



Foundation *for*  
Healthy Communities

# 2019 Novel Coronavirus: Phase 3

After-Action Report

Granite State Health Care Coalition

November 2022

*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.*

## Foreword

Through this phase of the pandemic, through the end of the state of the emergency to June 2022, health care, public health, emergency medical services, and emergency management partners continued to collaborate amidst response activities, including Booster Blitz I & II, Delta and Omicron Surges, staffing shortages, and supply chain issues.

## 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 After-Action Report (AAR) addresses the activities and key decisions made throughout the extended response phase of the COVID-19 pandemic response in the State of New Hampshire from the end of the State of Emergency in June 2021 through June 30, 2022. Broadly, this time period accounts for the Delta and Omicron surges, Booster Blitzes, supply chain and staffing concerns, among other action taken while still under a public health incident. This Report serves as a continuance of the prior evaluation efforts documented in the 2019 Novel Coronavirus Response Mid-Event After Action Report that analyzed initial COVID-19 response through September 2020 and Extended Response After-Action Report that analyzed COVID-19 response efforts from October 2020-June 2021.

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, Emergency Medical Services (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, capabilities, and responsibilities. Therefore, not all findings or recommendations contained within the Report will or should apply universally. Instead, members and partners are encouraged to 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.

The after-action analysis and review of response focuses on identifying and evaluating response plans, policies, procedures, and systems. This After-Action Report seeks to assess multiple, diverse agencies' collective response activities to a single, long-term, complex incident. This Report uses observations from multiple members and partners to inform high-level, systemwide, or strategic findings that represent and respect 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. Identified strengths and areas for improvement reflect a collective understanding or impression of response capabilities.

This Report does not offer specific evaluations of any single agency or organization's performance. Instead, relevant information contained within this Report should inform ongoing internal assessments and evaluations that address specific capabilities and capability targets. Agency or organizational plans, policies, procedures, and systems that impact other stakeholders may be appropriate for consideration.

Any recommendations offered in response to areas for improvement 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 extended response and forward through recovery. 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 as members and partners can rededicate time to preparedness and comprehensive systemic changes.

Some areas for improvement may require multiple corrective actions, agencies, and coordination to implement. Some corrective actions may also address multiple areas for improvement. The corrective actions included in the Improvement Plan are intended as recommendations for continued improvement at a system level, incorporating the knowledge, experience, and capabilities of partners and members from across the healthcare and public health sectors. Identified corrective actions should be considered as suggestions for enhancing future planning, response, and recovery efforts.

This After-Action Report is a reference that attempts to provide a body of knowledge pertaining to the third phase summarized as Findings and Observations from GSHCC members and partners developed through surveys 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 Granite State Health Care Coalition's effort to support members and partners in improving emergency preparedness and response capabilities statewide.

## Table of Contents

|   |    |
|---|----|
| Foreword.....   | 2  |
| Report Scope.....   | 2  |
| Understanding and Use of Report Findings.....                       | 2  |
| Executive Summary.....  | 6  |
| Event Prologue.....   | 6  |
| Background.....   | 6  |
| Methodology.....  | 7  |
| Organization of Report.....   | 7  |
| Event Update.....   | 8  |
| Summary of Notable Successes and Areas for Improvement.....         | 9  |
| Notable Successes.....  | 9  |
| Areas for Improvement.....  | 10 |
| Key Findings.....   | 10 |
| <b>Community Resilience</b> .....                                   | 11 |
| Strengths.....  | 11 |
| Areas for Improvement.....  | 12 |
| <b>Incident Management</b> .....                                    | 13 |
| Strengths.....  | 14 |
| Areas for Improvement.....  | 14 |
| <b>Information Management</b> .....                                 | 15 |
| Strengths.....  | 16 |
| Areas for Improvement.....  | 17 |
| <b>Surge Management</b> .....                                       | 17 |
| Strengths.....  | 18 |
| Areas for Improvement.....  | 18 |
| <b>Countermeasures and Mitigation</b> .....                         | 19 |
| Non-Pharmaceutical Interventions/Community Mitigation Measures..... | 19 |
| Responder Safety and Health.....                                    | 21 |
| <b>Vaccine Operations</b> .....                                     | 21 |
| Vulnerable Populations.....   | 22 |
| Presentation of Overarching Strengths.....                          | 23 |

|  |    |
|--|----|
| Analysis of Select Public Health Emergency Preparedness Capabilities ..... | 23 |
| Conclusions and Next Steps .....   | 26 |
| Next Steps .....   | 27 |
| Appendix A Abbreviations and Acronyms .....                                | 28 |
| Appendix B Participant Snapshot .....                                      | 30 |
| Appendix C Detailed Event Timeline .....                                   | 31 |
| Appendix D References .....  | 34 |
| Appendix E After-Action Meeting Input.....                                 | 35 |

## Executive Summary

### Event Prologue

Since 2020, health care, public health, emergency medical services, and emergency management agencies have continued to develop and implement strategies to control and mitigate the impacts of COVID-19. While some partners began to see a much-needed reprieve, planning for subsequent surges of COVID-19 infections and the administration of vaccines became the focus of partners statewide. At the writing of this Report, partners, and members continue to fight to protect the public's health, more than 24 months into the pandemic.

The purpose of the 2019 Novel Coronavirus: Phase 3 After-Action Report is to:

1. capture and share the response experiences of GSHCC members and partners;
2. offer an updated analysis of response from June 2021 through June 2022; 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 Executive Summary available to members and partners.

To provide context to the response, the Event Overview illustrates several major decisions and key events that shaped response in New Hampshire. It is presented as a summary to provide context for the Report findings and is not meant to be a comprehensive list of all event activities. [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 continue to require the opportunity to pause and reflect in an effort to understand further why and how response activities were successful or require improvement. The goal of this interim report is to identify opportunities to enhance subsequent COVID-19 response activities and inform future preparedness and response efforts. This Report is an artifact of response that observes the successes and barriers experienced throughout the past year of response. This Report 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. The After-Action Review has been conducted in partnership with and support from the New Hampshire Department of Health and Human Services, Division of Public Health Services (DPHS), Bureau of Emergency Preparedness, Response, and Recovery in accordance with guidance provided by the United States Department of Health and Human Services (HHS), Administration for Strategic Preparedness and Response (ASPR), Hospital Preparedness Program (HPP) and the United States Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), Homeland Security Exercise and Evaluation Program (HSEEP) standards.

This Report provides a qualitative and quantitative account of response perceptions and experiences and offers an analysis of response capabilities. 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 lead the review process and composition of this Report. The GSHCC 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 while considering strengths and areas for improvement identified through the last year of response.

### **GSHCC COVID-19 AAR Online Questionnaire**

The questionnaire included more than 70 questions organized by HPP-PHEP Preparedness Domain that characterized the participant's direct involvement in the COVID-19 response, including specific questions regarding vaccination operations and vulnerable populations. The questionnaire included open-ended responses, rating scales, and multiple-choice questions.

### **Key Informant or Stakeholder Interviews**

Members of the GSHCC team conducted one-on-one interviews with select individuals that played a vital role in the COVID-19 response. Interviewees represented hospitals, public health, EMS, Emergency Management, and other healthcare and public health stakeholders and also included perspectives from state, regional, and local jurisdictions. The one-hour interviews conducted in a conversational format included specific talking points and inquiries used to focus the discussion. These talking points were informed by themes identified in the GSHCC COVID-19 AAR Online Questionnaire. The review team assured participants their response would not be subject to attribution to support a candid dialogue.

The GSHCC 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 November 7, 2022, the GSHCC team facilitated an After-Action Meeting with partners and stakeholders to review and validate the Report's observations. Additionally, the participants discussed noted areas for improvement and developed strategies to improve response efforts moving forward.

## Organization of Report

The findings in the Report address the "Six HPP-PHEP Domains of Preparedness" adopted and modified by the GSHCC. Domains include Community Resilience "Preparedness," Incident Management,

Information Management, Surge Management, Countermeasures and Mitigation, and Biosurveillance.<sup>1</sup> Vaccination Operations is highlighted outside of these domains to capture the multiple intricacies involved in planning for, conducting, and demobilizing mass vaccination efforts. Strengths and areas for improvement are presented by Public Health Emergency Preparedness (PHEP) capability, covering Countermeasures and Mitigation, and Biosurveillance.

Successes and areas for improvement may not be universally experienced across every sector. For some, a listed success was experienced as an area for improvement. 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.

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 - [References](#)

Appendix E – [After-Action Meeting Input](#)

## Event Update

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.

In September 2020, planning for fixed vaccination sites statewide was underway with state partners and the New Hampshire Air National Guard leading the charge. State testing sites continued to perform testing for the public. In **December 2020**, vaccinations were authorized in New Hampshire for persons over age 65, first responders, healthcare workers, and eventually other identified essential workers. By late winter, 2021, mass vaccinations began for the general public in a phased approach separated by age. By **February 2022**, COVID-19 variants began to appear in NH.

