Foundation *for*
Healthy Communities

2019 Novel Coronavirus Response

Mid-Event After Action Report

Granite State Health Care Coalition

February 2021

The Granite State Health Care Coalition is an initiative of the Foundation for Healthy Communities financed under a contract with the State of New Hampshire, Department of Health and Human Services, with funds in part by the State of New Hampshire and/or such other funding sources as were available or required, e.g., the United States Department of Health and Human Services.

Forward

The 2020 COVID-19 pandemic response has captured the attention and effort of hospitals, healthcare, public health, emergency management, and emergency medical services (EMS) communities statewide. The immediate and sustained response efforts to contain and mitigate the pandemic's impact have broadly and expansively impacted the State of New Hampshire in new and unanticipated ways.

The Granite State Health Care Coalition (GSHCC) is a statewide healthcare coalition tasked to support and integrate with public health and medical services to increase collaboration and cooperation in emergency preparedness and response throughout the healthcare continuum.[1] The GSHCC team has maintained a focus on immediate and sustained operational response efforts throughout the COVID-19 pandemic to provide guidance and support to members and partners to maintain essential healthcare services in a rapidly shifting landscape.

Unlike past responses, the year-long response to COVID-19 is now a daily activity that will continue into the months to come. Organizations and agencies across the healthcare continuum have and will continue to learn, innovate, and adapt. However, the first months of the response to COVID-19 created a body of knowledge from which members from hospitals, healthcare, public health, EMS, and emergency management can learn, implement promising practices, and leverage innovations to improve sustained response efforts. This Mid-Event After Action Report facilitates this process of continuous improvement, sharing lessons learned, strengths, and innovative strategies to enact change.

Report Scope

This Report does not evaluate response capabilities or functions in sectors outside of healthcare and public health, except for when response activities directly impacted GSHCC members and partners. The Mid-Event After Action Report addresses the activities and key decisions made throughout the initial phase of the COVID-19 pandemic response in the State of New Hampshire from January 2020 through September 2020.

GSHCC membership and partners represent a broad spectrum of agencies and facilities across the healthcare continuum. At a minimum, the GSHCC membership includes representation from four core disciplines: hospitals, public health, EMS, and emergency management. Other members and partners represent a wide variety of healthcare and public health organizations.

Understanding and Use of Report Findings

Each GSHCC member or partner differs in size and preparedness capabilities. Therefore, not all recommendations contained within the Report will or should apply universally. Instead, members and partners can use the information and recommendations described in this Report to inform or assist with individualized improvement planning efforts. This Report also calls out systemwide strengths and areas for improvement.

With any incident, the after-action analysis and review of response focus on identifying and evaluating challenges and successes of response plans, policies, procedures, and systems. This Mid-Event After Action Report seeks to assess multiple, diverse agencies' collective response activities to a single

[1] US Department of Health and Human Services, Assistant Secretary for Preparedness and Response (ASPR). (2021). Healthcare Coalitions. https://asprtracie.hhs.gov/hcc-resources

incident. This Report uses observations from multiple members and partners to inform high-level, systemwide, or strategic findings due to this response's nature and the diversity of member and partner capabilities. Observations identified throughout the analysis component of the Report represent the response experiences of numerous members and partners.

As a result of the varying perspectives and experiences of members and partners, readers should consider that the Report does not offer specific evaluations of any single agency or organization's performance. Instead, relevant information should inform internal assessments and evaluations. Not all findings or observations will apply to every agency or organization. However, agency or organizational plans, policies, procedures, and systems that impact other stakeholders may be appropriate for consideration.

Recommendations offered are not prescriptive but offer individual agencies and organizations options to take steps tailored to their organization to achieve systemic changes. Some recommendations may be short-term in nature, addressing ongoing COVID-19 response challenges. In contrast, others may address long-term initiatives to better prepare New Hampshire's healthcare system to prepare for and respond to future pandemics and other emergencies.

This Mid-Event After Action Report is a reference that attempts to provide a body of knowledge pertaining to the first part of the response summarized as Findings and Observations from GSHCC members and partners developed through surveys, focus groups, and interviews. The purpose of this Report is to assist members and partners in assessing their response activities and impacts of critical decisions to make appropriate modifications to plans, policies, procedures, or systems for continued and future responses.

Continued evaluation and assessment of the healthcare response to the COVID-19 pandemic in New Hampshire will continue through the event's Recovery Phase. However, this Report contributes to the GSHCC team's effort to support members and partners in improving emergency preparedness and response capabilities.

1 Table of Contents

Forward i
Report Scope i
Understanding and Use of Report Findings i
Executive Summary 1
Event Prologue 1
Background 1
Methodology 2
Organization of Report 2
Event Overview 3
Summary of Notable Successes and Areas for Improvement 5
Notable Successes 5
Areas for Improvement 6
Key Findings, Observations, and Recommended Corrective Actions 7
1. Community Resilience (Preparedness) 7
1.1 Key Finding: Portability of Emergency Operations Plan Components 7
Strengths 7
1.2 Key Finding: Inconsistent Minimum Planning Standards 9
1.3 Key Finding: Continuity of Operations (COOP) Planning 9
2. Incident Management 11
2.1. Key Finding: Incident Leadership and Staff Roles 11
2.2. Key Finding: Vulnerable Populations 12
3. Information Management 13
3.1. Key Finding: Critical and Functional Communication 13
3.2. Key Finding: Consistent and Timely Guidance 14
3.3. Key Finding: Federal and State Reporting Compliance and Systems 15
4. Surge Management 16
4.1. Key Finding: Staffing 16
4.2. Key Finding: Alternate Care Sites/Flex Sites 17
5. Countermeasures and Mitigation 18
5.1. Key Finding: Medical Materials, Supplies, and Equipment 18
5.2. Key Finding: Testing Protocols and Procedures 19

Conclusions and Next Steps 20
Next Steps 20
Appendix A Abbreviations and Acronyms 21
Appendix B Participant Snapshot 22
Appendix C Detailed Event Timeline 23
Appendix D Participant Response/Feedback Summary 28
Appendix E References 30
Appendix F After Action Meeting Input 32
Appendix G After Action Meeting Input 40

Executive Summary

Event Prologue

Response to the 2019 novel Coronavirus SARS-CoV-2 became the main focus of hospitals, healthcare, public health, EMS, and emergency management agencies and organizations throughout 2020. A coordinated, worldwide response has impacted every community in New Hampshire in some way. For most GSHCC members and partners, the response to the COVID-19 pandemic has surpassed the scope and duration of any previously experienced public health emergency in New Hampshire.

The purpose of the 2019 Novel Coronavirus Response Mid-Event After Action Report is to:

1. capture and share the response experiences of GSHCC members and partners;
2. offer an analysis of response through September 2020; and
3. provide recommendations to enhance current and future planning efforts.

It is important to note that there are variances in every GSHCC member and partner organization's capabilities and resources. Not all recommendations contained within this Report will apply to every organization. The GSHCC will make the Report and summary of the data provided by surveys and interviews available to members and partners.

A COVID-19 After-Action Report Toolkit is also available to assist organizations and agencies in completing internal, agency-specific Mid-Term After Action Reviews. Once the sustained response to COVID-19 concludes, a comprehensive After-Action process will continue the work initiated by this Report. However, given the scope and duration of this incident, it is beneficial to begin the analysis and rapid improvement process as soon as possible.

To provide context to the response, the Event Overview illustrates several key decisions, the evolving healthcare priorities, and key events. It summarizes these details and is not a comprehensive list of all event activities throughout the healthcare continuum. Appendix C- Detailed Event Timeline outlines a more comprehensive timeline with additional detail and context.

Background

The scope and challenges of the COVID-19 response require a need to understand further why and how response activities were successful or require improvement to enhance subsequent COVID-19 response activities and inform future preparedness and response efforts. This Report is a mechanism to memorialize the successes and barriers experienced throughout this first phase of the pandemic response and serves as a tool for members and partners to benefit from shared experiences and lessons learned along the way.

An initiative of the Foundation for Healthy Communities, the Granite State Health Care Coalition has led the development of this Report. The State of New Hampshire Department of Health and Human Services (NH DHHS), under contract by the United States Department of Health and Human Services (HHS), financed this Report's development.

This Report provides a qualitative account of events and assesses healthcare-related preparedness and response activities. By design, the Report identifies strengths and areas for improvement, provides an analysis of member and partner experiences, and proposes recommendations for continued

improvement, focusing on GSHCC members and partners' collective response. This Report should complement subsequent After-Action Reports for COVID-19 response in the State of New Hampshire.

Methodology

The GSHCC Team tasked an independent review team to conduct the review process and compose the Mid-Event After Action Report. The review team collected data and feedback from various sources using multiple methods. Each subsequent activity aimed to gather additional detail on emerging themes and shared experiences.

GSHCC COVID-19 AAR Online Questionnaire
Responses: *185*
The questionnaire included 43 targeted questions revolving around the participant's direct involvement with the COVID-19 response. The questionnaire included open-ended responses, rating scales, and multiple-choice questions.

GSHCC General Membership Meeting Focus Groups
Participants: *100*
Subject matter experts facilitated focus groups to gain insight into strengths, areas for improvement, best practices, and key champions during the initial phase of the COVID-19 response. Focus group discussions centered on specific preparedness areas.

Key Informant or Stakeholder Interviews
Interviews: *21*
Analysts conducted one-on-one interviews with select individuals that played a vital role in the COVID-19 response. The one-hour interviews conducted in a conversational format included specific talking points and inquiries used to focus the discussion. Participants were made aware their responses would not be subject to attribution to support a candid dialogue.

