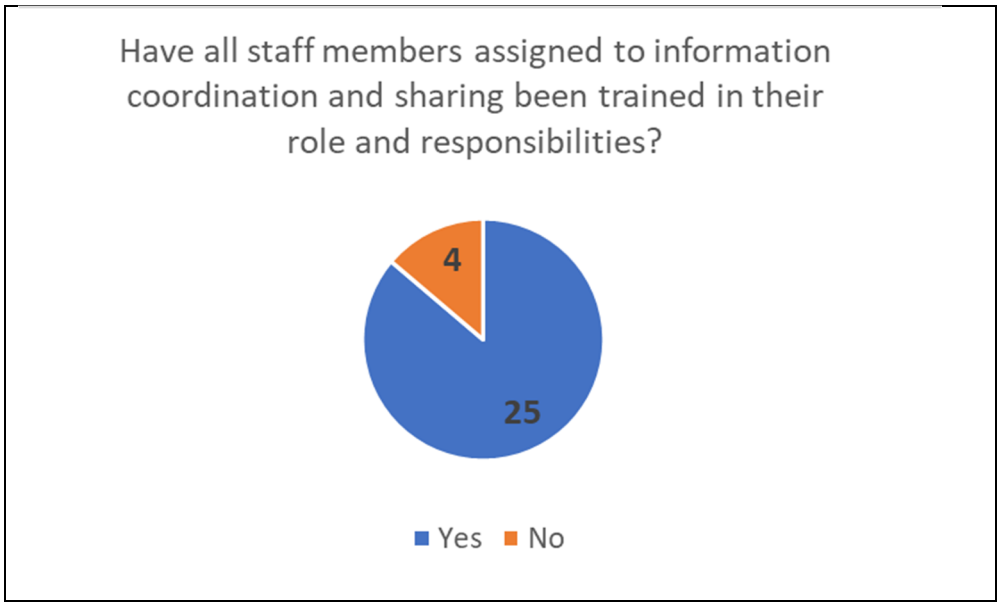
Recommended Corrective Action 1.2: If a new call matrix or schedule is developed for hurricane preparedness coordination, it should be included in the coalition communications plans that includes a schedule, purpose, and recommended attendees for each planning call.

Objective 2: Identify the information sharing process for ancillary healthcare providers (e.g., dialysis, home healthcare, assisted living, etc.), emergency management agencies, and regional emergency coordination points, prior to and during an emergency incident.

The strengths and areas for improvement for the capability aligned to this objective are described in this section.

Strengths

Strength 1: Twenty-nine organizations participated in the pre-conduct information sharing process activity. All participants were able to identify their required Phase 3 information sharing needs, requirements, and processes (according to internal plans and/or the *North Carolina Coastal Region Evacuation and Sheltering Standard Operating Guide*). Participants addressed the following questions with identified results:



Strength 2: Many coalition members have facility plans in place to share their evacuation logs with local emergency managers for the purpose of helping with the family reunification process. Facility staff understand that patients evacuated from one facility may not all end up at the same receiving facility. In these cases, patient tracking and final location is critical especially for letting family members know where loved ones have moved. This leverages the capability of the local emergency management agency and alleviates the burden of this task from facility staff whose priority is patient care.

Areas for Improvement

Area for Improvement 1: There is an inconsistency in the use of available information sharing systems throughout the healthcare system.

Reference: North Carolina Coastal Region Evacuation and Sheltering Standard Operating Guide 2019 Edition – Base Document, Version 3.1, Concept of Operations, Page 16; Web Emergency Operations Center (WebEOC) Interconnectivity, U.S. Department of Homeland Security, Fiscal Year 2017 Report to Congress, Federal Emergency Management Agency; Eastern Healthcare Preparedness Coalition, 2021 Communications Best Practice Guide and Information Sharing Plan, Page 22; Southeastern Healthcare Preparedness Region, Regional Healthcare Coalition ESF#8 Information sharing Plan, March 2021, Page 6

Analysis: The *North Carolina Coastal Region Evacuation and Sheltering Standard Operating Guide, 2019 Edition Version 3.1, Concept of Operations* states “if the incident exceeds the local capability to respond, a request to the state for assistance may be submitted through WebEOC for the appropriate resources.” The *Eastern Healthcare Preparedness Coalition, 2021 Communications Best Practice Guide and Information Sharing Plan, Page 22*, states, “it should be noted that WebEOC is considered the main

information sharing platform form in North Carolina." The document also discusses messaging format with the use of message boards/logs; specifically, the Healthcare Activity Log, Healthcare Statewide Significant Event Log, Significant Events, and Healthcare Hospital Dashboard Updating.

Because WebEOC is a web-based system, real-time incident viewing and resource tracking is available to all authorized users with an Internet connection. WebEOC enables multiple entities to share critical information when collaborating in the preparation, response, recovery, resolution, and review processes associated with daily activities, events, and incidents. However, it was identified during the exercise that not all participants were familiar with the WebEOC system or how it would be effectively used during an emergency, specifically resource request processes. One participant described an incident at her hospital as part of a disaster response where a storm interrupted central electrical power and water to the facility. Hospital administrators were challenged to find diesel fuel to refill emergency facility generators. This facility was unaware of how WebEOC is used to communicate with state and local emergency operations centers to request resources or share information. While resources were finally located through a local vendor, this example highlights an inefficiency in the response system, as it failed to provide a system of checks and balances that the requests for resources were not duplicated or that limited resources were sent to those facilities with the greatest needs.