In early spring, vaccination allocations continued to slowly increase, allowing the state to move to subsequent tiers of eligibility. Multiple mass vaccination sites (fixed sites) were mobilized to vaccinate thousands of NH residents. Regional Public Health Networks (RPHNs), hospitals, and other providers began to administer vaccine to some of those most vulnerable within the state. In **early April 2021**, state distribution of Personal Protective Equipment (PPE) to healthcare partners had scaled down with stabilizing supply chains, decrease in demand, and the temporary respite or quarantine housing program for healthcare and first responders was terminated. New Hampshire opened vaccine eligibility to anyone over the age of 16 by **April 2, 2021**.

By **late April**, the CDC updated guidance that relaxed recommendations for mask wearing, permitting anyone who is fully vaccinated to remove masks outside, other than in certain crowd settings. On **April 16<sup>th</sup>**, Governor Sununu did not renew the NH Mask Mandate in public places.

---

<sup>1</sup>Centers for Disease Control and Prevention. (2020). HPP-PHEP Preparedness Domains.  
<https://www.cdc.gov/cpr/whatwedo/phep.html>



By **Memorial Day 2021**, all individuals interested in receiving vaccine are able to do so. State fixed sites were in the process of planning for demobilization, and programs supporting various population groups were asked to think about demobilization or how to sustain efforts.

On **June 7, 2021**, the NH State of Emergency concluded. The State Emergency Operations Center began demobilizing, and staff began to transition programs or initiatives into normal workflows. Over 500 equity clinics were completed from February 4<sup>th</sup> through June 19<sup>th</sup>. The homebound vaccination program ended by June 30<sup>th</sup>. As of **June 30, 2021**, the NH SEOC and Joint Information Center (JIC) were closed, leaving the NH COVID Call Center operated by 2-1-1 to remain open.

By **mid-November 2021**, New Hampshire was in the midst of rising COVID-19 cases, spurred by the Delta Variant. During this time, the state saw a 60% increase of COVID-19 cases<sup>2</sup>. This late 2021 surge was also shown to be much more contagious than previous variants of COVID-19.

On **December 11, 2021**, the first of two “Booster Blitz” vaccination clinics were held at multiple sites across the state. More than 10,000 shots were available for those looking to receive their COVID-19 booster shots. “Operation Booster Blitz” aimed to tackle the surge of COVID-19 cases New Hampshire was experiencing, as well as uncertainty caused by new variants, such as Delta.

On **December 30, 2021**, locations for a second “Booster Blitz” were announced for January 8, 2022. Being held at 15 locations throughout the state, more than 13,000 doses of COVID-19 booster vaccine became available for this event.

Early **January 2022** saw the deployment of three FEMA monoclonal antibody teams to three hospitals in the state: Elliot Hospital, Alice Peck Day Memorial Hospital, and Concord Hospital. These teams expanded capacity to administer needed antibody treatments with hopes of reducing patients needing hospitalization from COVID-19.

By **mid-January 2022**, Governor Sununu announced that the state was entering the beginning of the Omicron surge. This time saw a large increase of COVID-19 cases. Though considered to cause milder illness than the Delta variant, concern remained over the potential for hospitalizations and pressure on the hospital systems.

## 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

---

<sup>2</sup> <https://www.nbcnews.com/data-graphics/new-england-covid-cases-rise-delta-hits-unvaccinated-rcna5653>

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:

- Locally forged relationships have been, and continue to be, successfully leveraged to fill gaps in healthcare and public health infrastructures.
- Leveraging Juvare as an information management system, though with challenges, proved to be a useful tool for maintaining situational awareness and fulfilling federal reporting requirements.
- Partners and members exhibited creative problem solving and out-of-the-box thinking to stabilize healthcare delivery in conjunction with shifting resources and regulations.

#### 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.

- Inconsistent alignment between state and CDC guidance caused partners to be caught between state, healthcare accreditation organizations, and CMS rules.
- A lack of inclusion of appropriate stakeholders in strategy and operational planning efforts created significant challenges for partners between jurisdictions.
- Constantly shifting guidance and priorities, with little to no advance notice to partners caused confusion and did not allow for sufficient time to implement.
- Frequent turnover of staff, including those in key positions across response organizations, led to a loss of historical knowledge.

## Key Findings

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, Countermeasures and Mitigation, and Biosurveillance). Within each domain are key findings with strengths, areas for improvement, and recommended activities to strengthen additional healthcare response. Aggregate data from survey responses, additional narrative

from survey responses, and stakeholder interviews support the identified strengths and areas for improvement.

## Community Resilience

"Community resilience" is the ability of a community, through public health agencies and health care coalitions (HCCs), to develop, maintain, and use collaborative relationships among government, private health care organizations, and community organizations to develop and use shared plans for responding to and recovering from disasters and emergencies. Capturing preparedness efforts prior to an emergency or disaster response, community resilience recognizes the benefits of ongoing preparedness planning and developing the relationships, planning, training, exercising, and systems that enable a whole-of-community response.

### Strengths

- 1. Pre-existing community partnerships contributed to a more efficient and collaborative response effort at the local level.**

The GSHCC COVID-19 After-Action Review Survey: Phase 3 indicated that the vast majority of partners (90.74%) successfully engaged community partners throughout the duration of response. Community partners stepped up to provide essential supplies and PPE needed to maintain essential operations. Deeply rooted relationships with professional associations, affiliated agencies, and public safety were essential to communications and information sharing as well as implementing various operations in the field.

Partnering agencies were able to work together collaboratively to ensure the residents and visitors of New Hampshire have access to essential health care and public health services. This has contributed to ongoing response success throughout COVID-19 in terms of sharing resources and working with a true unity of effort towards a shared operational goal. Rural areas have noted having fewer resources has positively encouraged collaboration and coordination in pre-disaster preparedness efforts. More urban areas have noted having an established infrastructure, such as a local health department or long-standing healthcare emergency preparedness peer group has provided a solid platform for ongoing response planning and implementing response strategies.

- 2. COVID-19 strengthened the relationships between hospitals and created a mechanism by which resources can be shared across the state.**

Daily huddles with CEOs, CMOs, and CNOs was helpful to find out statuses at other facilities and increased awareness statewide. The incident caused major stressors for hospitals throughout the state. Constant communication between hospitals and healthcare partners allowed for increased collaboration and cooperation. Strong relationships across these facilities created a structure where resources and information were able to be shared more freely.

Early in the incident, public health recommendations and recommendations from subject matter experts were implemented promptly. These professional recommendations drove policy and strategy at a time when there was very little science available, and decisions were based on the best information, recognizing it was often incomplete or would need to be modified with

emerging science. Collaboration through briefings and operational coordination calls continues across many of New Hampshire's hospitals and healthcare facilities and between partners.

### Areas for Improvement

The following areas for improvement were identified through multiple survey responses and stakeholder interviews. Not all areas for improvement will apply to every organization, and individual experiences may differ. Collectively, the identified areas for improvement will provide a high-level overview of where additional effort may lead to more well-developed response capabilities.

#### **1. The duration of this response has far surpassed assumptions made in existing emergency plans.**

The COVID-19 pandemic response has challenged members and partners in new or different ways. The duration of this event has challenged assumptions related to staffing, supply chain, how to manage an incident within the context of multiple periods or "waves." The extended duration of response has complicated response strategy or contributed to existing barriers.

#### *Recommendations:*

- Continue to encourage members and partners to revise plans to include considerations for long-term response.
- Encourage members to include planning assumptions of reduced or unavailable mutual-aid assistance.
- Provide resources to members and partners to assist with continuity planning.
- Support the development of new relationships that enhance response capabilities.
- Support and provide assistance as appropriate to members and partners in updating plans in a collaborative effort.
- Develop or disseminate templates for relevant plans, policies, or procedures that have been created throughout COVID-19 response.
- Continue to provide opportunities for collaboration with RPHNs to build and sustain relationships forged through response.
- Encourage collaboration with higher education to support and promote clinical workforce pathways.

#### **2. Partners lacked sufficient equipment and supplies to address the needs specific to a pandemic response.**

Over time, many agencies have adopted "just-in-time" or "on-demand" ordering in an effort to reduce needed space to store and stage supplies and equipment and risk loss, damage, or expiry of assets. Less than half of respondents (49.32%) indicated that their agency had sufficient

supplies and equipment to handle the needs of a pandemic response. Considerable vulnerabilities in the supply chain have been identified and continue to impact partners. Partners have implemented conservation and reuse strategies that vary widely from “normal use” and have pivoted to use of alternative materials as opposed to procuring what is considered ideal.

#### **Promising Practices and Opportunities**

Although, pricing was not necessarily sustainable through these vendors to enter into long-term contracts. Partners also explored changes in supply vendors due to Electronic Medical Record (EMR) conversion and for emergency access to supplies as well as for vendors that allow healthcare preferential services. Additionally, partners revised internal policies regarding supplies and equipment to indicate that the best available quality of certain supplies will be used as opposed to indicating specific types.