The review team also reviewed open-source information to develop a common picture of response throughout New Hampshire. These sources include:

- NH DHHS Press Releases,
- NH DHHS Health Alert Network (HAN) Messages,
- NH Governor-directed Emergency Orders,
- NH State Emergency Operations Center (SEOC) Situation Reports, and
- Other Open-Source Reports and References.

On February 10, 2021, the GSHCC team and the review team will facilitate an After-Action meeting to review and validate the Report's observations. Additionally, the participants will discuss the proposed recommendations to address noted areas for improvement.

Organization of Report

This report presents key findings within the analysis component of the Report supported by observations made through surveys, focus groups, and interviews. To categorize or group experiences and general observations from respondents, the review team leveraged a variation of the Hospital

Preparedness Program-Public Health Emergency Preparedness (HPP-PHEP) domains.[2] Key findings are associated with a domain based on a root-cause analysis of participant observations and experiences. Additional analysis of identified strengths and areas for improvement with accompanying observation statements and narrative provides a further context within each key finding statement. Recommended corrective actions follow each key finding area.

The Report also contains several appendices to provide additional references and supporting data.

Appendix A - Abbreviations and Acronyms
Appendix B - Participant Snapshot
Appendix C - Detailed Event Timeline
Appendix D - Participant Feedback Summary
Appendix E - References
Appendix F - After Action Meeting Input
Appendix G - GSHCC Mid-Event Participant Feedback

Event Overview

In **January 2020**, the New Hampshire Department of Health and Human Services (NH DHHS), New Hampshire Department of Safety, Division of Homeland Security and Emergency Management (HSEM), and GSHCC members and partners became aware of a novel coronavirus circulating in China and began coordination of initial monitoring activities. Situational awareness calls and briefings from NH DHHS, the Centers for Disease Control and Prevention (CDC), professional associations, other healthcare leaders, and stakeholders increased rapidly by **early February 2020** and continued throughout the following months.

On Monday, **March 2, 2020**, NH DHHS, Division of Public Health Services (DPHS) announced the first presumptive positive case in the State of New Hampshire.[3] This individual became symptomatic after returning from travel to Italy. The second New Hampshire case was a close contact exposure due to non-adherence to a self-isolation directive of the New Hampshire index case. At this time, NH DHHS began implementing contact tracing operations.

President Trump issued a proclamation declaring a National State of Emergency in response to the COVID-19 pandemic on **March 13, 2020.** Governor Christopher T. Sununu declared a State of Emergency in New Hampshire the same evening.[4] The NH Department of Safety, HSEM activated the State Emergency Operations Center (SEOC) to support the coordination of a statewide response.[5]

---

[2]Centers for Disease Control and Prevention. (2020). HPP-PHEP Preparedness Domains. https://www.cdc.gov/cpr/whatwedo/phep.htm

[3]New Hampshire Department of Health and Human Services. (2020, March 2). Coronavirus Disease 2019 (COVID-19) outbreak, update #5: First presumptive positive case in New Hampshire; NH Public Health Laboratory begins COVID-19 testing. *NH DHHS Health Alert Network*. https://www.dhhs.nh.gov/dphs/cdcs/documents/covid-19-update5.pdf

[4] State of New Hampshire, Office of the Governor. (2020, March 13). *Executive Order 2020-04: An order declaring a state of emergency due to Novel Coronavirus (COVID-19).* https://www.governor.nh.gov/news-and-media/governor-chris-sununu-issues-executive-order-declares-state-emergency

[5] State of New Hampshire, Office of the Governor. (2020, March 13). *State of New Hampshire activates Emergency Operations Center.* https://www.governor.nh.gov/news-and-media/state-new-hampshire-activates-emergency-operations-center

Some initial actions and decisions affecting the healthcare sector in New Hampshire included deciding to close schools, suspend elective procedures, and implement stay-at-home orders. Another impactful decision was Governor Sununu's issuance of an Emergency Order on **March 18, 2020**, that expanded access to telehealth across the state to preserve healthcare delivery capacity and protect healthcare providers from healthcare-associated exposures to COVID-19.[6] This order was among the first of many strategic and policy decisions that directly impacted New Hampshire's healthcare infrastructure as a whole or caused second and third-order effects to individual GSHCC member and partner organizations.

On **March 20, 2020**, President Trump invoked the Defense Production Act, which compels manufacturers to produce the goods and supplies needed for national defense. For COVID-19, the Act supported the mass production of medical supplies, including gloves, gowns, masks, and other PPE desperately required by the healthcare community.[7] The following week, on **March 23, 2020**, New Hampshire erected the first Alternate Care Site (ACS) in the state in anticipation of medical surge. This site was established at Southern New Hampshire University (SNHU) with support from the University, the City of Manchester Mayor's office, health, fire, and police departments, the New Hampshire National Guard, Catholic Medical Center, Elliot Hospital, NH DHHS, other state partners, and Dartmouth-Hitchcock Medical Center. In subsequent days and weeks, additional sites were established across the state. At the time of the publication of this report, the activation of Alternate Care Sites in New Hampshire was not required.

Governor Sununu issued an Executive Order on **April 9, 2020**, to support the temporary non-congregate sheltering of healthcare workers and first responders targeted to limit exposure to those who share homes with personnel at risk of exposure.

On **April 29, 2020**, the first five community-based testing locations were set up in New Hampshire with a mobile testing team.[8] The sites in Claremont, Lancaster, Plymouth, Tamworth, and Rochester featured drive through models staffed by the New Hampshire National Guard and Metropolitan Medical Response System (MMRS) personnel. DHHS also partnered with ConvenientMD to provide telehealth screenings.

Throughout response, there was an emphasis on the need for timely information critical to healthcare operations statewide and nationally. Additional reporting requirements were issued by HHS to require hospitals and long-term care facilities to report on a variety of key metrics throughout the response. These metrics continued to evolve throughout subsequent months and remain a condition of participation with Centers for Medicare and Medicaid Services (CMS) at the time of this Report.

The New Hampshire *Stay at Home 2.0* guidance began on **May 11, 2020,** as some businesses began re-opening with restrictions, but the public was encouraged to stay at home unless necessity required

[6] State of New Hampshire, Office of the Governor. (2020, March 23). Emergency Order #15: Temporary authorization for out of state medical providers to provide medically necessary services and provide services through telehealth. https://www.governor.nh.gov/sites/g/files/ehbemt336/files/documents/emergency-order-15.pdf

[7] The White House. (2020, March 27). Statement from the President regarding the Defense Production Act. https://trumpwhitehouse.archives.gov/briefings-statements/statement-president-regarding-defense-production-act/

[8] NH Department of Health and Human Services. (2020, April 29). NH DHHS announces new community-based COVID-19 testing. https://www.dhhs.nh.gov/media/pr/2020/04292020-testing-program.htm

otherwise.[9] By **mid-May**, the Federal government announced Operation Warp Speed. This public-private partnership was initiated to facilitate and accelerate the development, manufacturing, and eventual distribution of the COVID-19 vaccines, therapeutics, and diagnostics.[10]

By **mid-June,** there were multiple incentives to address the shortage of healthcare workers that the healthcare system was facing. These incentives included the Long-Term Care Stabilization Program, which offered a monetary stipend for frontline workers to remain or rejoin the workforce. An Emergency Order issued allowed medical providers to reactivate a license that was in good standing within the last three years.

On **July 27, 2020,** Moderna and Pfizer announced vaccine candidates were moving into the final phases of development and trials. Following these announcements, Governor Sununu extended the State of Emergency declaration through September 1, 2020.

Throughout **August** and **September 2020**, NH DHHS and healthcare partners across the state began the process of transitioning from community-based testing sites operated by the New Hampshire Air National Guard to testing sites at hospitals, pharmacies, and urgent care centers.

The pandemic's impact in the following months quickly exceeded the scope, duration, and anticipated resource needs of the healthcare system response. Intensifying response challenged GSHCC members and partners to adapt to swiftly changing guidelines, regulations, Emergency Orders, science, and operational response requirements associated with the COVID-19 pandemic.

Organizations turned to mutual aid for support due to the increasing number of statewide cases. The ability to provide or receive mutual aid has been a fundamental planning assumption of most plans. However, plans were stressed when little or no mutual aid was available through traditional channels, creating a need for critical and innovative state-wide decision-making and planning within and between jurisdictions and agencies.

Response to COVID-19 continues and will persist for many months to come. Members and partners from across the healthcare continuum will continue to adapt response strategies and tactics as science and promising practices continue to evolve.

By summer 2020, stakeholders recognized the need to conduct a Mid-Event review of the response to COVID-19 to identify and implement improvements and corrective actions in anticipation of additional waves of COVID-19 cases and fatalities throughout the state.

Summary of Notable Successes and Areas for Improvement

Notable Successes

The COVID-19 pandemic resulted in an unprecedented response effort by hospitals, healthcare, public health, EMS, and emergency management. In general, inter-agency collaboration contributed to an

[9] State of New Hampshire, Office of the Governor. (2020, May 1). *Governor Chris Sununu announces Stay At Home 2.0.* https://www.governor.nh.gov/news-and-media/governor-chris-sununu-announces-stay-home-20

[10] US Department of Health and Human Services. (2020, May 15). *Trump administration announces framework and leadership for 'Operation Warp Speed.'* https://www.hhs.gov/about/news/2020/05/15/trump-administration-announces-framework-and-leadership-for-operation-warp-speed.html

integrated healthcare system response. This collaboration must continue to sustain mitigation efforts and preserve partners' and members' ability to maintain essential healthcare services.