Other participants noted that they use a SharePoint system to share information during an emergency instead of WebEOC. SharePoint is a system that provides medical practices and healthcare agencies with a safe, secure way to share information. This Microsoft platform can be used to share information and facilitate collaboration. It was not clear to participants when they should be using WebEOC and when they should be using SharePoint. It appears that the use of two separate and independent information sharing platforms may be counterintuitive and confusing to some participants.

The exercise identified a lack of familiarity with WebEOC and its usefulness in resource prioritization and allocation and information sharing. It also revealed there are currently two separate communication systems (WebEOC and SharePoint) in use which is not conducive for effective and efficient overall incident communication. It affects state and local emergency operations centers' ability to maintain a common operational picture. It also affects the ability to accurately identify incident resource needs as resource requests are circulated using two separate and independent platforms that are not interoperable.

Recommended Corrective Action 1.1: Conduct a review of coalition members to determine which information sharing systems are being used by agencies and who has access and/or needs access to the WebEOC system to ensure consistency and uniformity of real time information sharing platforms.

Recommended Corrective Action 1.2: Conduct training annually on the WebEOC system for all authorized coalition users to facilitate increased WebEOC familiarity and expertise.

Recommended Corrective Action 1.3: Conduct a functional exercise designed to validate WebEOC information sharing and resource facilitation procedures.

Area for Improvement 2: Registries for vulnerable populations are not centrally collated within the state.

Reference: Center for Disease Control Disaster Planning Goal: Protect Vulnerable Older Adults, CDC Healthy Aging Program; American Red Cross, Closing the Gap: Advancing Disaster Preparedness, Response and Recovery for Older Adults, January 2020; Preparing for Disaster for People with Disabilities and other Special Needs, Federal Emergency Management Agency, Considerations for people with disabilities, Page 10; Grantmakers in Aging, The Maturing of America: Communities moving Forward for an Aging Population

Analysis: Disasters affect older adults, homebound individuals, and special needs individuals disproportionately, especially those with chronic diseases, disabilities, or conditions that require extra assistance to leave an unsafe area and recover from an incident. For this reason, emergency managers and healthcare providers need to recognize that these vulnerable populations require the development of strategies to meet their needs during time of a mass evacuation.

Coalition participants discussed the importance of providing continued healthcare services to populations that may be homebound during the pending disaster. They discussed that these vulnerable populations depend on the healthcare facilities and the services they provide for continued health and wellbeing and that a facility evacuation would result in an interruption in essential healthcare services for these individuals. However, because a central registry for special needs populations in North Carolina does not exist, notification and and/or location of the affected individuals is a difficult task. Instead, separate and independent county-by-county registries are maintained by each of the 100 counties within the state of North Carolina. Participants discussed potential inconsistencies in the processing and management in the county registries which may cause registries to be incomplete or outdated which in turn could lead to individuals being missed in the emergency alert or evacuation process.

Recommended Corrective Action 2.1: Develop a working group to examine how registries of vulnerable populations are developed and managed throughout the state to determine if a more efficient, central process can be created for tracking population information.

Objective 3: Describe the decision-making triggers used by healthcare stakeholders for executing the safe evacuation or shelter-in-place of healthcare facilities during an emergency incident.

The strengths and area for improvement for the capability aligned to this objective are described in this section.

Strengths

Strength 1: Several dialysis centers stated that they would pre-arrange for alternate treatment schedules or locations for their patients prior to a hurricane making landfall. Dialysis centers do not have resident clientele. Therefore, evacuation can be fairly simple. If an evacuation order is given for a specific area that contains a dialysis center, their patients may or may not reside in the evacuation area. Regardless of their clients' location, they will still need dialysis services on a recurring schedule. Dialysis facilities stated that they have plans in place to have patients come in earlier than normal prior to a hurricane to minimize treatment impacts to patients during the evacuation process. They also stated they begin to schedule dialysis services for their patients at facilities further away that are not affected by the storm. By sharing information and schedules about dialysis patients between facilities, these facilities are reducing the impacts of the storm and interruptions in regular dialysis treatment.

Strength 2: Participants indicated they have an evacuation trigger that was clearly understood across their organization. Healthcare facilities reported that they utilize local emergency management evacuation orders as a primary facility evacuation trigger. Some participants also noted that they used the predicted weather impacts (wind strength, water levels, etc.) to determine evacuation or shelter-in-place procedures based on their facility's construction and ability to withstand the weather impacts. For example, one healthcare facility maintained engineered structural integrity of the facility up to and including a category 3 hurricane. This facility related that they would shelter in place for a category 3 hurricane but evacuate in advance of an anticipated category 4 event. This clarity of the evacuation trigger is critical in establishing a predictable response and a unity of action for the effected facility. The decision to evacuate or shelter in place in advance of a hurricane is complex and time sensitive based on potential uncertainty of the weather-related event. If a facility waits to evacuate, they could endanger patients, staff, and ability to provide necessary continuation of services. If they choose to "ride out" the hurricane, they could endanger patients if not adequately prepared to handle potential impacts.

Strength 3: Participants discussed encouraging vulnerable populations, such as fragile elderly, dialysis patients, medically homebound, or special needs patients to evacuate the affected area prior to landfall. They realized that in the event vulnerable populations failed to leave the affected area, they may present at local emergency departments for care or contact emergency services for assistance, further straining already burdened disaster systems. The *North Carolina Office of Emergency Medical Services Healthcare Preparedness Program* describes the role of patient coordination. Patient coordination

refers to conducting situational assessments to identify patients that require medical evacuation. The Healthcare Preparedness Program discusses the establishment of Patient Identification Groups to poll the affected areas to identify patients that require medical evacuation. They communicate closely with the State Emergency Operations Center Emergency Support Function-8 who is charged with providing medical transportation support to local jurisdictions when requested.