#### *Recommendations:*

- Complete a supply chain integrity assessment to identify vulnerabilities in essential healthcare supply chains.
- Promote and support as appropriate promising practices for inventory management and rotation.
- Develop greater awareness of processes or resources available statewide to fill urgent or critical supply needs.
- If able, consider implementing stockpile rotation policies.

### **3. Agreements between organizations to address emerging incident response priorities were not consistently implemented.**

Nearly one fifth (19.05%) of survey respondents indicated that they did not identify and enter into agreements with other entities to address incident response. Another nearly one third of survey respondents (31.58%) indicated that there were no agreements or partnerships in place to effectively manage the ongoing incident. Mutual Aid was essentially nonexistent during this time as all sectors worldwide, not just New Hampshire response partners, were impacted and experienced internal gaps and issues. Additionally, 41.36% of survey respondents stated that processes to request mutual aid or state assistance were not clearly understood or efficient. Respondents indicated that processes for collaboration with outside organizations were not clearly understood.

## **Incident Management**

"Incident management" is the ability to establish and maintain a scalable operational response structure with processes that appropriately engage all critical stakeholders and support the execution of core public health and health care capabilities and incident objectives.

## Strengths

The following strengths were noted as contributing to the performance of capabilities associated with incident management:

- 1. Response agencies were able to remain flexible to the incident and communicate with each other effectively.**

Response agencies communicated effectively through the Emergency Support Function (ESF) structure, particularly through ESF-6 and ESF-8. Agency flexibility became paramount as direction shifted constantly. The incident was marked by constant shifting and expansion of roles and priorities. Operations continued effectively as response agencies were able to coordinate and scale activities appropriately. Booster Blitz I & II provided a great opportunity for a wide swath of state agencies, local communities, RPHNs, and others to come together and support a large, statewide operations.

## Areas for Improvement

The following areas for improvement were identified through multiple survey responses and stakeholder interviews. Not all areas for improvement will apply to every organization, and individual experiences may differ. Collectively, the identified areas for improvement will provide a high-level overview of where additional effort may lead to more well-developed response capabilities.

- 1. Significant confusion surrounding state incident command structure and incident leadership statewide persists across community sectors and jurisdictions.**

The previously published *GSHCC COVID-19 Extended Response After-Action Report* identified uncertainty or a lack of clarity of the overall command structure within the State of New Hampshire, and this area for improvement has grown as response efforts continue. The lack of general understanding of the statewide incident command structure has created additional challenges for local jurisdictions and agencies to identify clear points of contact for multiple operational or strategy questions. Partners, including local community leaders, were unclear of the implementation of their roles and who was making decisions. Instead of a single-entry point through ESF-8, agencies attempted to make contact with multiple representatives across various divisions and departments to find solutions to challenges or answers to process questions. Of survey respondents, 34.48% stated that lines of authority were either partially clear, or not clear at all.

An unclear chain of command hindered communications, requiring partners to reach out to multiple people within the NH SEOC or DHHS Incident Management Team (IMT) prior to getting the appropriate point of contact. Feedback on requests for information, guidance, or general questions was delayed and often distilled down to a basic message that did not contain all the details or context necessary for decision making and to inform operational tactics. This sometimes led to the dissemination of conflicting information, which caused added delay in getting necessary details required for an effective response.

Unclear chain of command has also created confusion surrounding the roles and responsibilities of multiple state agencies and what role that agency or representative would have within the Operations Section. As the command structure expanded or contracted, there was little communication to external partners.

Those filling positions did not always feel comfortable with their designated response role. The skills, knowledge, and abilities to perform response roles did not always align with those of the staff filling positions. Just-in-time training did not always occur. This mismatch between required skills, knowledge, and abilities for the role and the responder at times resulted in communications delays, misinformation or misdirection, loss of confidence in responder abilities to perform assigned tasks, and concerns for patient safety.

*Recommendations:*

- Transparent and clear communication of incident command structure.
- Continue to offer education and training in National Incident Management System (NIMS) for all levels of responders, including senior leadership.
- Identify and communicate additional considerations for maintaining and sustaining response long-term.
- Provide education on the role of the Joint Information Center and its role within a Joint Information System (JIS) with Emergency Operations Centers (EOCs).
- Conduct exercise opportunities where ICS roles and assumptions are examined.
- Share more broadly organizational charts for statewide response (planned and actual).
- Support discussions around refining the role of the Regional Public Health Networks (RPHNs) in coordinating the implementation of plans, public health direction, and policy.

**2. Significant confusion surrounding guidance from state and CDC were often not in alignment.**

Constant changes in guidance and policies at various levels during the response to this incident fostered confusion across healthcare entities and partners. Facilities had to remain in compliance with both state rules, as well as Centers for Medicare and Medicaid Services (CMS). Limited communication between these authorities caused facilities to be caught between CMS rules and state guidance. This lack of coordination between entities created serious frustration among healthcare entities as they tried to remain in alignment with their appropriate rulemaking organizations. Healthcare facilities experienced undue stress navigating a system of rules and policies that consistently remained desynchronized and questions persisted over what guidance and rules were accurate.

### Information Management

“Information management” is the ability to develop systems and procedures that facilitate the communication of timely, accurate, accessible information, alerts and warnings and exchange health information and situational awareness with federal, state, and local levels of government, healthcare coalitions, and individual agencies or facilities.

## Strengths

The following strengths were noted as contributing to the performance of capabilities associated with information management:

1. **Virtual meeting platforms such as Zoom and Microsoft Teams provided tremendous opportunity for partners to meet while balancing conflicting priorities and public health guidance such as social distancing.**

Virtual and hybrid opportunities to meet allowed partners flexibility in meeting the needs of the response while maintaining the health and safety of their workforce, as well as remain consistent with social distancing guidelines. These models allowed staffs to work remotely even in the event of an emergency so as to not overburden their physical offices. Virtual offerings also increased opportunity of attendance at various meetings. As the public health incident remained in place and facilities continued to battle outbreaks and look after the health and safety of their patients, residents, and clients, virtual platforms made available appointment opportunities that allowed for the continuation of services. In facilities with limited visitation, virtual platforms created the opportunity for families and additional service providers to see their loved ones and patients.

2. **Regular cadence of informational and coordinating calls, emails, as well as Health Alert Network (HAN) notifications proved to be valuable for partners remaining up to date.**

Partners, specifically in long-term care, hospitals, and public health felt that weekly partner calls hosted by NH DHHS and/or their professional association were effective at efficiently disseminating mission critical information. These forums were also viewed as opportunities to get answers directly from state agencies. The most effective messaging was identified as calls organized by state response partners as well as HAN message releases. HAN messages often contained key updates to the latest guidance from CDC and state public health leadership. It also was used to broadly disseminate guidance updates and clinical guidelines as science became more complete. Additionally, included guidance for specific entities, such as schools, long-term care, etc., were viewed as particularly helpful, though some outpatient facilities expressed difficulty in identifying the proper guidance to follow based on facility type.

3. **Leveraging Juvare as an information management system, though with challenges, proved to be a useful tool for maintaining situational awareness and fulfilling federal reporting requirements.**

Juvare EMResource was implemented in January 2020, and since its inception it has been viewed as a tool for near-real-time situational awareness for hospitals, public health, EMS, and other partner agencies. However, this system was leveraged as a data collection tool to inform resource requests to FEMA and to inform decision making statewide. Juvare systems allowed partner agencies to see active and current information for resources across the state to drive local decision-making processes. Juvare remained an asset as response activities continued throughout 2021 and 2022.



### Areas for Improvement

The following areas for improvement were identified through multiple survey responses and stakeholder interviews. Not all areas for improvement will apply to every organization, and individual experiences may differ. Collectively, the identified areas for improvement will provide a high-level overview of where additional effort may lead to more well-developed response capabilities.

**1. Constant shifting of guidance and priorities during response with little to no advance notice to healthcare partners caused confusion and offered little time to implement changes.**

Direction and priorities from the state shifted frequently, often with little to no advance warning to partners. This caused significant confusion and insufficient time to implement necessary changes. Partners would hear an announcement of a change in guidance or priorities that would impact their agencies during the Governor Press Conferences and leave them little time to effectively respond to the mission. This became a particular problem for Public Health Networks where new priorities or missions would be announced to which they would be responsible for and were given no advance notice of. It became increasingly strenuous for stakeholders to learn of updates at the same time as the general public and to try and respond to questions with no advance notice.