The review team identified the following examples that represent notable successes throughout the healthcare system:

Pre-Existing Emergency Preparedness and Planning Requirements
Across the healthcare system, GSHCC members and partners are subject to regulations that require the development and maintenance of emergency plans, including Emergency Operations Plans (EOPs), Continuity of Operations (COOP) plans, and hazard-specific annexes to maintain participation in federal programs, such as Medicare and/or Medicaid through the CMS. These regulations provided various healthcare providers with an incentive to invest time and energy into emergency preparedness activities within their agencies or organizations before the COVID-19 pandemic.

Partnerships
Regional partnerships proved to be a valuable source of resources and information. Information and resource sharing were and remain critical to the pandemic response.

Situational Awareness Communications
Consistent and reliable mechanisms for sharing information with various members and partners supported clear lines of communication between stakeholders and public health and healthcare leaders. This response included a significant number of structured communications utilizing multiple platforms that created collaboration opportunities. Communication methods included weekly partner calls, daily emails, Health Alert Notices, and interaction among partners.

Alternative Vendors and Creative Procurement Strategies
Innovative practices to procure essential resources through nonconventional avenues helped support the safety of responders, healthcare workers, and patients. Personal protective equipment (PPE) was an essential factor for these personnel to continue to provide services. The added awareness of vendors to procure essential resources through a resource vendor list distributed by the GSHCC team on a regular basis was also a valuable resource to members and partners.

Areas for Improvement

Initial response to the COVID-19 pandemic also required GSHCC members and partners to implement plans and supporting procedures during a demanding and resource-intensive event. There are several key opportunities for improvement (not all-inclusive) that may improve future response if addressed.

Insufficient Emergency Operations Plans
Many EOPs failed to address sustained response to an incident of this scope. Some gaps include additional considerations for prolonged staffing shortages, alternate strategies for procuring essential resources and supplies and managing multiple fatalities.

Inefficient Communications
Communication between key stakeholders lacked efficiency and the established line of communication for facilities and organizations to voice concerns and difficulties they were experiencing. This communication breakdown was detrimental to the well-being and proficiency of personnel working on the frontline during this response.

Conflicting Guidance
There was overall confusion surrounding state and federal leadership's guidance and disseminated to facilities and organizations. The process for circulating the information lacked consistency. On multiple occasions, conflicting information released hindered the proficiency of the response.

Key Findings, Observations, and Recommended Corrective Actions

Findings presented in this section are organized by "Six HPP-PHEP Domains of Preparedness" adopted and modified by the GSHCC (Community Resilience "Preparedness," Incident Management, Information Management, Surge Management, and Countermeasures and Mitigation). Within each domain are key findings with strengths, areas for improvement, and recommended activities to strengthen additional healthcare response. Observations from survey responses, stakeholder interviews, and focus groups support strengths and areas for improvement.

1. Community Resilience (Preparedness)

Develop, maintain, and leverage collaborative relationships among government, community organizations, and individuals that enable them to effectively respond to and recover from disasters and emergencies.

1.1 Key Finding: Portability of Emergency Operations Plan Components

"Our EOP was a general plan and did not specify anything specific to an infectious disease outbreak."
Behavioral Health Professional

Strengths

1.1.1. Many participants identified that existing EOPs could be adapted to meet the needs of the evolving response. Furthermore, plans were current and maintained for most participants.

Areas for Improvement

1.1.2. While participants had maintained and updated EOPs, many EOPs lacked depth to provide guidance on emerging issues specifically associated with this response.

Observation: Noted gaps included comprehensive resource management plans for PPE, staffing shortages or contingencies, and fatality management.

Observation: Many plans lacked contingencies or redundant strategies to obtain resources when traditional vendors and existing supply chains could not provide resources in the quantities needed or in a timely manner.

1.1.3. Planning assumptions surrounding mutual aid proved ineffective for a sustained response.

Observation: Existing mutual aid agreements failed to account for an incident impacting all partners simultaneously. Assumptions regarding access to resources through mutual aid became unrealistic and contributed to a breakdown in response efficacy and jeopardized healthcare worker and responder safety.

1.1.4. EOPs failed to adequately address contingencies or procedures for sustained and recurring staffing shortages.

Observation: Sustained response to the pandemic and increasing staffing demands exacerbated pre-existing staffing shortages in the healthcare workforce. COVID-19 response exposed healthcare worker vulnerability and the urgency to retain existing staff and obtain additional support.

1.1.5. Participants cited the lack of understanding of fatality management plans as an additional planning gap.

Observation: Staff and stakeholders lacked a clear understanding of the fatality management plans that were in place. There was no opportunity to effectively disseminate, educate, or exercise the newly drafted *State of New Hampshire DHHS Mass Fatality Management Plan* before the COVID-19 response began.

1.1.6. EOP update processes do not always include all relevant stakeholders.

Observation: Not all participants felt their perspectives were represented during the planning process to meet emerging needs as new plans were developed.

Recommendations

The following recommended activities may address the areas for improvement to increase the portability and applicability of EOPs:

- Update existing EOPs to include additional hazard-specific planning components that address topics such as long-term staffing contingencies, supply chain instability, and fatality management.
- Provide additional opportunities for education and training on multi-jurisdictional plans.
- Update institutional planning goals and objectives to address gaps in emergency plans understood through response.

1.2 Key Finding: Inconsistent Minimum Planning Standards

"Too much preparedness for natural disasters. Pandemic was always a low threat. There was no pandemic-specific training or exercise."
Nursing Home Administrator

Areas for Improvement

1.2.1. There is significant variation in preparedness and planning levels among healthcare agencies and organizations statewide.

Observation: Participants from similar facility types described significant preparedness variations in their response to COVID-19.
Observation: Discrepancies in planning and preparedness levels, awareness, and training exist despite standardized planning requirements.
Observation: Participants acknowledged a lack of prior knowledge and training to respond to an infectious disease response of this scope and severity. Personnel indicated they would have felt more prepared if they had more education and training to implement the emergency plans in place.

1.2.2. Failure to effectively implement the Hospital Incident Command System (HICS) or the Incident Command System (ICS) resulted in less efficient responses for members and partners.

Observation: Healthcare facilities and providers have varying awareness and proficiency in incident management systems.
Observation: Inconsistent adoption of HICS/ICS impaired the healthcare system's ability to establish a common language and implement consistent protocols statewide across varying disciplines.

Recommendations

The following recommended activities may address the areas for improvement regarding inconsistencies in minimum planning standards:

- Provide ongoing education and training opportunities for HICS/ICS.
- Enhance opportunities for personnel to become familiar with procedures and protocols through additional training and exercises.
- Increase awareness of minimum planning standards for healthcare agencies statewide.

1.3 Key Finding: Continuity of Operations (COOP) Planning

"Policies and procedures around this type of incident did not cover the complexity and duration that this incident has caused."
Government Agency

Strengths

1.3.1. Partners and members could implement and execute continuity procedures despite not always having formalized COOP plans.

Observation: Respondents consistently cited a commitment to teamwork as a significant area of strength throughout the response. Personnel demonstrated initiative and were willing to contribute beyond typical roles and responsibilities to aid response.

1.3.2. Personnel demonstrated creativity and innovation to develop solutions for unmet needs.

Observation: Many facilities could transition to remote work and implement or expand telehealth services with minimal delays.

Areas for Improvement

1.3.3. Facility-level COOP plans did not address a variety of additional concerns.

Observation: Gaps in planning became the focus of rapid planning efforts. One critical component often overlooked was the consideration of unexpected staff turnover. High numbers of personnel experienced fatigue and burnout due to COVID-19 response. Some participants reported a "mass exodus" of staff and personnel that was unexpected during this event and not included initially as a COOP plan component.

Observation: COOP plans did not always anticipate or accommodate the response's long-term nature. This oversight coupled with a diminished mutual aid system created gaps in response operations resulting from fatigue and a general lack of personnel.

1.3.4. Lack of familiarity with COOP plans, existent or not, created a need for ad hoc planning.

Observation: Agencies and organizations held meetings to develop a strategy or plans for remote working after response had already started.

Observation: Personnel lacked familiarity with COOP plans within respective agencies and organizations and sometimes were not aware of such a plan existing.

Recommendations

The following recommended activities may address the areas for improvement regarding COOP planning:

- Update or develop COOP plans that include considerations for long-term staffing shortages and diminished staff support.
- Provide additional opportunities for staff and personnel to become familiar with COOP plan elements through education, training, and exercises.

2. Incident Management

Healthcare and public partners must coordinate an effective response through all phases of the incident utilizing NIMS ICS and integrating with ESF-8.

2.1. Key Finding: Incident Leadership and Staff Roles

"Staffing coordination on a statewide level is non-existent. Need an agency or organization to take the lead for a pandemic."
Nursing Home Personnel

"There was overlap within the organization for some responsibilities. That overlap caused some complications to making decisions."
EMS Representative

Strengths

2.1.1. Partnerships within communities and between jurisdictions were essential to meeting multiple stakeholders' needs throughout the response.

Observation: Respondents noted that early into the response reaching out to existing partners proved beneficial for guidance, resources, and networking.

2.1.2. A Joint Information Center (JIC) and the activation of Emergency Operations Centers (EOCs) early in the response allowed for coordination in response and also gathered representatives from necessary agencies to manage communication, coordination of supplies and equipment delivery, monitor response activities, and provide essential resources to local, state and federal partners.

Observation: Respondents noted these proactive actions were appreciated and necessary to step out ahead of the rapidly expanding response.