Areas for Improvement

Area for Improvement 1: Additional evacuation triggers are needed for healthcare facilities.

Reference: North Carolina Coastal Region Hospital Evacuation Toolkit, Updated 2020List

Analysis: While the primary evacuation trigger cited by most participants was guidance issued by local emergency management, many participants could not present additional triggers that they would use instead of, or in addition to, local emergency management directives. Local emergency management evacuation orders are based on a broad spectrum of considerations and primarily aimed at the totality of businesses and residents in a specific area. They do not issue evacuation guidance for individual buildings or organizations. Local emergency management evacuation orders may not take into consideration unique challenges associated with the evacuation of specific healthcare facilities such as the additional time required, unique transportation requirements, and health/medical considerations. The *North Carolina Coastal Regional Hospital Evacuation Tool Kit (II. Evacuation Plans Basics, Evacuation Triggers and Decision Making -page 6)* provides guidance that facilities should develop triggers that factor in the time required to evacuate each facility. Additionally, facility plans should identify triggers to initiate shelter in place and partial evacuations. These triggers were not identified during the exercise discussion. As a consequence, a facility that waits for a local emergency management evacuation order may not have enough time to full evacuate their facility before the storm hits.

Recommended Corrective Action 1.1: Each healthcare organization should develop a facility evacuation plan that includes clear trigger elements, in addition to a local emergency management order, related to the specific characteristics of their facility that address full evacuation, partial evacuation, and shelter-in-place decisions.

Objective 4: Describe the resource needs for executing a full facility evacuation during an emergency incident.

The strengths and areas for improvement for the capability aligned to this objective are described in this section.

Strengths

Strength 1: Many facilities have pre-arranged agreements to utilize local hotels to billet staff during a storm. If a facility is sheltering in place, they will have a high demand for staff to maintain care of patients. To accommodate this, some facilities have pre-identified local hotels that have generators and other capabilities that would allow for them to remain in operation during a storm. These facilities have written agreements with hotels. It was also identified that these hotel accommodations are extended to staff family members in order to provide reassurance to staff members that their family is safe and have access to basic necessities during a storm. Many facilities include personnel from dietary, housekeeping, and maintenance, not just direct patient care personnel. By ensuring the safety and security of family members, staff can more easily focus on their patient care responsibilities. *This should be noted as a best practice for consideration by all coalition members.*

Strength 2: Some facilities rely on vendors from non-coastal areas to supply critical resources. One facility stated that they have a need for cots to support overnight accommodations for staff that must remain at a facility during a shelter-in-place condition. To secure these cots, the facility works with a vendor from the western part of the state that is generally unaffected by the storm. While this practice introduces the risk of long transportation routes, it does bring new resources into the affected area from a source that is not likely in competition with other facilities in the coastal region.

Strength 3: Linen was identified as a critical resource during a facility evacuation. While receiving facilities may be identified as have the space and staff to accommodate evacuated patients, they may not have all the supporting supplies to include linen. Depending on the impacts of the storm, the receiving facility may not be operating at peak laundry capacity or their laundry service may be interrupted because of staffing or other infrastructure issues. *Several facilities identified the best practice of shipping extra linen with each evacuated patient to help alleviate the demand on the receiving facility.*

Areas for Improvement

Area for Improvement 1: There may be a shortage of suitable transportation assets for evacuating facilities.

Reference: North Carolina Office of Emergency Medical Services Healthcare Preparedness Program Patient Movement Plan April 2018, IV Operations, E. Patient Transportation, page 35; North Carolina Office of Emergency Medical Services Healthcare Preparedness Program, Patient Movement Plan, April 2018, Version 1.1, page 13; North Carolina Ambulance Deployment Plan

Analysis: According to the North Carolina Office of Emergency Medical Services Healthcare Preparedness Program, Patient Movement Plan, specific missions for EMS resources may include augmentation of day-to-day EMS services, patient and healthcare facility evacuation support, and patient triage and transport. The North

Carolina Ambulance Deployment Plan establishes procedures for the mobilization and deployment of these EMS transportation assets.

Participants mutually agreed that plans supporting physical evacuation of a healthcare facility placed an over dependence on EMS resources. The increased number of EMS calls for service associated with storm response were anticipated to further strain an already burdened EMS capacity. Charter tour buses, school buses, and transit buses were all listed as potential transportation tools. However, several long-term care facilities suggested that their clients would not be able to be transported using this equipment because of medical conditions as well as patient transportation regulations. It was also discussed that many facilities may be competing for the same transportation resources in the region. The current North Carolina Office of Emergency Medical Services Healthcare Preparedness Program (HPP) Patient Movement Plan April 2018 lists additional available transportation resources within the state and the mechanism to obtain them. Participants did not seem to be aware of this resource as it was not discussed as an option.

Participants estimated that a widespread evacuation involving a significant number of affected patients would easily overwhelm existing EMS abilities even if ambulances were available. Without facilities having pre-arranged agreements with out-of-area patient transport services, to include convalescent care transport providers, and early evacuation coordination there could be a long delay in safely evacuating all facilities in a timely manner.

Recommended Corrective Action 1.1: Conduct a workshop designed to review transportation resources already identified in the existing *North Carolina Office of Emergency Medical Services Healthcare Preparedness Program Patient Movement Plan*, how facilities can access these resources, and identify any resource gaps.