**2. Information and guidance released lacked organization as well as ability to search and review.**

More than 70 public health emergency notifications have been sent over the course of the incident to public health professionals and response partners through the Health Alert Network (HAN); 17 during the timeframe of this report alone. While HAN guidance was appreciated and up to date with information, the notifications lacked organization. Respondents felt that it was difficult to go back through to try and reread the HANs to determine the guidance. If someone needed to go back and look at old or current policies, there was not an efficient way to search guidance from going through individual messages. Additionally, partners and the public were receiving information from multiple sources, which may have conflicting information, and have been overwhelming

### Surge Management

“Surge management” is the ability to coordinate health care, medical and support staff volunteers; share resources, staff, and patients, as necessary and appropriate, across a health care coalition so that each member health care organization can effectively manage surge incidents by creating additional direct patient care capacity across a community; use and coordinate the expertise of the public health, health care, and emergency management disciplines to ensure the public has access to high-quality

direct patient care and mass care during emergencies; and prevent and manage injuries and fatalities during and after a response to an emergency or incident of health significance.

### Strengths

The following strengths were noted as contributing to the performance of capabilities associated with medical surge management:

- 1. Partners felt that there were appropriate partnerships, relationships, or agreements in place at the community level to be able to effectively and efficiently manage ongoing medical surge.**

Throughout this response, partners have cited strong community partnerships as a major contributor to success. Partners believed that they were able to effectively and efficiently manage ongoing response and surge needs and could call upon additional resources if needed. This remained until the full demobilization of all alternate care sites across New Hampshire. If needed today, respondents and interviewees indicated that community partners would be ready to deploy alternate care sites, with the exception of staffing.

In December 2021, the New Hampshire National Guard provided non-clinical assistance to thirteen hospitals statewide augmenting support services; including food and clerical services. Over 70 National Guard Members filled these positions. Additionally, internal medical surge processes at hospitals became more streamlined and efficient as hospitals were able to request the ability to surge internally through NH DHHS.

### Areas for Improvement

The following areas for improvement were identified through multiple survey responses and stakeholder interviews. Not all areas for improvement will apply to every organization, and individual experiences may differ. Collectively, the identified areas for improvement will provide a high-level overview of where additional effort may lead to more well-developed response capabilities.

- 1. System for vetting volunteers during the incident was inconsistent.**

Volunteers arriving to fixed sites or open clinics were not passed through an intake process that would identify skills, knowledge, and abilities of those volunteering at the clinic. This led to some volunteers and staff not being utilized to the greatest potential or utilizing unqualified personnel at certain stations. Just in time training was provided and education was provided to both EMS agencies and public health networks for volunteers; however, there was no way to validate whether a worker completed the training.

Additionally, the existing volunteer management systems were not conducive to managing many spontaneous volunteers. NH Responds was leveraged as the volunteer management system for public health. Volunteers hoping to contribute to response were directed to this system. However, once in the system, agencies noted the process of managing those volunteers, such as researching qualifications, conducting follow up for incomplete information, and reaching out for training and scheduling, were often very manual processes. Even among agencies, including Regional Public Health Networks, there lacked a consistent process to vet

volunteers and each agency may have had a different requirement checklist that was being followed. Some agencies noted that this burden was enough of a barrier to forego the use of spontaneous volunteers and utilize exclusively staff or pre-existing volunteers.

## **2. Frequent turnover of staff in key position contributed to a loss in historical knowledge.**

The extent of scope and length of the incident continues to raise significant issues for partners. Staff across disciplines experienced burnout and fatigue, abuse, and many other competing priorities and issues that in one way or another caused their departure from their agency or workforce altogether. Loss in staff, especially in key roles, contributed to a significant loss in historical knowledge among partners. Frequent turnover and hiring forced many agencies to spend time recruiting, training, and retraining new staff. New staff who were onboarded may not have been as knowledgeable or aware of agency policies, contacts, partners, and/ or historical understanding or comprehension. More time being spent on catching new hires up to spend or teaching the ins and outs of their own agency or partners.

Additionally, there lacked enough trained staff to fill key positions. Agencies contributing to response activities did not have sufficient time available to devote to training staff to fill key vacant positions. These vacancies may have caused agencies and partners to be operating under optimal capacity for the needs of the incident.

## **Countermeasures and Mitigation**

The "countermeasures and mitigation" domain includes the ability to store and deploy medical and pharmaceutical products that prevent and treat the effects of hazardous substances and infectious diseases, including pharmaceutical and non-pharmaceutical equipment such as vaccines, prescription drugs, masks, gloves, and medical equipment. It also includes the resources to guide an all-hazards approach to contain the spread of injury and exposure using mitigation strategies such as isolation, closures, social distancing, and quarantines.

During large-scale emergencies, all partners in the jurisdiction must be aware of their roles, from whom they will receive information and directives, and to whom they should report. This section will cover response operations associated with non-pharmaceutical interventions, vaccination distribution, and vaccine administration.

### **Non-Pharmaceutical Interventions/Community Mitigation Measures**

Non-pharmaceutical interventions (NPIs) can also be referred to as community mitigation measures. Common NPIs implemented in the COVID-19 pandemic response may include screening for symptoms of COVID-19, surveillance testing of staff, use of masks or face coverings, physical environmental modifications, remote learning, social distancing, and self-isolation or quarantine.

#### **Strengths**

The following strengths were noted as contributing to the performance of tasks associated with implementing non-pharmaceutical interventions:

**1. State (NH DHHS) support with testing and responsiveness to outbreaks in congregate living facilities was instrumental to ongoing containment and mitigation efforts among vulnerable populations.**

Assigned liaisons from DPHS were “exemplary” to work with. Staff were able to provide useful resources and good information in a timely manner to address outbreaks within the facility. Contacts and relationships were built between facilities and points of contact for each major service coordinated through DHHS, such as testing and infection control. Partners felt as if they could quickly identify who to contact and receive a response in a timely manner, whenever needed.

Areas for Improvement

The following areas for improvement were identified through multiple survey responses and stakeholder interviews. Not all areas for improvement will apply to every organization, and individual experiences may differ. Collectively, the identified areas for improvement will provide a high-level overview of where additional effort may lead to more well-developed response capabilities.

**1. Isolation and quarantine guidance kept shifting and implementation of it was inconsistent.**

The quarantine and isolation process that was in place was considered cumbersome and had little resources available throughout the entire response to serve quarantine and isolation orders. Significant pushback on quarantine and isolation guidance was experienced, exacerbated by the background of national politics. A combination of limited resources and a less than streamlined process made for difficulty in isolation/ quarantine orders as by the time the order process got through, an individual’s isolation was over. While many policies were already in place for quarantine and isolation, the process had to be adjusted along the way for increases in COVID-19 numbers. Of stakeholder respondents, 30% indicated that recommendations associated with isolation and quarantine were implemented effectively.

**2. Lack of a centralized policy to manage misinformation and disinformation caused implementation barriers.**

Lack of guidance hindered work, contributed to physical and verbal threats, de-escalation trainings, and increased security at healthcare facilities and hospitals. More than half of stakeholders surveyed (61.11%) indicated that their agency encountered difficulties in implementing community mitigation efforts or non-pharmaceutical interventions. Set behind the background of national politics, constant shifting and compliance of policies across multiple entities state and nationwide, a lack of a clear and cohesive policy across the state presented difficulties for many partners to implement intervention effectively. Inconsistent messaging on what was being reported on the nightly news and policies from national entities such as the CDC and CMS put pressure on healthcare facilities within the state, where policies would differ from facility to facility and from non-healthcare to healthcare.

### Responder Safety and Health

The “responder safety and health” capability refers to the ability to protect those responding to an incident and the ability to support the health and safety needs of response personnel. Importantly, this area covers not only physical health and safety but also the mental and behavioral health needs of responders during and after an incident.

#### Strengths

The following strengths were noted as contributing to the performance of tasks associated with supporting responder safety and health:

- 1. Agencies that addressed the physical, social, and emotional needs of staff proactively have seen better outcomes in staff retention and morale.**

Programs that assisted frontline staff with temporary housing for respite or quarantine has been identified as an essential program that facilitated the continuity of health care service delivery at the height of the pandemic. Programs such as the temporary housing program for responders provided a sense of ease and allowed staff to continue working when it was much easier to walk away.

Agencies that went “above and beyond” to assist staff with needs outside of the workplace have mitigated to a certain extent the drain in morale and burnout many agencies see today. Providing assistance with meals, changing shift hours to accommodate home life needs, creating added flexibilities in duties and schedules, and taking advantage of opportunities to listen to staff have made a positive impact long-term with regard to turnover and retention.

#### Areas for Improvement

The following areas for improvement were identified through multiple survey responses and stakeholder interviews. Not all areas for improvement will apply to every organization, and individual experiences may differ. Collectively, the identified areas for improvement will provide a high-level overview of where additional effort may lead to more well-developed response capabilities.

- 1. Processes for ensuring staff remained fully vaccinated was inconsistent across healthcare systems.**

Alignment of policies and processes varied across healthcare entities. While the majority of partners were able to accommodate the need to ensure staff remained vaccinated to be in compliance with state and CMS policies, there lacked consistent policies across the healthcare systems to ensure staff continued to be considered fully vaccinated or remain up-to-date on vaccinations. There was a concern among healthcare entities regarding losing staff to other organizations over fear of mandatory staff vaccination policies during a time with staffing concerns were pervasive.

