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PANDEMIC PREPAREDNESS, RESPONSE, AND A RESILIENT FUTURE FOR NORTH CAROLINA:

Recommendations from the Carolinas Pandemic Preparedness Task Force

OCTOBER 2022

NCIOM

North Carolina Institute of Medicine

The North Carolina Institute of Medicine, NCIOM, is an independent organization focused on improving the health and well-being of North Carolinians by providing analysis on the health and well-being of North Carolinians, identifying solutions to the health issues facing our state, building consensus toward evidence-based solutions, and informing health policy at the state and local level.

The full text of this report is available online at www.nciom.org/publications/

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TABLE OF CONTENTS

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The task force was co-chaired by North Carolina Secretary of Commerce Machelle Sanders and Harris Pastides, PhD, MPH, President Emeritus, University of South Carolina. Their leadership and experience were important to the success of the work of the task force.

The North Carolina Institute of Medicine (NCIOM) also wants to thank members of the task force and steering committees in each state who gave freely of their time and expertise to address this important topic. The steering committee members provided guidance and content, helped develop meeting agendas, and identified speakers. For the complete list of task force and steering committee members, please see Page 3 of this report.

Many experts presented to the Carolinas Pandemic Preparedness Task Force. We would like to thank the following people for sharing their expertise and experiences with the task force (positions listed are as of the date of the presentation given): Tom Allen, Director of Safety, Transportation and Emergency Response, South Office of Regulatory Staff-Rural Broadband Grant Program; Steve Ashworth, Owner, Ashworth's Clothing; Linda Bell, State Epidemiologist, South Carolina Department of Health and Environmental Control; Cardra Burns, Deputy Secretary, Operational Excellence, North Carolina Department of Health and Human Services; Hilary A. Campbell, Director, Sheps Health Workforce NC & Health Professions Data System, UNC Sheps Center for Health Services Research; Kimberly Clement, Program Manager, Healthcare Preparedness Program, North Carolina Department of Health and Human Services/Office of Emergency Medical Services; Abdoulaye Diedhiou, Director, Acute Disease Epidemiology, South Carolina Department of Health and Environmental Control; Jennifer Copeland, Executive Director, North Carolina Council of Churches; Nate Denny, Deputy Secretary, North Carolina Department of Information Technology; Tracy Doaks, President and Chief Executive Officer, MCNC; Shannon Dowler, Chief Medical Officer, NC Medicaid; Ellen Essick, Section Chief, NC Healthy Schools, North Carolina Department of Public Instruction; Jill Forcina, Associate Director of CPD, IPE, and Nursing, North Carolina Area Health Education Centers; Chanda Funcell, Director, Charleston Center, South Carolina Department of Alcohol and Other Drug Abuse Services; Iris Green, Supervising Attorney, Disaster Recovery Project, Disability Rights NC; Catherine Guerrero, North Carolina Department of Health and Human Services; Jack Hoke, Executive Director, North Carolina School Superintendents Association, Tatyana Kelly, CHC, Vice President, Planning/Strategy & Member Services, North Carolina Healthcare Association; Victoria Ladd, State School Nurse Consultant, Division of Children's Health and Perinatal Services, South Carolina Department of Health and Environmental Control; Michelle Laws, Assistant Director, Consumer Policy and Community Engagement, Division of Mental Health, Developmental Disabilities, and Substance Abuse Services, North Carolina Department of Health and Human Services; Naomi Lett, President & CEO, United Way Association of South Carolina; Norma Martí, North Carolina Hispanic/Latinx Community Response Team Community Lead, North Carolina Community Engagement Alliance; Patrick Michaels, Chief Executive Officer, Goodwill Industries of the Upstate/Midlands; Tracie Neilson, Critical Care Nurse, Cone Health; Marcus Plescia, Chief Medical Officer, Association of State and Territorial, Health Officials (ASTHO); Shannon Pointer, Vice President of Hospice & Palliative Care, Association for Home & Hospice Care of North Carolina; David Priest, Infectious Disease Specialist, Novant Health; Danielle Scheurer, Chief Quality Officer, MUSC Health System, Hospitalist and Professor of Medicine, MUSC; Janice Somers, Administrator, Westwood Hills Nursing and Rehabilitation; Drew Stanley, Warden, Nash Correctional Institution, North Carolina Department of Public Safety; Valerie Stephens, Respiratory Therapist, CarolinaEast Health System; Brandon Teal, Community Health Worker, Population Health, UNC Health Care; Betsey Tilson, State Health Director and Chief Medical Officer, North Carolina Department of Health and Human Services; Hugh Tilson, Director, North Carolina Area Health Education Centers, Associate Dean and Assistant Professor of Family Medicine, UNC School of Medicine; Louise Vincent, Executive Director, North Carolina Survivor's Union; Hayley Young, Data Office Director, North Carolina Department of Health and Human Services; Cornell Wright, Executive Director, Office of Minority Health and Health Disparities, Division of Public Health, North Carolina Department of Health and Human Services; Ciara Zachary, Assistant Professor, UNC Gillings School of Global Public Health.

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The Carolinas Pandemic Preparedness Task Force reports are dedicated to the over 43,000 North and South Carolinians who have died from COVID-19 since 2020. We also dedicate these reports to the first responders and essential workers who risked and sometimes lost their lives on the front lines, navigating PPE and other supply chain challenges and working tirelessly to provide care during the worst public health disaster this generation has experienced. We were working in "real time" as the pandemic was changing, sometimes for the worse and sometimes for the better.