Recommended Corrective Action 1.2: Conduct a functional exercise to validate the ability to evacuate healthcare facilities utilizing existing transportation plans and identified resources.

Recommended Corrective Action 1.3: Identify additional transportation resources, outside of existing EMS providers, that could serve as potential patient transportation providers; include out-of-area/out-of-state providers as well as convalescent care transportation providers.

Continuity of Healthcare Service Delivery

Objective 5: Identify the prioritization process for emergency evacuation of patients when transportation resources are limited.

The strengths and areas for improvement for the capability aligned to this objective are described in this section.

Strengths

Strength 1: Many long term care facilities indicated they had an evacuation triage system in place. Some facilities reported using a "stretcher-first" triage system that prioritized the evacuation of non-ambulatory patients first during an evacuation. This type of plan prioritizes resources on the hardest to move patients that are generally in the poorest health condition and the most vulnerable. Some hospital facilities stated they use the EVAC 123 kit (https://www.triagetags.com/hospitals-clinics/patient-evacuation) that prioritizes evacuation and provides tracking in-house, at staging, and reconciliation when they arrive at their destination. This system was provided by the coalition in previous initiatives and should be considered for use by all healthcare providers.

Strength 2: Coalition EMS providers use the SMART triage tag system to categorize patients based on vulnerability or medical need. The SMART triage system provides the user with a simple, clear, and concise methodology to completing triage of patients. This system provides for a consistent patient triage/categorization prioritization process based on patient vulnerability or medical need. Triage helps to sort the patients based on their medical need and treatment and optimizes medical resources available. The Eastern Healthcare Preparedness Coalition, Emergency Support Function #8 - Public Health and Medical Services, 2021 Communications Best Practice Guide and Information Sharing Plan states "in North Carolina, EMS uses the SMART triage tag to categorize patients based on vulnerability or medical need. This is considered the standard across the state."

Area for Improvement

Area for Improvement 1: Participants considered the communication of patient information among healthcare facilities to be constrained.

Reference: Centers for Disease Control and Prevention, Public Health Professionals Gateway, Health Insurance Portability and Accountability Act of 1996

Analysis: The Health Insurance Portability and Accountability Act (HIPAA) of 1996 is a federal law that required the creation of national standards to protect sensitive patient health information from being disclosed without the patient's consent or knowledge. The U.S. Department of Health and Human Services issued the HIPAA Privacy Rule to implement the requirements of HIPAA. A major goal of the Privacy Rule is to ensure that health information is properly protected while allowing the flow of health information needed to provide and promote healthcare and to protect the public's health and well-being.

Participants related that during previous incidents requiring evacuation of a healthcare facility, the system to forward information from the sending facility/physician to the receiving facility/physician was constrained. For example, they cited references regarding the evacuation of a facility with numerous patients. Under current process, in order to maintain compliance with HIPAA standards, the sending physician must

communicate with each separate and individual receiving physician regarding each separate and individual patient. This process and flow of communication among physicians was considered cumbersome as patient care could potentially be distributed to numerous receiving physicians.

As a solution for future incidents, participants discussed a point-to-point communication process that allows for a releasing physician to communicate with a receiving facility physician for all patients being transferred. This would streamline efforts and provide for a more efficient and cohesive patient transfer from sending facility to receiving facility.

Recommended Corrective Action 1.1: Investigate the potential to expand existing healthcare facility disaster patient transfer policies to include a mechanism for physician-to-physician communication that allows the receiving facility to accept patient transfers for multiple patients from a single facility.

Recommended Corrective Action 1.2: Conduct a workshop to discuss methods for patient information communication between multiple sending and receiving facilities during a disaster while maintaining HIPAA protected health information.

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Appendix A: Improvement Plan

This Improvement Plan has been developed specifically for the Eastern Healthcare Preparedness Coalition and the Southeastern Healthcare Preparedness Region as a result of the *120 to Landfall: 2.0 Tabletop Exercise* conducted on April 29, 2021.

Corrective actions are based on capability elements. A capability may be delivered during an emergency with any combination of elements that achieves the desired outcome, namely properly planned, organized, equipped, trained, and exercised personnel. Therefore, all recommendations are linked to the capability element in need of improvement: Planning; Organization and Leadership; Equipment and Systems; Training; and Exercises, Evaluations, and Corrective Actions. Capability elements are further defined in the following table.

Planning	Collection and analysis of intelligence and information, and development of policies, plans, procedures, mutual aid agreements, strategies, and other publications that comply with relevant laws, regulations, and guidance necessary to perform assigned missions and tasks.
Organization and Leadership	Individual teams, an overall organizational structure, and leadership at each level in the structure that comply with relevant laws, regulations, and guidance necessary to perform assigned missions and tasks.
Equipment and Systems	Major items of equipment, supplies, facilities, and systems that comply with relevant standards necessary to perform assigned missions and tasks.
Training	Content and methods of delivery that comply with relevant training standards necessary to perform assigned missions and tasks.
Exercises, Evaluations, and Corrective Actions	Exercises, self-assessments, peer assessments, outside review, compliance monitoring, and actual major events that provide opportunities to demonstrate, evaluate, and improve the combined capability and interoperability of the other elements to perform assigned missions and tasks to standards necessary to achieve successful outcomes.