### Vaccine Operations

Vaccinations were introduced as a tool to help combat the COVID-19 pandemic in the winter of 2020. On December 23, 2020, the first message that permitted the registration of high risk frontline healthcare

workers to receive the first vaccines. Between June 30, 2021 and June 30, 2022, more than 339,000 doses of COVID-19 vaccines were administered in New Hampshire, according to Centers for Disease Control and Prevention.

### Vulnerable Populations

Ensuring equitable access to vaccine among the most vulnerable populations was a concern for partners that was considered early on in planning for vaccination distribution. Of note, state leadership allocated 10% of all doses to be directed to identified equity groups in an effort to ensure vulnerable populations could access a vaccine if they wanted one. The majority of equity vaccines were delivered through the efforts of Regional Public Health Networks and mobile clinics that targeted hard-to-reach or underserved populations. RPHN and State sponsored mobile vans, as well mobile vaccination opportunities provided access and ability for vulnerable groups to receive COVID-19 vaccines without the need to travel to fixed sites

#### Strengths

The following strengths were noted as contributing to the performance of critical tasks associated with successful administration of vaccines to vulnerable populations, in collaboration with those who provide services to these individuals.

#### **1. Pharmacy involvement in vaccine distribution assisted in providing accessibility to vaccination efforts.**

While state mobile and fixed sites were a main fixture in providing vaccinations throughout the state, there were still accessibility issues associated with those locations. The use of pharmacies, such as CVS, Walgreens, Walmart, and Rite Aid, to provide vaccinations assisted in a more widely available vaccine services as well as provided more accessibility. As more and more community locations became available through the use of pharmacies. More abundant locations, including grocery stores, offered increase opportunity for those experiencing accessibility and transportation issues to go to a vaccine provider to obtain their vaccinations.

#### Areas for Improvement

The following areas for improvement, if addressed, may build upon capabilities necessary for administering vaccine to vulnerable populations.

#### **1. Vaccination sites were often not accessible for certain vulnerable populations, and those working with these groups were not included in decision-making processes.**

Partners and interviewees noted that vaccination sites were often not accessible to certain groups and communication towards vulnerable populations on receiving vaccines and where to get it was not as effective as it needed to be, especially with homebound groups. In some instances, providers experienced pushback from the state regarding the vaccination of homebound individuals as they did not meet certain eligibility criteria. In certain areas, it was communicated to residents that they would need to register online and drive to their vaccination appointments. This became a significant issue for certain populations that lacked readily available private transportation, and who relied on public transportation. Additionally, those without internet access had difficulties completing this process,

especially when locations, such as the public libraries, that offered free internet access were closed.

There were additional accessibility issues with certain vaccination sites which created issues for individuals requiring special accommodations. Interviewees noted that while they worked directly with certain vulnerable populations, they were not consulted prior or able to provide input.

## **2. Lack of initial vaccination policy contributed to issues such as ensuring informed training and equipment across all vaccination sites**

Partners noticed that there lacked an initial vaccination policy and that vaccination sites were run independently of one another. This led to inconsistencies in staff training, equipment, as well as gaps in staffing across sites. A lack of communication with and between sites made operations difficult at times, especially for volunteers working between multiple sites.

### Presentation of Overarching Strengths

The COVID-19 vaccination strategy was challenged by an incredibly limited supply of vaccines that were initially allocated to the state. The Vaccine Allocation Strategy Branch worked diligently to provide a thoughtful, well-researched strategy that reflected the most recent science and recommendations to allocate vaccine equitably, prioritizing those most at-risk for becoming infected with the virus that causes COVID-19, transmitting it to others, or were at greater risk for negative health outcomes as a result of infection. On December 11<sup>th</sup>, 2021, and January 8<sup>th</sup>, 2022, Booster Blitzes I and II were conducted respectively

The following overarching strengths contributed to the success of the implementation of the New Hampshire vaccination strategy:

- Partnerships with outpatient health care providers, such as retail pharmacies and urgent care providers continue to significantly augment vaccination efforts.
- Operational communications between NH DHHS and response partners were most effective through the use of professional associations or sector leaders.
- NH Booster Blitz clinics were effective in providing enhanced protection during the Delta and Omicron Surges

### Analysis of Select Public Health Emergency Preparedness Capabilities

Continued vaccination efforts were confronted by challenges that should be addressed to improve future responses involving mass vaccinations. These areas for improvement are addressed within the context of the 2018 Public Health Emergency Preparedness and Response Capabilities.

#### **Vaccine Distribution**

“Medical countermeasure dispensing and administration” is the ability to provide medical countermeasures to targeted population(s) to prevent, mitigate, or treat the adverse health effects of a public health incident, according to public health guidelines. This capability focuses on dispensing and administering medical countermeasures, such as vaccines, antiviral drugs, antibiotics, and antitoxins.

### Strengths

The following strengths were noted as contributing to the performance of critical tasks associated with successful vaccine administration:

**1. The flexibilities provided to leverage EMS personnel significantly augmented the number of personnel within the workforce who were authorized to administer vaccinations.**

Many stakeholders have indicated that the use of staff from local emergency medical services agencies greatly augmented the workforce capable of administering vaccines to the populations served. The ability to leverage these assets was facilitated by contracts through municipalities, which allowed local agencies to recuperate added labor costs.

Contracts with local agencies to reimburse labor costs was also effective at recruiting workers to support vaccination campaigns. Once funding was in place to support staffing, workforce issues became less of a barrier.

### Areas for Improvement

The following areas for improvement were identified through multiple survey responses and stakeholder interviews. Not all areas for improvement will apply to every organization, and individual experiences may differ. Collectively, the identified areas for improvement will provide a high-level overview of where additional effort may lead to more well-developed response capabilities.

**1. The operationalized vaccination plans differed significantly from existing plans that partners had developed and trained partners to implement.**

Existing closed points of dispensing and open public points of dispensing or clinics were not leveraged. Many partners noted that they were unaware of what statewide plans existed to support mass vaccinations or felt as if pre-established plans were not utilized.

Foregoing existing plans may not have been without reason, but it did create significant barriers to operationalizing vaccination operations locally. Pre-established roles and responsibilities were challenged, creating the need for additional time and effort to re-establish each partner's role in response.

### *Recommendations:*

- Convene partners to identify components of vaccination plans, such as closed Points of Dispensing or community vaccination clinics to inform vaccination strategies.
- Identify strengths and support corrective actions for areas for improvement associated with mass vaccination clinics relative to infectious disease events.



- Update training to reflect changes in modalities for administering vaccinations to a large population.

**2. Frequent changes to the vaccination documentation systems were not adequate to meet the needs of responding agencies administering vaccines in the field.**

Prior to COVID-19 response, New Hampshire was the only US state without an Immunization Information System (IIS). As a result, many vaccination campaigns were documented either through electronic medical records or on paper. When vaccinations arrived in New Hampshire, the IIS had not been established. Instead of a centralized system, partners leveraged the Vaccine Administration Management System (VAMS) from the CDC in addition to placing orders through the existing state-managed Vaccine Ordering Management System (VOMS). The limited capabilities of both systems required additional documentation, or duplicate documentation processes to reconcile which patients received which vaccine, and when.

Over time the NH Vaccine and Immunization Network Interface (VINI) was established to assist with the scheduling of vaccine appointments and documentation of required patient and vaccine data. This system was used until the NH IIS was released, allowing for the marriage of patient data with vaccine inventory data and vaccine record retrieval. Several issues became apparent when scheduling vaccination appointments as hundreds were able to schedule their appointments at closed sites. This caused frustration as those individuals had to be contacted and have their appointments rescheduled.

With each transition, update, or change in process, agencies noted significant confusion, frustration, and diminishing faith in the systems provided. Partners were required to respond to last-minute requests for information, changing documentation guidance, and reporting procedures. Some agencies chose to exclusively document patient and vaccine information on paper at clinic sites and retaining information for reporting at a later time. 25% of stakeholders surveyed indicated that systems were not adequate for capturing needed information such as patient information, inventory, vaccine site locations, and vaccine information.

Additionally, these systems relied heavily on internet connectivity. Access to the internet was not always dependable or available at clinic locations, requiring agencies to keep redundant copies of documentation and to develop “down time” procedures in the event systems were not functioning.

Receiving answers to questions about these systems and troubleshooting was best accomplished through weekly calls with specific partners or one-on-one calls with NH Immunization Program staff, as available training was not always reported as being easy to follow or accessible.

*Recommendations:*

- Support the implementation of the NH Immunization Information System to manage and track vaccinations.
- Work collaboratively with public health and health care partners to develop backup systems for documentation.
- Support the implementation of training on systems designated to support vaccination data collection.
- Ensure sustained funding streams exist to support NH IIS systems and staff.