Areas for Improvement

2.1.3. The lead organization or entity for statewide response coordination was unclear, creating confusion when identifying lines of authority.

Observation: Stakeholders were unable to identify the lead agency for response. Participants were unclear if NH HSEM, NH DHHS, or NH DHHS DPHS led response.

Observation: Feedback from interviews, surveys, and focus groups indicated difficulty identifying and understanding the command structure, lines of authority, and lead state agency for the COVID-19 response. Federal, state, local, and organizational levels sometimes conflicted causing confusion and delays in taking needed actions.

Observation: Guidelines/Health Alert Notices were inconsistently disseminated. This led to confusion among organizations as to the latest guidance and in some cases set

unrealistic expectations for the implementation of the guidance. Many required new policies or procedures to be implemented without advanced notice.

Recommendations

The following recommended activities may address the areas for improvement regarding incident leadership and response staff roles:

- Identify and disseminate plans that outline lead agencies and supporting agencies for different emergencies.
- Provide additional opportunities to familiarize local, state, and federal agencies with coordination efforts during emergency response.

2.2. Key Finding: Vulnerable Populations

"There was confusion between the state and the cities and even private sector over what could be done to support these people in need."

Emergency Management Professional

Areas for Improvement

2.2.1. Coordinating wraparound services to vulnerable populations was inefficient and independent of the overall response.

Observation: There was a breakdown in coordination efforts among various facilities and organizations, and state agencies that would typically support these individuals, leading to confusion when the demand arose during the response.

Observation: A determination of which agency was responsible for organizing and leading response efforts for vulnerable populations was unclear. This issue resulted in many people attempting to resolve the concerns with duplication of effort and lack of efficiency.

Observation: A notable breakdown in coordination involved the response effort as it pertained to the community's population experiencing homelessness and mental illness. There was no clear communication over the next steps to provide support for these individuals. The portion of this population that previously was utilizing shelters created confusion for facilities and organizations to determine alternative options once shelters reduced occupancy due to COVID-19 social distancing restrictions.

Recommendations

The following recommended activities may address the areas for improvement regarding vulnerable populations:

- Update plans to include additional depth or considerations for planning with vulnerable populations.

- Designate lead and supporting agencies to plan and implement plans to support vulnerable populations during emergencies.

3. Information Management

Strengthen information sharing among health and public health partners

3.1. Key Finding: Critical and Functional Communication

"They're (State Health) are asking us to do things without giving us the way to do it."
Nursing Home Staff

Strengths

3.1.1. This response included a significant amount of structured communications utilizing multiple platforms that created collaboration opportunities. Communication methods included weekly partner calls, daily emails, Health Alert Notices, and interaction among partners.

Areas for Improvement

3.1.2. While frequent and structured, communication did not meet the needs of stakeholders.

Observation: Communications were deficient in key areas.
Observation: Rural and smaller organizations did not have the same access to information as similar organizations.

3.1.3. There was no mechanism in place to hear stakeholder concerns regarding life-threatening issues.

Observation: State guidance and regulations on staffing, testing, and lab space complicated facility-level response efforts. Many on the frontlines struggled to find an appropriate avenue to communicate concerns, creating a perception that these stakeholders could not advocate for themselves or provide input on state actions.
Observation: Existing communication channels from stakeholders to the state were unclear during the response.
Observation: Key stakeholders were often informed of changes in guidance at the same time as the public. This lack of transparency provided little time for healthcare and public health organizations to understand and adapt to the information or guidance prior to its release.

Recommendations

The following recommended activities may address the areas for improvement regarding critical and functional communication:

- Continue to identify and engage key stakeholders in consistent bi-directional communication across multiple platforms.
- Create or enhance a mechanism for stakeholders to provide feedback and voice concerns.
- Conduct a workshop to identify and gather appropriate stakeholders and maintain engagement in all processes.

3.2. Key Finding: Consistent and Timely Guidance

"One large challenge we faced was differing guidance from NH DHHS and other jurisdictions. We often found ourselves stuck between these two entities."
Hospital Staff

Strengths

3.2.1. Information was available through multiple outlets, including the NH COVID-19 Dashboard, HANs, and partner communications, which assisted with information sharing.

Areas for Improvement

3.2.2. Frequently changing guidance on prevention and mitigation of COVID-19 created confusion.

Observation: Rapidly changing guidance often led to discrepancies in guidance issued by local, state, and federal authorities. These discrepancies delayed response efforts for many members and partners as they consistently had to change response strategies and operations.

Observation: The release of updated guidance was often unpredictable and did not always occur promptly. For example, HANs were released at varying intervals, at varying times, and on inconsistent days, forcing personnel to scramble to adjust to meet compliance timelines.

3.2.3. Lack of clarity in state-issued guidance created concern among stakeholders.

Observation: Not all guidance applied to the needs of all agencies or organizations. For example, those working in non-traditional medical settings or patients with behavioral health concerns struggled to adapt guidance to fit their distinct environments and needs. Dissemination of guidance written for a larger healthcare audience would have been more useful in practical application.

Recommendations

The following recommended activities may address the areas for transparent and timely guidance:

- Establish parameters for information releases to be more consistent and predictable for the audience.
- Consider utilizing SMEs or stakeholders from various healthcare settings in policy creation and decision making.

3.3. Key Finding: Federal and State Reporting Compliance and Systems

Strengths

3.3.1. Daily reporting on federally required metrics and information developed a common operating picture, informed allocations of critical resources, and supported additional resource requests.

Areas for Improvement

3.3.2. The lack of pre-established reporting mechanisms and variety of reporting pathways among federal and state agencies impeded the ability of responding organizations to efficiently respond to requests for information or comply with required reporting elements.

Observation: The reporting infrastructure between local, state, and federal agencies to support the level of information sharing required by this event for in-patient information, testing, and other selective information needs.

Observation: Antiquated and manual processes (such as faxing documents) for data submission created additional challenges for staff not accustomed to providing detailed data on a daily basis and slowed the sharing of critical information between necessary agencies.

Observation: Just-in-time development of reporting pathways created additional burden on staff and did not allow the time required for staff to become familiar with the expectations for use or functionality of "patchwork" systems.

Observation: Initially, there were multiple possible reporting pathways to comply with federal requests for information, but not all facilities had access or familiarity with these systems.

3.3.3. Unfamiliarity with existing databases, information sources, and the failure to anticipate future response needs established a precedent for cascading requests for very specific information with low or no notice.

Observation: Requested information often did not include stakeholder input for consideration prior to becoming mandatory. End users did not always understand why metrics were needed or how the information would be used.

Observation: Unilateral decisions to implement additional metrics or modify existing data reporting requirements often came with little or no notice.

Observation: Requests for uncoordinated information from multiple federal agencies and the State of NH complicated how information was collected and reported. Different agencies were unable to consolidate existing information, resulting in additional requirements to report on very specific data that were close, but not close enough, to data already being collected. Data collection was not streamlined.

Observation: Ambiguity in metric definitions and variable frequencies for required reporting caused additional confusion for staff and challenged the validity of the data collected.

3.3.4. Compulsory reporting added additional stress to healthcare systems and facilities.

Observation: Compliance with reporting was accompanied with the threat of not receiving life-saving therapeutics and other critical supplies required for response. This stress was further compounded by threat of eligibility for reimbursement with the CMS.

Observation: The low or no notice nature demand for data and information resulted in rapid, less ideal modifications to data systems, workflows, and other processes. Many organizations had to manually cultivate data from disparate internal systems to satisfy these requests.

Observation: Lack of clarity on testing guidelines as they rapidly evolved. The type of test, rhythm of testing, how to access test results, and what the test results meant for staff and residents or patients was constantly shifting. Many organizations were not familiar with or had previous experience reporting test results which caused confusion and delays in reporting.

Recommendations

Recommendations to improve in this area are still under consideration and require additional feedback from GSHCC members and partners.

4. Surge Management

Strengthen coordination among health and public health partners to address medical surge needs

4.1. Key Finding: Staffing

"We have just as many patients or more, and we can't increase nursing ratios, so the only way you can do that is with more staff but finding them is next to impossible right now."

Nursing Home Staff

Strength

4.1.1. Healthcare facilities modified staffing structures to minimize exposure risk and mitigate staff fatigue.

Observation: Implementing COVID strike teams within at least one hospital allowed the facility to mitigate potential staff exposures by reducing contacts between patients, staff, and peers. These strike teams were also rotated to provide a break from caring for COVID-19 patients.

Areas for Improvement

4.1.2. Pandemic conditions contributed to additional staffing shortages and strain on healthcare workers throughout the response.

Observation: Staffing shortages and a shortage of medical providers existed in varying degrees before the COVID-19 pandemic.

Observation: Concern for personal safety, family health and safety, risk of exposure, and the unknown contributed to personnel shortages throughout healthcare. According to the CDC, 36% of healthcare personnel hospitalized with COVID-19 infections were nurses.[11]

4.1.3. There is a general lack of systems beyond mutual aid and traditional pathways to recruit and hire additional personnel.

Observation: Agencies and organizations had to compete for the same, few healthcare workers willing and able to work. Pre-established contracts and arrangements with staffing agencies were unable to accommodate the many requests for clinical staff across the state and nationally.

Observation: Staff fatigue and burnout were significant challenges to maintaining staffing levels. Even when offering overtime, staff were too tired to put in even more hours.

Observation: There was a lack of clarity with non-state organizations with how to best access out-of-state clinical resources.

4.1.4. Added rules and regulations created barriers and additional challenges to maintain and augment staffing.

Observation: Regulators issued additional requirements intended to support the safety of healthcare workers and patients, which complicated staffing support.