Table 4. Capability Elements

Area for Improvement	Recommended Corrective Action	Capability Element	Responsible Organization	Org. Point of Contact	Start Date	Completion Date
Healthcare and Medical Response Coordination						
Identify the established lines of communication and facility points of contact used by healthcare stakeholders for emergency notifications and information sharing.						
1. Several organizations stated that it was difficult to attend the multiple coordinating conference calls that occur before landfall of a storm.	1.1 Develop an inventory of all agency, local, coalition, and state conference calls that occur prior to landfall of a storm and determine the possibility of combining or eliminating duplicate calls to create a more efficient information sharing process.	Planning	EHPC/SHPR	Healthcare Preparedness Coordinators	June 2021	July 2021
	1.2 If a new call matrix or schedule is developed for hurricane preparedness coordination, it should be included in coalition communication and information sharing plans and include a schedule, purpose, and recommended attendees for each planning call.	Planning	EHPC/SHPR	Healthcare Preparedness Coordinators	July 2021	August 2021
Identify the information sharing process for ancillary healthcare providers (e.g., dialysis, home healthcare, assisted living, etc.), emergency management agencies, and regional emergency coordination points, prior to and during an emergency incident.						
1. There is an inconsistency in the use of available information sharing systems throughout the healthcare system.	1.1 Conduct a review of coalition members to determine which information sharing systems are being used by agencies and who has access and/or needs access to the WebEOC system to ensure consistency and uniformity of real time information sharing platforms.	Equipment and Systems	EHPC	Disaster Services Specialist for Communications	July 2021	August 2021
	1.2 Conduct training annually on the WebEOC system for all authorized coalition users to facilitate increased WebEOC familiarity and expertise.	Training	EHPC	Disaster Services Specialist for Communications	September 2021	On-going

Area for Improvement	Recommended Corrective Action	Capability Element	Responsible Organization	Org. Point of Contact	Start Date	Completion Date
	1.3 Conduct a functional exercise designed to validate WebEOC information sharing and resource facilitation procedures.	Exercises, Evaluations, and Corrective Actions	EHPC	Disaster Services Specialist for Communications	May 2021	On-going
2. Registries for vulnerable populations are not centrally collated within the state.	2.1 Develop a working group to examine how registries of vulnerable populations are developed and managed throughout the state to determine if a more efficient, central process can be created for tracking population information.	Planning	SHPR	HPC	September 2021	January 2022
Describe the decision-making triggers used by healthcare stakeholders for executing the safe evacuation or shelter-in-place of healthcare facilities during an emergency incident.						
1. Additional evacuation triggers are needed for healthcare facilities.	1.1 Each healthcare organization should develop a facility evacuation plan that includes clear trigger elements, in addition to a local emergency management order, related to the specific characteristics of their facility that address full evacuation, partial evacuation, and shelter-in-place decisions.	Planning	EHPC/SHPR	EHPC- Disaster Services Specialist for Plans SHPR- Healthcare Preparedness Coordinator	July 2021	September 2021
Describe the resource needs for executing a full facility evacuation during an emergency incident.						
1. There may be a shortage of suitable transportation assets for evacuating facilities.	1.1 Conduct a workshop designed to review transportation resources already identified in the existing North Carolina Office of Emergency Medical Services Healthcare Preparedness Program (HPP) Patient Movement Plan, how facilities can access these resources, and identify any resource gaps.	Exercises, Evaluations, and Corrective Actions	SHPR	Healthcare Preparedness Coordinator	September 2021	January 2022

Area for Improvement	Recommended Corrective Action	Capability Element	Responsible Organization	Org. Point of Contact	Start Date	Completion Date
	1.2 Conduct a functional exercise to validate the ability to evacuate healthcare facilities utilizing existing transportation plans and identified resources.	Exercises, Evaluations, and Corrective Actions	SHPR	Healthcare Preparedness Coordinator	January 2022	May 2022
	1.3 Identify additional transportation resources, outside of existing EMS providers, that could serve as potential patient transportation providers; include out-of-area/out-of-state providers as well as convalescent care transportation providers.	Planning	SHPR	Healthcare Preparedness Coordinator	October 2021	January 2022
Continuity of Healthcare Service Delivery						
Identify the prioritization process for emergency evacuation of patients when transportation resources are limited.						
1. Participants considered the communication of patient information among healthcare facilities to be constrained.	1.1 Investigate the potential to expand existing healthcare facility disaster patient transfer policies to include a mechanism for physician-to-physician communication that allows the receiving facility to accept patient transfers for multiple patients from a single facility.	Planning	EHPC	HPC	September 2021	October 2021
	1.2 Conduct a workshop to discuss methods for patient information communication between multiple sending and receiving facilities during a disaster while maintaining HIPAA protected health information.	Exercises, Evaluations, and Corrective Actions	EHPC	HPC	October 2021	November 2021