**Bio Surveillance**

Bio surveillance generally refers to the continued monitoring of information sources for the purposes of detecting and managing an outbreak or other public health event, whether naturally occurring or deliberate. The goal of bio surveillance is to provide situational awareness—an understanding of what is going on—with respect to the occurrence of biological threats and to guide efforts to control them<sup>3</sup>.

## Strengths

**1. Quality assurance processes and procedures were in place and were followed across locations**

Monitoring, detecting, and managing COVID-19 cases was tremendous undertaking during response activities in order to maintain awareness of potential outbreaks or other incidents. Across the board, processes and procedures that were in place were followed. Additionally, almost 90% of stakeholder respondents say that the systems in place to process, analyze, and share data were effective and efficient and that health-related data and statistics from partners were used to support public health programs

## Areas for Improvement

**1. Mobile van operations for vaccinations would have allowed for better access to vaccinations across the state.**

Many individuals that either did not have reliable transportation options or a member of a vulnerable populations had difficulty reaching vaccinations sites. Mobile vans that existed in a limited capacity were able to assist homebound and other individuals with special accommodations receive their COVID-19 vaccines without needing to go to other sites. The limited instances where vans were used in vaccination efforts were considered successful and efficient. However, large scale use of similar van operations were not undertaken.

**Conclusions and Next Steps**

Sustained response to the COVID-19 pandemic has continued to demand a conscious focus and effort from partners and members from across the health care and public health continuum. The toll of extended response, approaching 24 months of being in a response posture, has not gone unnoticed and

---

<sup>3</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5314963/>

is felt by all. The perseverance, grit, and dedication of health care workers, public health practitioners, EMS, first responders, and emergency managers to serve the residents and visitors of the State of New Hampshire is commendable.

Through this evaluation effort, the GSHCC team has gained insight into what has contributed to success and strength in sustained response. The team also identified areas for improvement that should be addressed to continuously enhance healthcare and public health response capabilities, both as a system and within communities. The overarching themes that characterize this phase of response include:

- Success in vaccination operations can be largely attributable to the “boots on the ground” effort to establish and build partnerships within communities that provide services to vulnerable populations.
- A breakdown in transparency of incident organization contributed to confusion regarding chain of command, incident leadership, and both operational and public communications.
- Inconsistently applied policies, processes, guidance throughout the response led to frustration across healthcare and response partners
- A lack of communication of response priorities and direction towards, as well as input from, response partners contributed to a difficulty in answering questions from the public as well as barriers in implementation

The strengths and areas for improvement identified within the Report contribute to a body of knowledge surrounding the COVID-19 pandemic response in New Hampshire. It also supports the ongoing efforts of the Granite State Health Care Coalition, the NH DHHS, DPHS, Bureau of Emergency Preparedness, Response, and Recovery, and the healthcare and public health systems to improve response capabilities to all hazards.

### Next Steps

The *2019 Novel Coronavirus Response: Phase 3 After-Action Report* is intended as a reference for a complete and comprehensive after-action review process. GSHCC members and partners are encouraged to develop internal after-action reports and improvement plans that summarize and evaluate response capabilities specific to their organization’s response as well as begin the process of identifying and implementing corrective actions to build and sustain response capabilities.

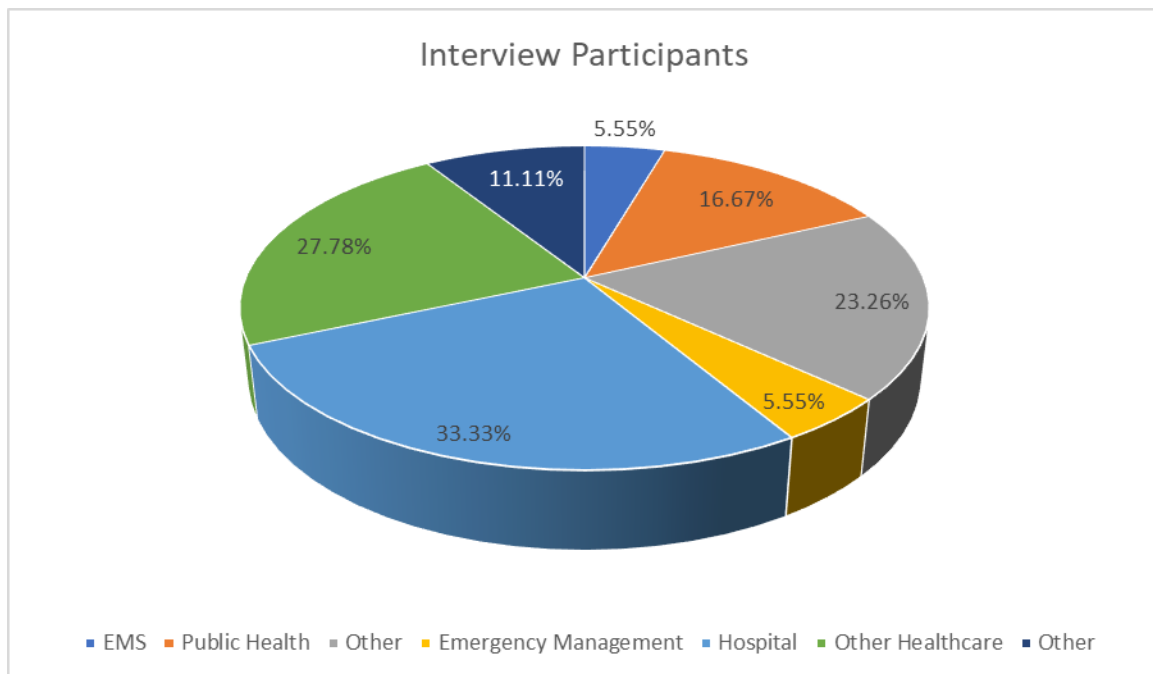
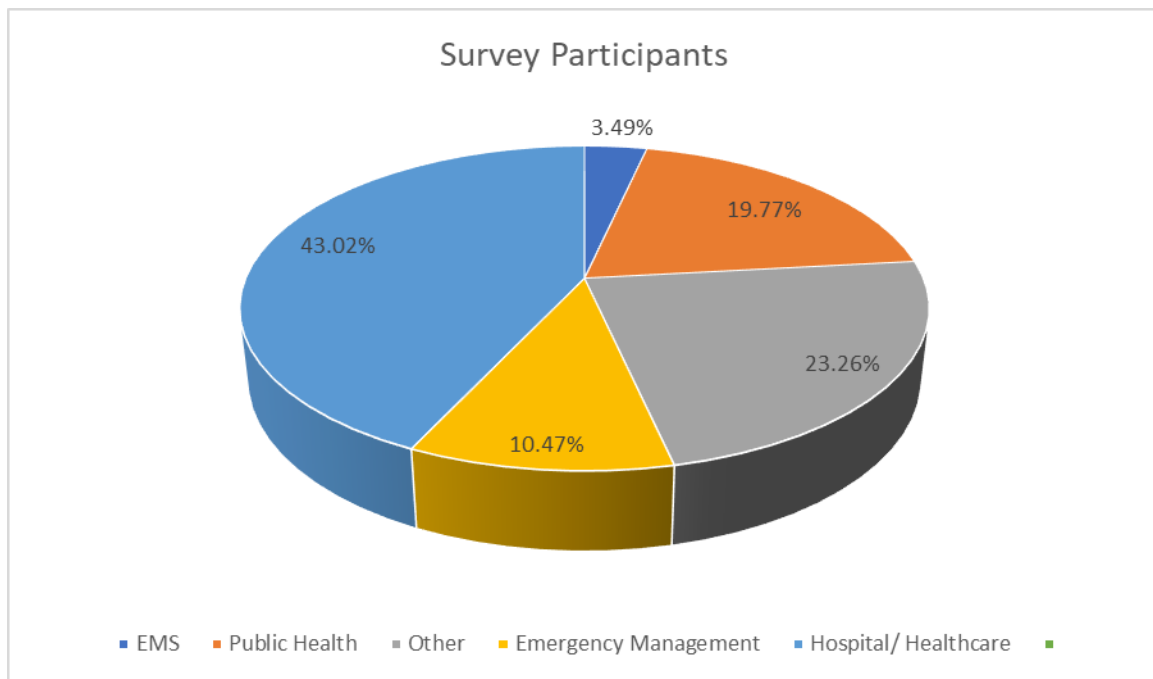
At the time of writing this report, the COVID-19 pandemic response is still active as communities addresses additional waves of cases and hospitalizations driven by the delta variant. Health care and public health partners are actively engaged in mass vaccination clinics to ensure all who would like to receive a vaccine have the opportunity to do so.