Observation: New Hampshire guidance regarding the 10-day quarantine rule for healthcare workers transitioning between facilities prevented healthcare personnel employed with multiple agencies or organizations to continue to support more than one organization at a time during response contributed to the staffing shortage.

Recommendations

- Continue to enhance emergency volunteer staffing systems through ESAR-VHP and MMRS to assist during extreme staffing shortages.
- Conduct tests and exercises to validate these systems.

4.2. Key Finding: Alternate Care Sites/Flex Sites

Strengths

4.2.1. To expand capacity to care for patients in acute care settings, partners from across the State of New Hampshire successfully implemented plans to deploy multiple Alternate Care Sites or Flex Sites. The assistance of the New Hampshire Air National Guard, Regional Public Health

[11] Kambhampati AK, O'Halloran AC, Whitaker M, et al. (2020). COVID-19–Associated Hospitalizations Among Health Care Personnel — COVID-NET, 13 States, March 1–May 31, 2020. *MMWR Morbidity and Mortal Weekly Report. 69,* 1576–1583.

Networks, local emergency management, hospital systems, state partners, and private partnerships contributed to the effort's success.

Observation: Significant collaboration and coordination across jurisdictions and between agencies facilitated rapid planning and operationalization.

Observation: Pre-existing plans served as a foundation for more detailed ad hoc planning efforts.

Areas for Improvement

4.2.2. The lack of structured guidance created confusion regarding the demobilization of ACS's.

Observation: There is a lack of structured guidelines regarding demobilization triggers and how demobilization should occur. Currently, some ACS's in the state remain ready for use, and some have partially demobilized.

Recommendations

- Continue to leverage and enhance existing plans for Alternate Care Sites/Flex Sites.
- Further develop Standard Operating Procedures (SOPs) or guidelines for when and how to demobilize an ACS.

5. Countermeasures and Mitigation

Strengthen mitigation activities to effectively coordinate the administration of pharmaceutical and non-pharmaceutical interventions

5.1. Key Finding: Medical Materials, Supplies, and Equipment

"There were challenges around PPE acquisition and lack of a streamlined process without the state's stockpile and distribution. Also, the DHHS website and Governor's website changed often, which cause more confusion."

Association Personnel

Strengths

5.1.1. Despite an unstable supply chain, responding agencies worked collaboratively to source and procure necessary materials, supplies, and equipment to support response and healthcare delivery.

Observation: The GSHCC circulated vendor lists to members and partners to find alternate vendors for critical supplies.

Observation: The state was inventive and proactive in securing and supplying PPE and other resources from non-traditional sources, including establishing public-private partnerships to expedite supply shipments.

Observation: The GSHCC aided in monitoring PPE and other critical supply levels through the development and maintenance of an event in Juvare's EMResource platform, and

the NH DHHS ESU was able to leverage EMSupply to manage inventory and shipping to partner and member requests coming in through WebEOC.

Areas for Improvement

5.1.2. Plans lacked a specific process or procedure to access and maintain inventories of supplies and equipment.

Observation: The process to request resources, including PPE and other supplies, combined several different platforms and programs that were not always clear or well-understood by partners and members.

Observation: Lack of a consistent guideline or methodology to calculate PPE burn rates of critical supplies varied between agencies, creating variability in the numbers of requests between facilities.

Observation: There is an overall need for PPE stockpile, rotation, and distribution processes that are managed and maintained regularly. The Emergency Use Authorization for expired PPE allowed for continued use for some already expired items.

Recommendations

- Develop or enhance plans to address alternative strategies for acquiring essential medical materiel, supplies, and equipment required for multiple kinds of events.
- Increase staff and personnel opportunities to become more familiar with procurement processes, including how to calculate burn rates for essential items.
- Provide educational opportunities on the implementation of conservation methods and procedures.
- Look at areas for vendor managed inventory to include stockpiling and rotation of stock.

5.2. Key Finding: Testing Protocols and Procedures

"The testing protocol and delay in test results [were] concerning throughout the summer months. Immediate information was critical to be able to manage the resident population and it was frustrating at times, waiting up to 7 days for test results."

Healthcare Professional

Areas for Improvement

5.2.1. Significant inequities in testing capabilities emerged across the healthcare continuum.

Observation: Testing procedures were not uniform between different agencies and organizations throughout the state.

Observation: Multiple sources of guidance created inconsistency regarding testing requirements and procedures.

Observation: Reporting test results lacked expediency, potentially increasing the risk of exposure.

Observation: There was difficulty in obtaining the necessary laboratory contracts.

Recommendations

Recommendations to improve in this area are still under consideration and require additional feedback from GSHCC members and partners.

Conclusions and Next Steps

The COVID-19 pandemic has demanded an unprecedented response across the state of New Hampshire. The heroic efforts that have taken place throughout the healthcare system and other communities are notable.

The review team gained insight into some best practices to memorialize and share across the healthcare community through analysis of information captured through surveys, interviews, and response documentation. The team also identified areas for improvement to improve continued and future response. The overarching themes from participants include:

- A lack of attention to or focus on preparedness activities for an event of this magnitude;
- Communications and contributions from everyone are critical but not always captured during decision-making processes; and
- Resources play a critical role in response efforts and should be incorporated in all planning efforts.

The key findings, observations, and recommendations found within this Report identify and document numerous lessons learned during this pandemic response. This Report supports the ongoing efforts of the Granite State Health Care Coalition and the healthcare system in the state of New Hampshire throughout a sustained response to COVID-19.

Next Steps

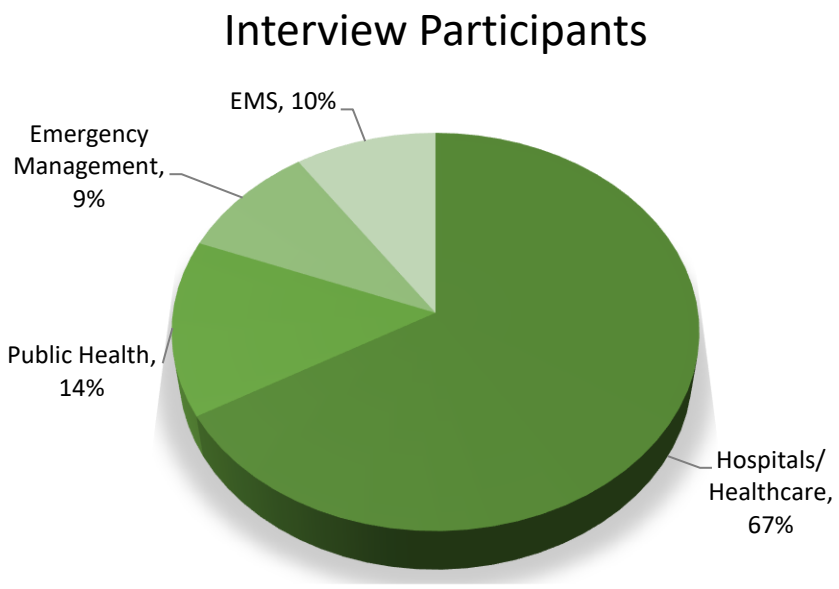
The 2019 Novel Coronavirus Mid-Event After Action Report is a reference for a complete and comprehensive after-action review process. As previously indicated in this Report, GSHCC members and partners should develop internal after-action reports and improvement plans (AAR/IP) specific to their organization's response. The GSHCC directed the review team to develop a toolkit to assist members in that process and is available as a resource.

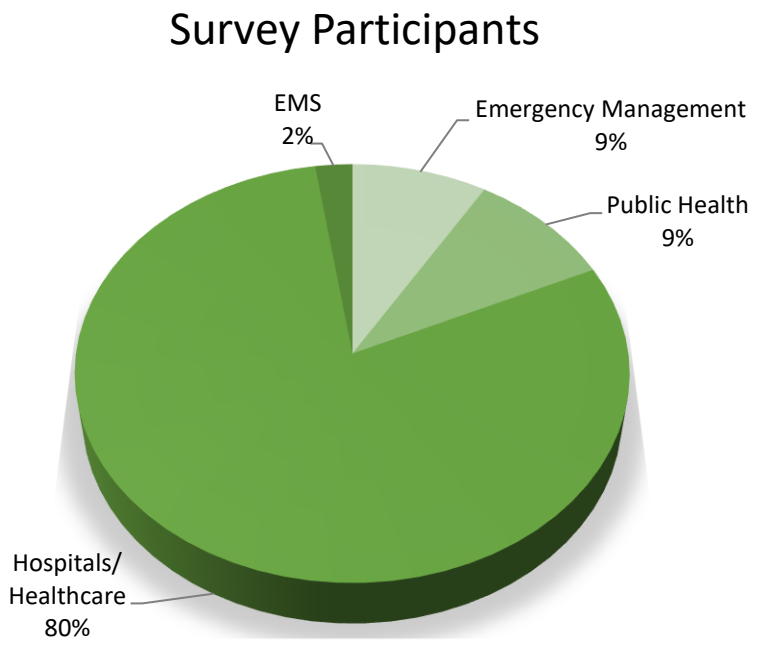
The After-Action Toolkit includes an instructional PowerPoint presentation, a template for the Report, instructions for developing the Report, sample survey questions, and a primer on identifying the root cause of an issue. Members should then utilize this Report and its recommendations as a basis for developing corrective actions specific to their organization or facility.