Table 5. Improvement Plan

Appendix B: Exercise Participants

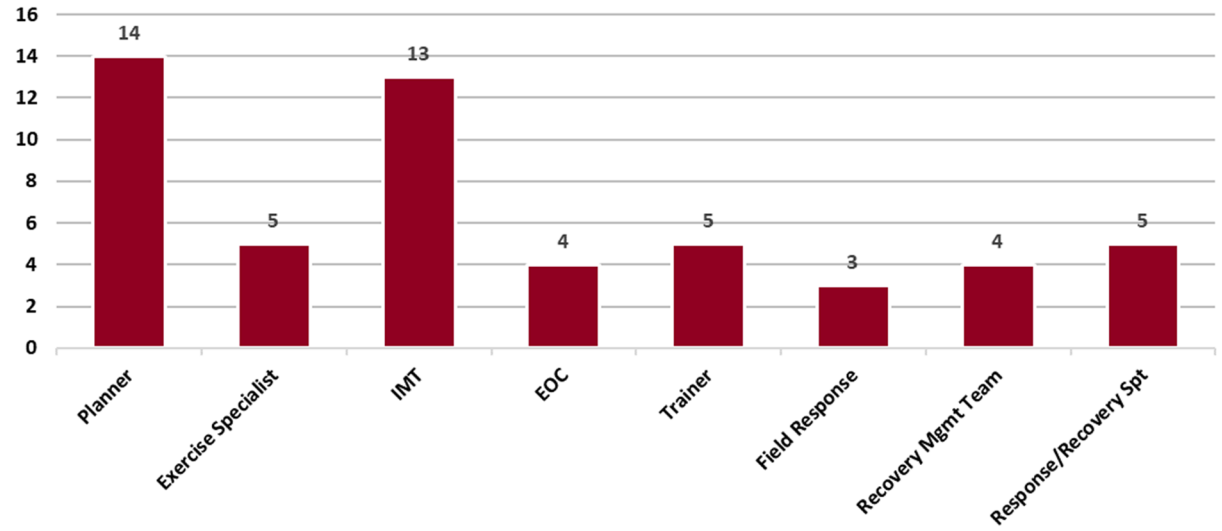
Eastern Healthcare Preparedness Coalition	
Bayview Nursing and Rehabilitation Center	Halifax County Emergency Medical Services
Beaufort County Health Department	Harborview Health Care Center
Carolina East Medical Center	Jones County Health Department
Carrolton of Nash	Lenoir County Emergency Services
Carrolton of Plymouth	Martin County Emergency Management
Carrolton of Williamston	Nash County Emergency Management
Carteret Health Care	OIC Family Medical Center
Craven County Department of Social Services	Onslow Memorial Hospital
Craven County Emergency Services	Principle
Cross Creek Healthcare	Vidant Beaufort Hospital
Crystal Bluffs Rehabilitation and Health Care Center	Vidant Bertie Hospital
Dare County Emergency Management	Vidant Chowan Hospital
Dare County Emergency Medical Services	Vidant Duplin Hospital
Dare County Public Health	Vidant EastCare
DaVita Dialysis	Vidant Edgecombe Hospital
DaVita Jacksonville Dialysis Center	Vidant Home Health and Hospice
Eastern Healthcare Preparedness Coalition	Vidant North Hospital
Edgecombe County Emergency Services	Vidant Medical Center
Edgecombe County EMS	Vidant Roanoke Chowan Hospital
Fresenius Kidney Care	Washington County Emergency Management
Fresenius Kidney Care ECU Dialysis	Willow Creek Nursing and Rehabilitation and Health Care Center
Fresenius Kidney Care Jones County Dialysis	Wilson County Emergency Medical Services
Greene County Emergency Medical Services	Wilson Medical Center

Southeastern Healthcare Preparedness Region	
Bladen County Emergency Services	New Hanover County Emergency Management
Bladen County Emergency Medical Services	New Hanover County Public Health
Bladen County Health Department	New Hanover Regional Emergency Medical Services
Bladen County Hospital	North Chase Nursing and Rehabilitation
Bladen County Hospital—Cape Fear Valley	Novant Health
Bladen East Health and Rehabilitation	Novant Health Brunswick Medical Center
Bradley Creek Health Center	Novant Health New Hanover Regional Medical Center
Brunswick County Emergency Services	Novant Health New Hanover Regional Medical Center Vitalink
Brunswick County Emergency Medical Services	Onslow County Health Department
Columbus Regional Healthcare	Pender County Health Department
DaVita Dialysis	Pender Memorial Hospital
Duplin County Public Health	Premier Living & Rehabilitation Center
J. Arthur Dosher Memorial Hospital	Southeastern Healthcare Preparedness Region
Liberty Commons Rehabilitation Center	Wilmington Fire Department
Lower Cape Fear LifeCare	Woodbury Wellness Center, Inc.
New Hanover County Government	
State	
North Carolina Department of Health and Human Services-Caswell Developmental Center	North Carolina Office of EMS
North Carolina Emergency Management – Area 5	North Carolina Public Health Preparedness and Response
North Carolina Emergency Management – Eastern Region	North Carolina State Emergency Management
Other	
American Red Cross	IPRO ESRD Network 6
Brian Center Southpoint	Novant Health Rowan Medical Center
Central Virginia Healthcare Coalition	Opportunities Industrialization Center
East Carolina University	Sava
Eastern Virginia Healthcare Coalition	Youngsville Underwater Search and Recovery Dive Team

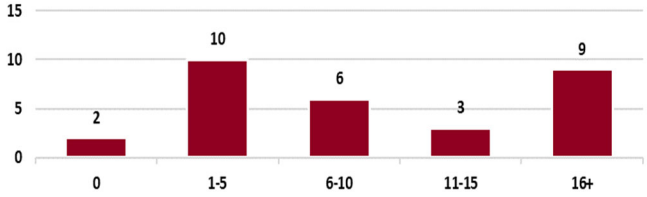
Appendix C: Participant Feedback

Part I. Participant Demographics

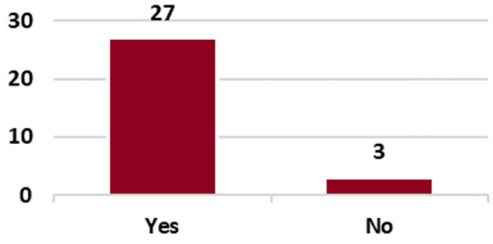
What is your role within the organization's emergency response structure?