## Appendix A Abbreviations and Acronyms

|                   |  |
|-------------------|--|
| <b>AAR</b>        | After-Action Report                                      |
| <b>ACIP</b>       | Advisory Committee on Immunization Practices             |
| <b>ACS</b>        | Alternate Care Site                                      |
| <b>AG</b>         | Attorney General   |
| <b>ASPR</b>       | Administration for Strategic Preparedness and Response   |
| <b>CAPR</b>       | Controlled Air Purifying Respirator                      |
| <b>CDC</b>        | Centers for Disease Control and Prevention               |
| <b>CEO</b>        | Chief Executive Officer                                  |
| <b>CMO</b>        | Chief Medical Officer                                    |
| <b>CNO</b>        | Chief Nursing Officer                                    |
| <b>COOP</b>       | Continuity of Operations                                 |
| <b>COVID-19</b>   | Novel Coronavirus Disease 2019                           |
| <b>CMS</b>        | Centers for Medicare and Medicaid Services               |
| <b>CSC</b>        | Crisis Standards of Care                                 |
| <b>DHS</b>        | United States Department of Homeland Security            |
| <b>EAP</b>        | Employee Assistance Program                              |
| <b>EEI</b>        | Essential Elements of Information                        |
| <b>eICS</b>       | Electronic Incident Command System                       |
| <b>EMAC</b>       | Emergency Management Assistance Compact                  |
| <b>EMR</b>        | Electronic Medical Record                                |
| <b>EMResource</b> | Emergency Management Resource                            |
| <b>ESF</b>        | Emergency Support Function                               |
| <b>EMS</b>        | Emergency Medical Services                               |
| <b>EMTrack</b>    | Emergency Management Track                               |
| <b>EOC</b>        | Emergency Operations Center                              |
| <b>FEMA</b>       | Federal Emergency Management Agency                      |
| <b>FDA</b>        | United States Food and Drug Administration               |
| <b>GSHCC</b>      | Granite State Health Care Coalition                      |
| <b>HAN</b>        | Health Alert Network                                     |
| <b>HCC</b>        | Health Care Coalition                                    |
| <b>HHS</b>        | United States Department of Health and Human Services    |
| <b>HPP</b>        | Hospital Preparedness Program                            |
| <b>HSEEP</b>      | Homeland Security Exercise and Evaluation Program        |
| <b>ICS</b>        | Incident Command System                                  |
| <b>IMT</b>        | Incident Management Team                                 |
| <b>JIC</b>        | Joint Information Center                                 |
| <b>JIS</b>        | Joint Information System                                 |
| <b>NIMS</b>       | National Incident Management System                      |
| <b>NH DHHS</b>    | New Hampshire Department of Health and Human Services    |
| <b>NH DPHS</b>    | New Hampshire Division of Public Health Services         |
| <b>NH HSEM</b>    | New Hampshire Homeland Security and Emergency Management |

|               |   |
|---------------|---|
| <b>NH IIS</b> | New Hampshire Immunization Information System |
| <b>NPI</b>    | Non-Pharmaceutical Interventions              |
| <b>PAPR</b>   | Powered Air Purifying Respirator              |
| <b>PHEP</b>   | Public Health Emergency Preparedness          |
| <b>PIO</b>    | Public Information Officer                    |
| <b>PPE</b>    | Personal Protective Equipment                 |
| <b>PPP</b>    | Federal Pharmacy Partnership Program          |
| <b>RPHN</b>   | Regional Public Health Network                |
| <b>SDMAC</b>  | State Disaster Medical Advisory Committee     |
| <b>SEOC</b>   | State Emergency Operations Center             |
| <b>SME</b>    | Subject Matter Expert                         |
| <b>VAMS</b>   | Vaccine Administration Management System      |
| <b>VINI</b>   | NH Vaccine and Immunization Network Interface |
| <b>VOMS</b>   | Vaccine Ordering Management System            |

## Appendix B Participant Snapshot



## Appendix C Detailed Event Timeline

The following timeline is intended to provide context for the findings presented in the Granite State Health Care Coalition 2019 Novel Coronavirus: Phase 3 After-Action Report. This timeline is a continuation of the summary events outlined in the GHSCC Extended Response After-Action Report, outlining key decisions beginning June 30, 2021 through June 30, 2022. This is not meant to serve as a comprehensive listing of all events.

| Date       | Event Details   |
|------------|---|
| 9/30/2020  | Governor Chris Sununu extends <b>Emergency Order #52</b> that proposes public health guidance for business operations and advising Granite Staters that they are safer at home.   |
| 10/14/2020 | NH DHHS issues a Health Alert Network (HAN) message cautioning of increasing rates of community transmission of COVID-19.   |
| 11/13/2020 | NH DHHS issues a HAN announcing the FDA has issued an EUA for the use of bamlanivimab to treat mild to moderate COVID-19.   |
| 11/20/2020 | Governor Chris Sununu announces <b>Executive Order # 74</b> , implementing a mask mandate for all persons over the age of 5 when in public spaces.  |
| 11/25/2021 | The U.S. Food and Drug Administration (FDA) has issued an Emergency Use Authorization (EUA) for casirivimab and imdevimab to be administered together for treatment of mild to moderate COVID-19.   |
| 12/3/2020  | NH DHHS DPHS announces via <b>HAN #27</b> changes to quarantine periods for those potentially exposed to COVID-19 from 14 to 10 days.   |
| 12/8/2020  | A pandemic high of <b>963</b> daily COVID-19 cases are reported in NH. The 7-day average of new cases is <b>868</b> .   |
| 12/11/2020 | NH DHHS DPHS releases <b>HAN #28</b> , outlining Frequently Asked Questions regarding the vaccine allocation and administration guidelines for those in Phase 1a.   |
| 12/13/2020 | The Pfizer-BioNTech COVID-19 vaccine receives <b>FDA Emergency Use Authorization</b> and CDC and ACIP issue recommendations for use.  |
| 12/14/2021 | The first shipment of Pfizer/ BioNTech COVID-19 vaccine arrives in New Hampshire.   |
| 12/15/2020 | The <b>first doses</b> of COVID-19 vaccine are administered in New Hampshire.   |
| 12/18/2020 | The FDA authorizes the use of Moderna's mRNA-1273 vaccine for those 18 years and older under <b>Emergency Use Authorization</b> .   |
| 12/23/2020 | <b>Emergency Order #77</b> reinstates Emergency Order #37, temporarily freezing hiring for state positions, with exceptions for those related to COVID-19 response.   |
| 12/30/2020 | <b>Emergency Order #78</b> is issued, allowing for EMT-Basic, Advanced EMT, any Paramedic, as well as current and former military services members to apply for and receive a temporary license as a licensed nursing assistant through the Office of Professional Licensure and Certification. |
| 1/1/2021   | Hospitals report <b>334</b> patients are hospitalized with COVID-19 statewide. This is the highest number of hospitalizations to date.  |
| 1/4/2021   | <b>Emergency Order #79</b> authorizes registered and certified pharmacy technicians to administer COVID-19 vaccines under certain conditions.   |

| Date              | Event Details  |
|-------------------|--|
| 1/11/2021         | NH DHHS DPHS updates the <b>COVID-19 Vaccination Allocation Plan</b> and quarantine guidance, adopting CDC quarantine guidance for persons who are fully vaccinated or who have been previously infected with SARS-CoV-2.  |
| 1/17/2021         | NH DHHS DPHS announce through <b>HAN #34b</b> that those in Phase 1b will be eligible for vaccination starting on January 22, 2021. NH 2-1-1, medical providers, and VAMS are used to register and schedule those in Phase 1b.   |
| Week of 2/1/2021  | Governor announces NH residents under Phase 1b of the vaccine allocation strategy will be automatically scheduled for second doses.  |
|                   | Planning occurs to move drive-thru fixed sites to indoor super-sites. Staff would be a combination of National Guard and RPHN staff/volunteers. RPHNs are given 1 day to propose possible locations within regions that could be used long-term (June 2021), as public vaccination clinic sites. |
|                   | NH DHHS launches an effort with the New Hampshire Hospital Association to publish hospital data on interactive dashboards.   |
|                   | Johnson & Johnson submit vaccine candidate to FDA for Emergency Use Authorization. The application will be reviewed February 26, 2021.   |
| Week of 2/8/2021  | NH staff are manually reaching out to thousands of individuals who may experience difficulty with second dose scheduling at fixed sites due to errors in initial registration or incomplete second dose appointment cards.   |
|                   | Th first person with <b>Delta</b> variant strain of COVID-19 (sequenced by CDC) is identified in NH and is said to be related to high risk travel.   |
|                   | State leadership begins to work through planning for Phase 2a and Phase 2b vaccine roll out in March/ April 2021.  |
|                   | NH DHHS <b>resumes contact tracing</b> for all COVID-19 cases.   |
|                   | NH enters into contracts with local pharmacy services to support ongoing vaccination efforts in Long Term Care facilities.   |
| 2/19/2021         | <b>Executive Order #85</b> requires schools to offer in-person instruction to all students at least two days a week starting March 8, 2021.  |
| Week of 3/1/2021  | <b>Executive Order #86</b> authorizes certain retired health care workers to administer COVID-19 vaccines  |
|                   | <b>J&amp;J</b> vaccine candidate receives <b>Emergency Use Authorization</b> on March 4, 2021.   |
|                   | NH prepares for Mass Vaccination “ <b>Super Site</b> ” operations between March 6 <sup>th</sup> and March 8 <sup>th</sup> at Loudon Racetrack using the J&J vaccine.   |
|                   | A homebound vaccination strategy is released.  |
|                   | Governor Sununu announces <b>Phase 2a</b> vaccinations will begin on March 12, 2021.   |
|                   | Governor Sununu announces <b>Phase 2b</b> vaccination will begin on March 22, 2021.  |
| Week of 3/8/2021  | Governor Sununu announces a new vaccine registration system, <b>VINI</b> to manage scheduling of public vaccination appointments.  |
|                   | President Biden signs American Rescue Plan Act of 2021.  |
| Week of 3/22/2021 | Governor Sununu announces vaccination eligibility will be open for <b>the general population</b> , in phases based on age (3/29/2021- ages 40 to 49, 3/31/2021- ages 30 to 39, 4/2/2021- ages 16 and up).  |