Appendix A Abbreviations and Acronyms

AAR	After-Action Report
ACS	Alternate Care Site
ASPR	Assistant Secretary for Preparedness and Response
CDC	Centers for Disease Control and Prevention
CMS	Centers for Medicare and Medicaid Services
COOP	Continuity of Operations
COVID-19	Novel Coronavirus Disease 2019
ESAR-VHP	Emergency System for the Advanced Registration of Volunteer Health Professionals
ESF	Emergency Support Function
EMS	Emergency Medical Services
EO	Executive Order
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
EO	Executive Order
EOC	Emergency Operation Center(s)
EOP	Emergency Operation Plan
FEMA	Federal Emergency Management Agency
GSHCC	Granite State Health Care Coalition
HAN	Health Alert Network
HHS	United States Department of Health and Human Services
HICS	Hospital Incident Command System
HPP	Hospital Preparedness Program
ICS	Incident Command System
IP	Improvement Plan
IPC	Infection Prevention and Control
JIC	Joint Information Center
MMRS	Metropolitan Medical Response System
NIMS	National Incident Management System
NH DHHS	New Hampshire Department of Health and Human Services
NH DPHS	New Hampshire Division of Public Health Services
NH HSEM	New Hampshire Homeland Security and Emergency Management
NHHA	New Hampshire Hospital Association
PHEP	Public Health Emergency Preparedness
PPE	Personal Protective Equipment
SEOC	State Emergency Operations Center
SME	Subject Matter Expert
SOP	Standard Operating Procedures
WHO	World Health Organization

Appendix B Participant Snapshot





Appendix C Detailed Event Timeline

Date	Event Details
1/21/2020	First HAN released describing identification of novel virus in China
2/1/2020	NH DHHS Incident Management Team activated
2/2/2020	Incident created in Juvare
3/2/2020	Governor Sununu held a press conference at the New Hampshire Hospital Association building
3/4/2020	Declaration of Public Health Incident (Commissioner Lori Shibinette)
3/10/2020	NH Joint Information Center (JIC) activated
3/12/2020	NH launches 2-1-1 COVID-19 Hotline
3/13/2020	National Emergency Due to COVID-19 declared
	NH State Emergency Operations Center Opened at Partial Activation
	State of Emergency declared for New Hampshire (Governor Chris Sununu)
	Nationwide Emergency Declaration issued by the President
3/13/2020	Emergency Order 1: Transition of public K-12 schools to remote instruction
3/16/2020	CMS releases fact sheet about regulatory and licensing requirements • Waives requirements that out-of-state providers can only practice in the state they are licensed • Suspends Medicare enrollment requirements • Grants state Medicaid agencies greater flexibility with section 1135 waivers
	FEMA Regional Response Coordination Center activated at Level 3
	First shipment of supplies received from Strategic National Stockpile distributed to healthcare agencies and first responders
3/17/2020	GSHCC began tracking bed availability per ESF 8 request
	Emergency Order 5: Expanded Unemployment Access
3/18/2020	Emergency Order 8: Expansion of access to telehealth • Aimed to mitigate exposure for healthcare workers • All medical providers can perform telehealth • DHHS to provide support and guidance as needed
3/19/2020	Emergency Order 9: Healthcare System Relief Fund • Financial relief for organizations that are part of the state's healthcare system
	FEMA Regional Response Coordination Center escalated to Level 2
3/23/2020	Emergency Order 13: Pharmacies may compound/sell hand sanitizer
	Emergency Order 14: Out-of-state pharmacies as mail-order
	NH State Emergency Operations Center transitioned to a Full Activation
	Emergency Isolation/Quarantine and Respite housing program for first responders and healthcare workers launched in New Hampshire

Date	Event Details
	Emergency Order 16: Restriction of social gatherings to no more than 10 people
	First Alternate Care Site deployed in Manchester • Additional sites in Durham, Plymouth, Nashua, Hanover, Concord, Keene, Littleton, Derry, Wolfeboro, Colebrook, Woodsville, North Conway, and Lancaster are also are deployed in anticipation of additional strain on hospitals
3/24/2020	Emergency Order 15: Out of State Medical Telehealth • Medical providers that are out-of-state residents, but licensed to practice in New Hampshire can perform the medical services through appropriate forms of telehealth
3/26/2020	Emergency Order 17: Stay at Home Order issued to close non-essential business and requiring residents to stay at home
3/30/2020	FEMA Regional Response Coordination Center escalated to Level 1
4/1/2020	Provisional Certification Emergency Waiver issued • Temporary licensing for EMTs to continue practicing without completing the practical or receiving license
4/3/2020	Presidential Declaration - New Hampshire Covid-19 Pandemic (DR-4516)
4/6/2020	Emergency Order 27: Restrict Hotels/Lodging for Vulnerable Population & Essential Workers Only • Lodging providers giving shelter to essential workers • Allowed self-quarantine after potential exposure or risk of exposure
4/9/2020	Emergency Order 28: Temporary non-congregate sheltering • Aimed to create an isolation site for persons experiencing homelessness with COVID-19 symptoms • Limit the number of individuals in shelters • Provide shelter for first responders who have been exposed or are risk of exposure
	Emergency Order 30: Authorizing the transfer or diversion of non-acute care services to lower level of care settings
4/11/2020	All 50 states have received a federal disaster declaration
	New Hampshire reaches more than 1,000 cumulative COVID-19 cases
4/12/2020	91,000 lbs. of PPE arrive at Manchester-Boston Regional Airport for NH distribution
4/14/2020	Executive Order 2020-06: Allocation and expenditure of COVID-19 emergency funds

Date	Event Details
4/16/2020	Emergency Order 31: Establishment of the COVID-19 Long Term Care Stabilization Program • Provide stabilization funding for frontline workers to remain in the workforce or to rejoin it • Provide monetary stipend as an incentive for frontline workers to stay at work
4/17/2020	Emergency Order 33: Activation of the New Hampshire Crisis Standards of Care Plan • Allows for the assembly of the State Disaster Medical Advisory Committee (SDMAC) and the State Triage Center (STC) • Brings together subject matter experts and healthcare leaders to create Crisis Standards of Care Clinical Guidelines.
4/18/2020	All 50 states & all U.S. territories have received a federal disaster declaration
4/24/2020	Emergency Order 34: Further temporary requirements regarding health insurer coverage of healthcare services related to the coronavirus • Aimed to assist with health insurance coverage
	Emergency Order 35: Temporarily waiving the 28-day separation period before a retired public employee can return to work on a part-time basis
	Emergency Order 36: Ensuring Worker's Compensation coverage of NH first responders exposed to COVID-19 • First responders who test positive and report to DHHS will receive workers compensation
	Emergency Order 37: An order relative to Executive Branch hiring and out-of-state travel • Full-time and part-time employees related to the COVID-19 response, providing direct care at a state facility, or child protective services are exempt from this order.
	CDC releases guidance for infection prevention for alternate care sites • Clarifies the levels of care; non-acute, hospital care, acute care
4/28/2020	More than 2,000 cumulative cases of COVID-19 reported in New Hampshire; an increase of 100% in less than three weeks.
5/4/2020	US Food and Drug Administration Updates Policy on COVID-19 Antibody Tests • All COVID-19 test manufacturers must submit an Emergency Use Authorization
5/5/2020	Emergency Order 41: Additional Medicaid Eligibility for Uninsured • House Bill 4 waived to allow for the COVID-19 testing of uninsured individuals • House Bill 4 waived to allow the State to access new Medicaid benefits or eligibility standards made available that relate to COVID-19.

Date	Event Details
5/9/2020	Emergency Service Members-COVID-19 Unprotected Exposure Guidelines, Revised, issued to provide guidance on quarantine and care for police, fire, and EMS personnel exposed to COVID-19 patients • Recommended Infection Prevention and Control (IPC) practices • Creates protocol for universal use of PPE
5/11/2020	Emergency Order 42: Authorizing temporary health partners to assist in responding to the COVID-19 in long-term care facilities • Aimed to address staffing shortages in long-term care • Individual must complete an 8-hour course provided by American Health Care Association
	Stay at Home 2.0 announced • Some businesses re-open with restrictions
5/18/2020	Emergency Order 44: Modification of Emergency Order #9 (Healthcare System Relief Fund) • Authorized to disperse up to $100,000,000 emergency relief to hospitals and other health care providers serving as essential components during COVID-19 state of emergency. $30,000,000 is allocated to long-term care facilities.
	Emergency Order 45: Modification of Emergency Order #31 (COVID-19 Long Term Care Stabilization Program) • Provide stabilization funding for frontline workers to remain in the workforce or to rejoin it • Provide monetary stipend as an incentive for frontline workers to remain at work ($300 per week for full-time and $150 per week for part-time) • To end on June 30, 2020
5/22/2020	Emergency Order 46: Further expanding access to medical providers • Aimed to address the medical professional shortage • Medical providers can reactivate licenses that were previously licensed in the last three years and in good standing
	Emergency Order 47: Expanding access to COVID-19 testing via licensed pharmacists
	FEMA Regional Response Coordination Center deescalated to Level 2
5/28/2020	NH demobilizes all but four Alternate Care Sites/Flex Facilities
6/15/2020	Emergency Order 52: Safer at Home encourages residents to continue to limit social interactions and non-essential activities
6/17/2020	Emergency Order 53: Amendment to Emergency Order #36 (Ensuring Worker's Compensation Coverage for New Hampshire First Responders Exposed to COVID-19) • This Order extended the criteria of the individuals covered by the definition of "First Responder" and included the NH National Guard.