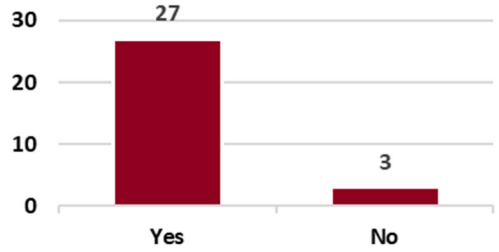
Years of experience in current role?



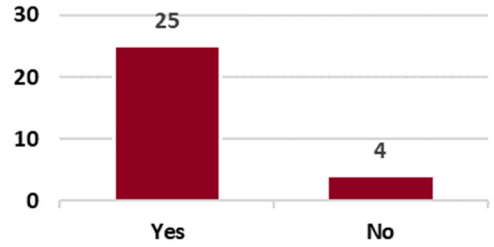
Have you received training for your assigned role in a hurricane emergency incident before this exercise?



Did you receive training on your organization's policies, plans, and procedures before this exercise?

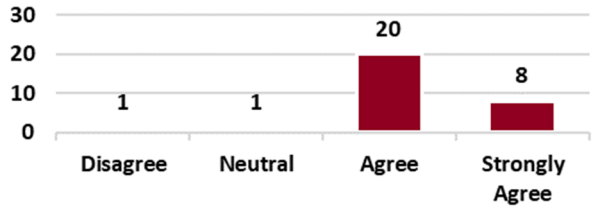


Did your previous training prepare you to participate in the discussion topics presented during the exercise?

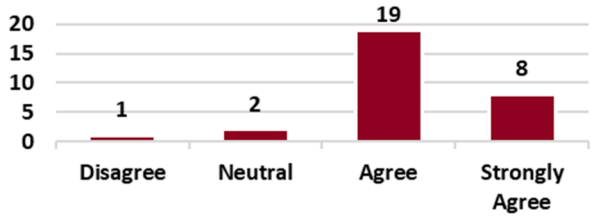


Part II: Participant Evaluation

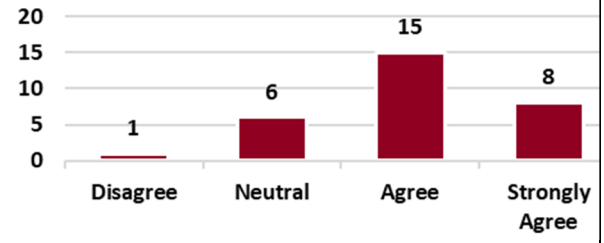
The exercise objectives were clearly identified and explained.



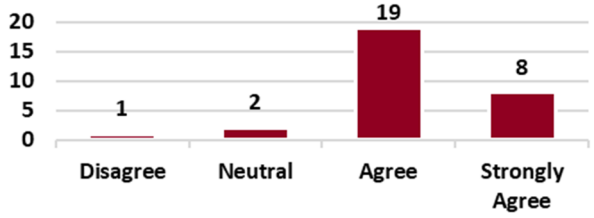
The materials provided for the exercise were pertinent and useful in allowing me to understand my role in the exercise and exercise rules of conduct.



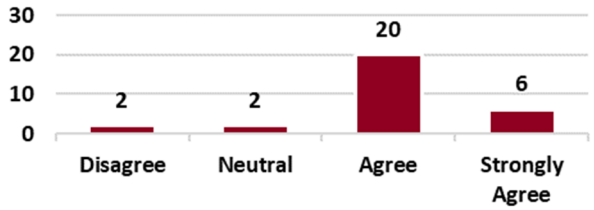
The exercise provided the opportunity to address significant decisions in support of critical mission areas.



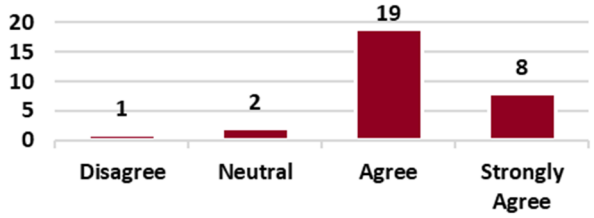
The exercise scenario allowed the participants to become actively involved.



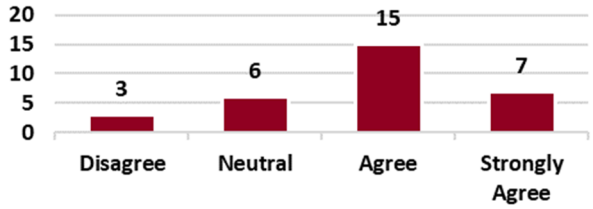
After this exercise, I am better prepared to deal with the capabilities and hazards addressed.



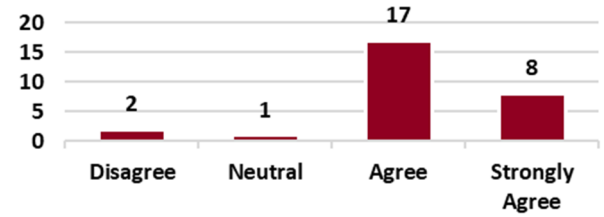
This exercise allowed me to identify areas for improvement.



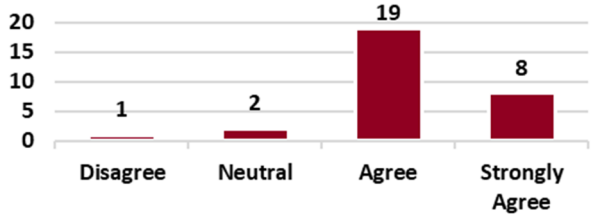
The pre-conduct exercise activities helped me to prepare for the exercise.