| Date              | Event Details   |
|-------------------|---|
| 4/16/2021         | The <b>mask mandate</b> in effect from November 20, 2020, <b>expires</b> .  |
| 5/10/2021         | The FDA expands the EUA for the Pfizer/BioNTech COVID-19 vaccine to include adolescents 12 to 15 years of age. Regional Public Health Networks begin school-based clinics to complete 2-dose vaccination series for students and staff prior to summer break. |
| 5/13/2021         | The first 12-year old receives a vaccine in New Hampshire.  |
| 5/22/2021         | A vaccination clinic is held for the deaf/hard of hearing population as a collaboration between Elliot Health System and NH DHHS.   |
| 6/30/2021         | The State Emergency Operations Center and Joint Information Center close.   |
| Mid 11/2021       | Rise in COVID-19 cases across the state spurred by rise in <b>Delta Variant Surge</b>   |
| 12/11/2021        | First <b>Booster Blitz</b> clinic was conducted at 14 sites across the state  |
| 12/30/2021        | Based off of the success of the first Booster Blitz, locations for a <b>second Booster Blitz</b> were announced   |
| 1/3/2022          | Three <b>FEMA monoclonal teams</b> deployed to three hospitals in the state: Elliot Hospital, Alice Peck Day, and Concord Hospital.   |
| 1/8/2022          | Booster Blitz round II was conducted at various sites across the state  |
| Week of 1/17/2022 | Announced that the state is entering <b>Omicron Surge</b> spurred by increase in COVID-19 cases brought about by the variant  |

## Appendix D

## References

Centers for Disease Control and Prevention. (2020). *HPP-PHEP Preparedness Domains*.

<https://www.cdc.gov/cpr/whatwedo/phep.htm>

NH Department of Health and Human Services. *Press Releases for 2021*.

<https://www.dhhs.nh.gov/media/pr/2021/index.htm>

Office of the Governor. *Emergency Orders-2020*. [https://www.governor.nh.gov/news-and-](https://www.governor.nh.gov/news-and-media/emergency-orders-2020)

[media/emergency-orders-2020](https://www.governor.nh.gov/news-and-media/emergency-orders-2020)

Office of the Governor. *Press Releases*. <https://www.governor.nh.gov/news-and-media/state-emergency-operations-center-and-joint-information-center-close>

State of New Hampshire. *COVID-19 Interactive Dashboards*. <https://www.covid19.nh.gov/>

## Appendix E After-Action Meeting Input

The following comments reflect the stakeholder input gathered through the November 7, 2022 After Action Meeting convened and facilitated by the Granite State Health Care Coalition. When possible, recommendations were included in the After Action Report and held for consideration by both the Granite State Health Care Coalition and NH DHHS, DPHS Bureau of Emergency Preparedness, Response, and Recovery as recipients of both HPP and PHEP funding.

Incident Management

Guidance from state and CDC were often not in alignment. Facilities were caught between CMS rules and state guidance.
14
0

ACS process was not clearly defined and did not follow an established plan
7
1

State direction and priorities would change without advanced notice to partners, which often caused delays in continuity of service.
6
0

State incident command structure was unknown. Partners, including local community leaders, were unclear of the implementation of their roles and who was making decisions.
4
0

COVID guidance was implemented through executive order. The task force that established this guidance did not involve public health.
4
0

Need better understanding of National Guard deployment including duties, responsibilities, staff proficiencies, length of deployment, requesting services including ramp up time.
4
3

COVID strengthened the community of hospitals and created a mechanism by which resources can be shared across the state. Through NHHA, the daily huddles with CEOs, CMOs, CNOs was helpful to find out status at other facilities and increased awareness statewide.
3
1

Complexity of congregate settings required a lot of training.
3
1

EMS centric ESF would be a good idea
1
0

## Information Management

Guidances would shift with little or without notice regarding priorities causing confusion and insufficient time to implement. Advance notice, when possible, is needed.

👍 12 🗳 1

Too many changes in vaccine systems caused frustration and reporting inconsistencies. Implement and maintain a master system that collects all data, including pharmacy data so health records can be properly maintained.

👍 10 🗳 0

RPHNs and State PIO were not adequately sharing activities and information in a timely manner.

👍 3 🗳 0

Guidances and messaging such as HAN's and executive orders, etc., need to be in a searchable format.

👍 3 🗳 0

Media messaging and how to access information such as 211 Call centers did not provide answers needed and a better process to provide SME's to address answers is needed.

👍 3 🗳 2

Consistency on vaccine implementation (process, paperwork, job tasks, legal changes) across the fixed and various remote sites is needed to ensure staff understand roles and expectations. Staff who worked different sites found inconsistencies which led to frustration. This includes paperwork and documentation.

👍 2 🗳 0

## Surge Management

Staff turnover has caused a loss of historical knowledge. Not enough trained staff to fill key positions.

👍 13 🗳 0

System of vetting of volunteers needs to be improved.

👍 4 🗳 3

Comprehensive resource manual, after action reports, pod clinic operational manual revisions are needed.

👍 2 🗳 0

Patients were coming home sicker as there were no rooms available at LTC or hospitals; which needed to discharge rapidly

👍 1 🗳 0

From a surge perspective, rolled in community health workers, environmental protection etc. and were cross trained on cluster investigations.

👍 0 🗳 0

## Non-Pharmaceutical Interventions

|  |   |   |  |   |  |   |
|--|---|---|--|---|--|---|
| Isolation and quarantine guidances kept shifting and implementation was not consistent.<br>👍 8 🗳 0 | Managing disinformation and misinformation caused barriers in implementing NPIs. Centralized policy needed to occur across the state and not town by town or business by business.<br>👍 6 🗳 0 | Loss of staff and staffing issues need to be included in response plans including credentialing, licensure, and what is covered under state of emergency and public health incident.<br>👍 6 🗳 0 | Alignments of NPI's varied too much across healthcare entities as they were held to a higher standard than what was being reported on the news and CDC guidances.<br>👍 5 🗳 1 | Had to revise PPE policies to find the best available product to protect staff to the best of our ability.<br>👍 3 🗳 0 | Implementation of State Pandemic Plan was not widely understood<br>👍 2 🗳 0 | The reopening of schools became problematic as people tried to get back to normal.<br>👍 1 🗳 1 |
|--|---|---|--|---|--|---|

## Responder Safety and Health

|  |  |   |  |
|--|--|---|--|
| Staff burnout/ fatigue was prevalent among the healthcare and public health workforce.<br>👍 14 🗳 1 | Hospitals weren't using the same processes or timeline to implement mandatory staff vaccinations for fear of losing staff to other hospitals.<br>👍 4 🗳 0 | Promoting positive mental and behavioral health programs<br>👍 3 🗳 0 | Additional education; such as N95 fit testing train the trainer and test kits to police, fire, and EMS.<br>👍 1 🗳 1 |
|--|--|---|--|

## Vaccine Distribution

+

Vaccination sites were not accessible for vulnerable populations. Those involved in working with these vulnerable populations were not included in decision making and input

8 0

Vehicle-centric sites were considered a best practice. Moving vaccine distribution into buildings made sense on paper, but in actuality maybe not the best idea.

5 1

Actionable policy needs to be developed to target certain populations for information and education; to include homebound, people experiencing homelessness, other marginalized groups.

4 0

Rapid delivery model for therapeutics is needed.

2 0

Multiple presentations of vaccine including dosage, storage/transport, and age recommendations provided considerable logistical concerns.

0 0

## Biosurveillance

+

It would be great to have the mobile van become part of state operations. Hard due to lack of need.

3 1

Moving away from PCR testing availability caused testing equipment to become increasingly expensive.

1 0

Policies and procedures are in place and seemed to be followed. Quality assurance processes were in place at the mobile and fixed sites.

1 0

No issues. Password protected folders for PII were used.

0 0