Date	Event Details
6/20/2020	CDC releases considerations for stockpiled PPE beyond shelf life • Guidelines for safety requirements if using out of date PPE
6/25/2020	Emergency Order 55: Extension of COVID-19 Long Term Care Stabilization Program • Continue to provide stabilization funding for frontline workers to remain in the workforce or to rejoin it • Continue to provide a monetary stipend as an incentive for frontline workers to stay at work
6/29/2020	FEMA Regional Response Coordination Center de-escalated to Level 3
7/9/2020	The WHO adds airborne spread to the modes of transmission of the virus
7/21/2020	New Hampshire secures 400,000 gowns for US Department of Veterans Affairs • Distributed to Veterans Affairs hospitals across the country
7/27/2020	ModernaTX, Inc. announces the start of Phase 3 clinical trial for vaccine candidate
	Pfizer and BionTech announce the start of Phase 3 clinical trial for COVID-19 vaccine candidate BNT162
7/31/2020	Emergency Order 61: Governor Sununu extends the State of Emergency through September 1, 2020
8/6/2020	CDC releases considerations for state and local health departments regarding COVID-19 cases at homeless service provider sites • Updated testing information • Addition of location-based contact tracing
8/19/2020	CDC updates guidelines for healthcare workers using PPE • Updates best practices for donning/doffing, limit contamination, reuse, disposal, etc.
8/28/2020	AstraZeneca vaccine begins phase 3 clinical trials
9/18/2020	Emergency Order 69: Ethics Committee for Crisis Standards of Care Clinical Guidelines • The SDMAC serves as the Ethics Committee for the duration of the state of emergency • The Commissioner makes additional appointments to the SDMAC as necessary

Appendix D Participant Response/Feedback Summary

The tables below represent a summary of all the Strengths, Areas for Improvement, and Concerns Going Forward identified by stakeholders from the online surveys, one-on-one interviews, and the facilitated GSHCC General Membership Meeting Focus Groups. High priority items with immediately actionable recommendations are included in the Observations and Recommendations section. The remaining items listed below are either lower priority or require more coordination and time to address.

Strengths		
• Quick transition to working remotely with technology that held up to needs. • Created standards for daily communication and checking in with staff. • Educational opportunities and training provided for proper PPE usage • Responsiveness of the GSHCC and NHHA • Opportunities DHHS provided for communication • The NH epidemiologist team • Implementation of Juvare and EMSupply	• Creating inventive ways to adapt current workspaces, including temporary barriers to create pods and negative pressure machines outside of windows. • Having a dedicated infection control nurse • Creating infection control procedures within facilities, including consistent screening processes, closing doors to visitors, PPE policies for staff, and additional disinfectant procedures. • The regional approach that included community partners	• Transparency and teamwork • Incorporating telehealth quickly and adapting to the altered healthcare environment. • Fire and Police partnerships and support • Team-based care models • Providing creative ways for family members to safely "see" their loved ones and keep residents active. i.e., video chats through iPads, virtual Bingo, window chats, etc.

Areas for Improvement		
• Streamline the PPE acquisition process • Further development of the statewide stockpile of PPE and other resources. • Planning and preparation • Coordination between facilities and State agencies • Information sharing	• Easier access to testing • Communicate testing results in a more streamlined process • Clear testing guidelines • Training with Juvare before an event • Lines of communication • Expand surge plans	• Differing information and guidance • Communication between the MACE and the State • Staffing shortages • Delineation of roles and responsibilities from local public health and DHHS/DPH, GSHCC, and NHHA.

Areas for Improvement		
• A more streamlined process to request and/or receive waivers • More input from hospitals to State agencies • Better coordination of State and Federal agencies external staffing	• More standardization from the State in policies and hospital guidelines • Statewide plans to address at-risk populations • Back up residential sites • Insufficient state funding	• Mental health considerations for all involved in the response • Public/population health professionals were overlooked in response planning • Plans or process for obtaining more staff

Concerns Going Forward		
• Staffing (46) • Stability of the supply chain for necessary resources • Access to adequate PPE (29) • Financial strain and overall implications • Hospital bed availability • Maintaining volunteers • Establishing or maintaining clear operational lines	• "COVID-19 fatigue" in the healthcare system and the community • Vaccination planning and preparedness • Consistent testing guidelines • Staff and patient safety • Streamlined and consistent guidance from leadership • Resource assistance from the State and Federal agencies	• Medical surge responsibilities • Securing vendors for testing supplies • Testing site logistics, including result turnaround time and capacity • Homebound patient services with the shortage of staff • Safe transport of COVID-19 positive patients

Appendix E References

Centers for Disease Control and Prevention. (2020). HPP-PHEP preparedness domains. Retrieved from https://www.cdc.gov/cpr/whatwedo/phep.htm

Kambhampati AK, O'Halloran AC, Whitaker M, et al. (2020). COVID-19–Associated Hospitalizations Among Health Care Personnel — COVID-NET, 13 States, March 1–May 31, 2020. *MMWR Morbidity and Mortal Weekly Report. 69,* 1576–1583.

New Hampshire Department of Health and Human Services. (2021). COVID-19 press releases. Retrieved from https://www.nh.gov/covid19/news/press-releases.htm

New Hampshire Department of Health and Human Services. (2021). Health Alert Network (HAN) messages. Retrieved from https://www.dhhs.nh.gov/dphs/cdcs/alerts/han.htm

New Hampshire Department of Health and Human Services. (2020, April 29). NH DHHS announces new community-based COVID-19 testing. Retrieved from https://www.dhhs.nh.gov/media/pr/2020/04292020-testing-program.htm

New Hampshire Department of Health and Human Services. (2020, March 2). Coronavirus Disease 2019 (COVID-19) outbreak, update #5: First presumptive positive case in New Hampshire; NH Public Health Laboratory begins COVID-19 testing. *NH DHHS Health Alert Network.* Retrieved from https://www.dhhs.nh.gov/dphs/cdcs/documents/covid-19-update5.pdf

State of New Hampshire, Office of the Governor. (2021). Governor Sununu 2020 Emergency Orders. Retrieved from https://www.governor.nh.gov/news-and-media/emergency-orders-2020

State of New Hampshire, Office of the Governor. (2020, May 1). *Governor Chris Sununu announces Stay At Home 2.0.* Retrieved from https://www.governor.nh.gov/news-and-media/governor-chris-sununu-announces-stay-home-20

State of New Hampshire, Office of the Governor. (2020, March 23). *Emergency Order #15: Temporary authorization for out of state medical providers to provide medically necessary services and provide services through telehealth*. Retrieved from https://www.governor.nh.gov/sites/g/files/ehbemt336/files/documents/emergency-order-15.pdf

State of New Hampshire Office of the Governor. (2020, March 13). *Executive Order 2020-04: An order declaring a state of emergency due to Novel Coronavirus (COVID-19).* Retrieved from https://www.governor.nh.gov/news-and-media/governor-chris-sununu-issues-executive-order-declares-state-emergency

State of New Hampshire Office of the Governor. (2020, March 13). *State of New Hampshire activates Emergency Operations Center.* Retrieved from https://www.governor.nh.gov/news-and-media/state-new-hampshire-activates-emergency-operations-center

The White House. (2020, March 27). Statement from the President regarding the Defense Production Act. https://trumpwhitehouse.archives.gov/briefings-statements/statement-president-regarding-defense-production-act/

US Department of Health and Human Services. (2021). BARDA COVID-19 response timeline. Retrieved from https://www.medicalcountermeasures.gov/app/barda/COVIDTimeline.aspx#event-bardaacovid-19aresponseatimeline

US Department of Health and Human Services. (2020, May 15). Trump administration announces framework and leadership for 'Operation Warp Speed.' Retrieved from https://www.hhs.gov/about/news/2020/05/15/trump-administration-announces-framework-and-leadership-for-operation-warp-speed.html

US Department of Health and Human Services, Assistant Secretary for Preparedness and Response (ASPR). (2021). Healthcare coalitions. Retrieved from https://asprtracie.hhs.gov/hcc-resources

Appendix F After Action Meeting Input

The table below represents the input that was generated through the online platform "EasyRetro" throughout the After Action Meeting.

Additional Strengths not captured in the report	Additional Areas for Improvement not captured in the report	Additional Recommendations with Areas for Improvement in the report	Any new Strengths of Areas for Improvement from October-present
Plan is missing an important strength; we did the best we could. (0 votes)	Messaging needs to be timely and consistent. Frequently the CMO got a different message than the CIO, who got it a day before the Prep Reps. In a rapidly unfolding and changing event, this communication gap has players working on competing objectives. It is impossible to have a successful Incident Action Plan if all the players are hearing different things at different times, because it is impossible to know which is the current data. (6 votes)	2.1: A review of the various organizational structures used to coordinate the public health response is needed. Substantial emphasis had been placed on the MACE concept for over a decade. The concept was applied inconsistently, and when applied led to additional confusion in this new era of healthcare coalitions. This was not a regional event and it is worth exploring if these structures are needed at all. (1 votes)	Seeing many of the same challenges with PODs as was seen during ACS. All of vaccination plans are not being used, creating everything from scratch. Hospitals are sending people to help only to get turned away. Then the next day there's a need for staffing. Human capital management for the vaccination operations needs to be reviewed. (1 votes)
GSHealthcare Coalition should take the lead for these incidents in the future. they did a fantastic job helping find PPE (0 votes)	Prior to making decisions that impact hospital operations, it would improve response if the people in hospital operations were consulted on the most efficient way to complete the goal. No one in GSHCC or NHHA (and many in DHHS) have not had operational roles in hospitals and may be unaware of negative consequences caused by their decisions. When NHHA solicits feedback from the "C-Suite" they need to understand that not all of that is vetted by operations folks. The failure to consult with	3.2: Someone with a human-centered design background needs to assist DHHS with the COVID-19 website and the dashboards. Too much info, not easily understandable by response officials (let alone the public). (0 votes)	House Bill 79 does NOT do enough to resolve the issues we found with health officers. They need more power and authority to assist with public health emergencies. The fire chief knows nothing about pandemics and did not pass along the correct information to partners. (2 votes) Comments - Agreed. They had the police enforce the non-pharma interventions...they didn't want to enforce it and they didn't even

	operations on State level decisions lead to hospital being forced to create work arounds to solve the issue. (4 votes)		want to wear masks. Health Officer hands were tied.
	Local jurisdictions expected that Regional Public Health Annexes would dictate the majority of the response at the local level, in many cases these plans were not fully implemented and did not incorporate the local responsibilities of the fire, police, EMD, health officer, etc. (1 votes)	5.1.2: None of the recommendations connected back to the problem of numerous processes to request resources. The state as a whole needs to pick one approach, one system, and ensure that it is carried all the way down to the most local end user. We cannot have hand filled out forms, multiple EOC systems, phone numbers to request resources, etc. (1 votes)	
	Staffing was not used effectively, with many people in leadership roles getting stuck in the weeds at testing clinics and contact tracing. (0 votes)	The report doesn't have any discussion about the masses of expired PPE sitting in caches around the state. Future resource management protocols should be put in place to cycle through supplies. This includes left over PPE from COVID. (0 votes)	