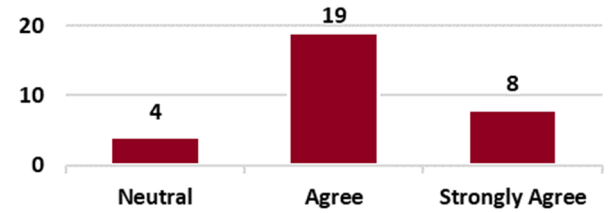
The technology used for virtual participation was appropriate and allowed for participation with in-person and virtual groups.



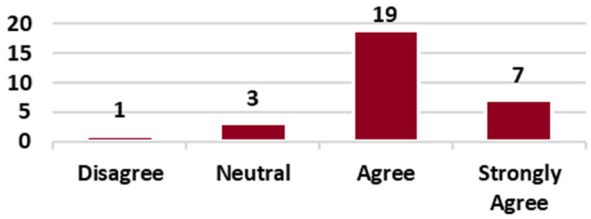
Exercise participants included the right people in terms of level and mix of disciplines.



The exercise increased my understanding about and familiarity with the capabilities and resources of other participating organizations.



Overall, the exercise was constructive and worthwhile.



Part III: Participant Observations and Recommendations

What changes would you make to improve this tabletop?	What actions would you recommend to implement them?
Bringing disciplines from transportation and volunteer/not for profit groups to learn about their barriers, priorities, and resources	Planning committees from all different disciplines/members to incorporate actions and plans into the tabletop
Better acoustics--PA system was difficult to hear at times	
Longer for more in-depth discussions	
Weather advisories were good but you typically have information of the impacts to your area	Local weather report for participants

What changes would you make to improve this tabletop?	What actions would you recommend to implement them?
Program was excellent	Assure master contact listings
With the pre-exercise activities, it would have been helpful to provide the players a briefing of what actions would have already taken place with different facilities prior to 48 hours out. When discussing evacuations and shelters being open, there could have been more details on the shelters open; gen pop or medical	The scenario could have had more details about the current situation at 48 hours out
I think the exercise achieved the objectives for healthcare facilities. Future exercises could include an explanation of what local and state public health are doing to prepare for an impending hurricane and maybe what other response partners would be doing to prepare.	Maybe just have response partners run down what their preparations look like to start off the exercise.
Due to pandemic challenges, it was great to be able to participate in a virtual setting. However, it felt like there were still quite a bit of challenges in the flow of the event between virtual and in-person participants. It would be helpful to have people identify/introduce themselves and their location. Additional participation from other home health/hospice agencies would be beneficial to learn about their experiences.	A regional EOC website would be beneficial as mentioned in the exercise. A quarterly or semi-annual meeting with home health and hospice agencies within the SHPR/EHPC would be beneficial to build relationships and share resources/knowledge.
Better media plan. The first video was impossible to hear & understand due to technical difficulties. Hard to hear other people speaking during the breakout sessions.	Practice with the media ahead of time. Microphones for all who speak.
None at this time. This was very helpful.	
In person training would be optimal	Pray for herd immunity for COVID - 19
- Did not receive prior communications such as weather - Technology issues (couldn't hear first video, no one can mute themselves) - Long breaks (should have closed off room prior) - Too much time at beginning to update names from phone numbers. Those should have joined at 830. Caused us to start 35 minutes late - This was basically geared to long term care facilities and lots of dialysis people spoke. This should have been advertised better that it was not geared towards EM and public safety	
No changes, I think for the virtual users it was a little difficult to hear but that's nothing new. Over all great presentation and very informative. It led to a lot of side discussions within our organization.	

What changes would you make to improve this tabletop?	What actions would you recommend to implement them?
Virtual was challenge. Would have liked to have even more community agencies but get discussion.	Technology :) always fun
Include public health aspects/setting up local shelters	
None. Great exercise. Very well organized.	
Bringing disciplines from transportation and volunteer/not for profit groups to learn about their barriers, priorities, and resources	Planning committees from all different disciplines/members to incorporate actions and plans into the tabletop

Exercise Hot Wash Observations

- A strength of the exercise is that it included long term health care facilities – great way to bring disciplines to the table to better understand each other's policies and procedures. Collaboration among participants was inciteful and informative. Helped to understand others points of view.
- Anticipate a real bottleneck for patient transport – I see a real problem with that.
- Found it very useful – wrote some questions to bring back to our facility – if we were to evacuate our facility, not sure how we would do it.
- Transport – from previous experience – it takes about 3 times as long to accomplish tasks than you think it will take.
- Enjoyed the discussion and collaboration. Put names to faces and discussed emergencies ahead of time.
- We are all either resource rich or resource poor – reach out to folks in your community to fill resource requests. That needed resource may be 'just down the street'.
- I liked the open format.
- I liked the format of the exercise and to see the face of colleagues. Identify barriers and discussing what worked and what doesn't work. We should do this every year prior to hurricane season. Helps us to be better prepared.
- I received an 'ah-ha' moment on issues that we need to work on.
- Great opportunity to build relationships. Where and who to call when you need something.
- I appreciate the exercise – the partnerships you make during these exercises are priceless. Learn the limitation of your local resources. Identified issues that I need to look at the regional level.

- Next thoughts – patient tracking and identification – gap identified several times during the discussion.