	This report states that the EOPs lacked depth in specific topics. In many cases the emergency plans were not used at all. Lots of funding and resources were dedicated to public health planning all the way back to the creation of the All Hazards Health Regions. Most of those plans were not even consulted when standing up ACS, PODs, etc. Weeks later when they were pulled out, the plans required a complete reconfiguration, none of the assumptions were realistic. These plans were built exactly for this type of incident, so if they were thrown out immediately with no coordination between the primary stakeholders (hospitals, state and local agencies, etc.), we need a new approach at public health emergency planning. (2 votes)	4.1: Still no resolution to volunteer liability and workers compensation after years of it being a discussion item. This needs to be made a priority. DHHS subcommittee was established prior to COVID, none of the members work for the state any longer. (0 votes)	

	"Stakeholders were unable to identify the lead agency for response" 2.1.3. This completely misses the fact that the Governor's Office was seen by most as the lead of this response. Also where are the boundaries for hospitals as to what their role in this response was? Did they have a mission to provide surge capacity or was that simply a state responsibility? (1 votes) Comments - ESF-8 pretty much disappeared making it hard to use the chain of command. This forced fractured paths of communication. Without ESF-8 Hospitals, LTC, and ACS were forced to go through different, not connected pathways: NHHA, DHHS, GSHCC	Likely beyond the scope of this group but the tracking and separation of SNS vs non-SNS items was completely unnecessary and burdensome. NH Congressional delegation needs to promote simplicity and streamlining of SNS in future federal reforms. (0 votes)	
	The challenges with alternate care site operations are not emphasized enough in this AAR. It notes that pre-existing plans were used as the foundation. This was only after efforts to completely reinvent the wheel were thwarted early in the process. This very top down approach created a lot of concern about existing plans that were worked out between the PHN and the hospital. Suddenly we were opening "flex sites" up without a clear understanding of who was in charge, who would maintain the liability for the site, funding, roles/responsibilities,	Critical and Functional Communication: The JIC did not do its job. We still got info from multiple agencies that were conflicting messages. (2 votes)	

	transportation, and purpose (COVID-19 only, non-COVID-19 only, mixed?) Demobilization is not the only area for improvement on this topic. (0 votes)		
	The low-flow oxygen planning that was conducted across the state a few years ago was dead on arrival. Numerous resources and challenges were identified during that process, none of which was available when needed. (0 votes)	3.2.3. The state website information did not answer the questions we were being asked specific to NH. It was not enough to just pull information from CDC and copy it onto the website. No details we were asking for. (0 votes)	
	Many of the long term care facilities were not kept in the loop with regional situation awareness in the early parts of the incident. An outbreak would occur at a facility and then they would magically be invited to participate in calls. Then another LTCF outbreak would bring a new player on the calls. All stakeholders needed to be on the calls from the beginning. (0 votes)	4.1.2. All our plans called for more staffing, but there was no place to actually get additional staffing when the entire nation needed the same resources. The only solutions were to just add more staff to address increased utilization, not prevent utilization of services. (0 votes)	
	Hospitals did not have good awareness of the FEMA Public Assistance program, limitations, and benefits. Due to misinformation, many opted not to participate until stretched financially. (0 votes)	(From Discussion Staffing): Activating volunteers from ESAR-VHP and MMRS (and National Guard) were being pulled from hospitals and other healthcare settings. Not necessarily a good recommendation to enhance these systems as much as recruit from communities. (2 votes)	

	Incident Management: Agencies HSEM/DPHS did things that blurred responsibilities and leadership. Not a strong unified command. also seemed like the Governor (politics) was running the show instead of actual response organizations. He created policy that did not reflect what the plan was supposed to be, making us all reinvent the wheel over and over again. (4 votes)	Medical Supplies/Equip - most regional public health plans identify PHNs as the regional resource manager. Coordination of distribution out of the EOC jumped over those plans, while PHNs did continue to attempt to coordinate some distribution. It quickly became confusing re: who was supposed to manage what for whom. Clarifying who should request supplies from what entity (state? local?) would have been helpful (as long as the procurement & distribution capacities don't have significant visible time/quantity inequities) (2 votes)	
	3.2. Updates buried critical information in massive HANs or FAQs. You couldn't search for information well. (1 votes) Comments - HANs frequently repeated info with only a small but important change buried in. Key changes should be highlighted. Maybe add an "Action Required" section		
	3.3.3. The state kept asking for information that we already were reporting and were given almost no time to accommodate. Politics and media fueled requests, not operations. (1 votes)		
	Reporting (from chat) - For long term care we also had the direction from CMS which was different		

	than state guidance. (0 votes)		
	The widespread pre-pandemic separation of responsibilities/services for vulnerable populations across DHHS (Econ &Housing/Medicaid/Public Health/Behavioral Health) and lack of operational public health knowledge & skills at state, regional & local levels contributed to a wholly ineffective rapid response to plan for and protect that population at surge (housing & COVID-19 infection) and non-surge levels. (0 votes)		
	None of the lessons learned during Crimson Contagion were implemented or {so it seemed} considered. (3 votes)		
	Crimson Contagion comment is right on. State never wants to participate or lessons learned from National Level Exercises (2 votes)		
	It was profoundly disturbing to be part of what felt like shoestring/reluctant DHHS planning and reactionary operations for vulnerable people who were actually unsheltered or experiencing homelessness and at high risk for negative outcomes related to COVID-19 while watching the tremendous amount of effort, energy, and coordination that went in to ACS planning & set-up across the state. It would have been much more effective to use 10% of those resources toward		

	a stronger, faster, more coordinated response for vulnerable populations while a more controlled, strategic ACS plan operationalized. (0 votes)		
	To carry crimson contagion thread one step farther. In that exercise, the open pods distributed to the closed and did not attempt to deliver clinical intervention. The exercise focused on distribution - what factors led to over extending the Open sites beyond distribution? The closed sites (hospitals) developed/opened much later versus in conjunction with the open sites. Did we get lost in the semantics of closed versus open? It seemed "closed" evolved to mean select access for specific populations versus the destination for distribution? (0 votes)		

Appendix G After Action Meeting Input

The comments below represent the input that was generated through from the Mid-Event After Action Meeting that was not captured in EasyRetro. The comments were directed toward a specific area by number and then identified as an Observation or Recommendation. They will be reviewed in the next phase of this document.

3.3.2

- Consider making information and detailed data collection a priority for all incidents. if information is required by state or federal agencies it could then be utilized or manipulated as necessary as the responses requires. Recommendation
- Explore the creation of a spreadsheet and put keywords into a column to allow for sorting information by keyword. If the requirement changes or another agency asks for the information in another way this will allow for manipulation of the data as required. Recommendation

4.1.2- 4.1.4

- ESAR-VHP and MMRS pulls resources away from hospitals, so alternatives need to be discussed and identified. Community recruitment should be a consideration. Observation
- Consider that membership for ESAR-VHP and MMRS comes from personnel already employed by hospitals. On a regional or local incident these are great resources, but for statewide and/or national level events there is nowhere to pull these resources from. The National Guard is an example of this; activating the National Guard after a hurricane, in some cases, pulls resources from fire departments, police departments, etcetera. Recommendation
- Consider developing multiple pre-event contracts with medical staffing companies and vendors outside of the normal footprint or region to negotiate prices prior to an event. Recommendation
- Clarify the process or seek a state waiver program for accepting out of state licensure during a response of this magnitude. Recommendation

5.1.2

- Streamline the process for requesting resources and publish this process widely with all members and partners. This should include clarification of roles and responsibility to include clearly designating who makes the requests and to which entities. Consider offering opportunities for training and exercising these processes. Recommendation
- Clarify the process for determining which (sentence is incomplete)
- When developing emergency plans, there should be a strategy to update training and exercising for personnel. Recommendation
- Explore the creation of a website for GSHCC members and partners to share exercise and training opportunities. Recommendation
- Consider non-emergency management entities for training and exercises. Recommendation

5.2.1.

- Advocate for standardized testing requirements based on the PHEP-HPP or CMS requirements for facilities and organizations throughout the state. Recommendation
- Consider creating pre-existing contracts for the facilities and organizations to have specified labs centers designated to them as part of their EOPs. Recommendation