It is critically important that we recognize the inestimable grief experienced across the Carolinas and beyond. COVID-19 has wrought widespread devastation. Unlike the hurricanes that the Carolinas are practiced at responding to, this disaster was not relegated to certain portions of the state.

And yet . . .

We did, and we do, respond. From neighbors checking in on each other to state leaders holding daily calls to coordinate response efforts, North and South Carolinians stepped up to the task of keeping essential state functions operating, expanding services for those in need, and tracking and tracing COVID-19 data. Sometimes the challenges of the pandemic feel unending, overwhelming, and all-encompassing, but it is critical that we learn from this experience and consider opportunities for continued improvement.

The knowledge we are acquiring during this pandemic could be easily lost to time as today's responders move to other industries and retire. In light of this, as co-chairs of the Carolinas Pandemic Preparedness Task Force, we urge the documentation of the learnings acquired since 2020 to strengthen future pandemic preparedness and response efforts. What challenges have been unexpected? What goals have not been achieved and why? What partnerships and programs have worked well—how can we fund and scale? How can we prevent the illness and loss of life experienced during COVID-19 during future contagious disease outbreaks?

Together we must build cultures of resilience in North and South Carolina that do not ask more of our residents during times of crisis; rather we must create the infrastructure, preparedness, and response resources that will protect us all.

We would like to thank our task force members, steering committee members, and external contributors for their time and dedication during this process.

And finally, this report is not designed to provide a comprehensive history of the pandemic in our states; instead, it is a report that we hope will be found worthy for the time at which it was prepared.

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PREFACE

The thoughtful work of a task force flourishes when its members are afforded distance from the issue at hand. The ability to reflect on an event or circumstance after a period of rest, to set aside the urgencies of one's daily schedule to fully focus mental resources on the areas of concern, and to devote considerable time to uninterrupted issue deliberation all contribute to the ability to think with both the breadth and the depth that the complex issues we study deserve. The North Carolina Institute of Medicine (NCIOM) and the South Carolina Institute of Medicine and Public Health (IMPH) strive to provide a task force process and forum that allows task force members to have this ideal distance and space for reflection.

Due to the extensive response efforts necessary to address seasonal and variant-based surges of COVID-19, the gifts of distance were elusive in this task force process, and we commend our Carolinas Pandemic Preparedness Task Force members for nonetheless achieving the level of quality research and recommendations represented in this report. Task force members jumped onto remote Zoom sessions in between a bevy of other critical pandemic response tasks, such as attending to patient care concerns, organizing complex vaccine administration efforts, and supervising children logging into school from home.

When IMPH and NCIOM began to organize this task force in January 2021, we hoped to be moving toward the end of the response phase and into the recovery period of the pandemic. At that point, the charge for this group was to reflect on lessons learned from the first year of the pandemic. COVID-19, however, had other plans, and while we endeavored to place ourselves back in 2020 and mine those insights, the urgent concerns of the present – the heroic, exhausting, and demanding response efforts of 2021 – competed for our attention. To use a term oft-repeated this past year, we had to "pivot," and embrace a focus on what we were learning and experiencing in real time to inform the recommendations in this report.

This report represents the thoughtful reflections of a group of deeply committed Carolinians who are knee-deep in an extended pandemic response phase and simultaneously doing our level best to document priority lessons in real time – those that we believe are most important and most applicable to future public health emergencies. We do not have the benefits of hindsight in offering these recommendations for improvement, but we do offer something equally as valuable: a time capsule of our "in the thick of it" experience of the COVID-19 pandemic, and the recommended actions our task force members believe are most salient from that perspective. A companion report prepared by the South Carolina IMPH documents the findings particular to our neighbors in South Carolina. The recommendations from the IMPH report can be found in appendix B on page X of this report.

Since we are all Carolinians, perhaps a sports metaphor is in order here. While we had originally anticipated that this task force might be more of a post-game analysis (watching the films, evaluating key plays and possessions), instead we found ourselves gathered in the locker room at half-time, in the heat of a challenging game against a relentless adversary. These recommendations represent our task force's best efforts to reflect on what has been working well and should continue, gaps that remain unfilled and continue to undermine our success, and solutions we ought to consider immediately and for future challenges. We humbly but confidently offer the reflections and recommendations of this committed team of task force members, and the valuable snapshot of this specific – and hopefully unique – moment in time that they represent.

This initiative was a cross-state effort, affording leaders from multiple sectors the opportunity to hear unique lived experiences, and NCIOM and IMPH staff teams the opportunity to learn from one another. The learnings included experiences during COVID-19, efforts that worked well and the reasons behind the success, and equally importantly, efforts that could have gone better and the challenges that were and were not overcome.

The NCIOM and IMPH reports contain areas of commonality across the Carolinas, but also recommendations and priorities unique to each state. We take the opportunity here to highlight seven foundational priorities that are critically important for both states. We emphasize that these are not new issues but rather are perennial concerns across the Carolinas and the United States. The COVID-19 pandemic has exacerbated the challenges our states have been battling for decades, and we must make advancements in these foundational areas to improve our response in a future pandemic, prevent illness and death, and preserve economic stability in the face of upheaval caused by a novel infectious agent.

As Carolinians, we are familiar with the ravages of powerful hurricanes. While we are deeply grateful to committed first-responder teams that undertake courageous rescues of people trapped when the flood waters rise, we know that our most critical investments in hurricane preparedness are not rescue boats and helicopters. Attention to foundational concerns and solid planning and infrastructure, such as assuring that sturdy homes and buildings are constructed on suitable land, saves lives and property during the heaviest storms, and has benefits outside the crisis periods. Likewise, some of the most effective strategies for pandemic preparedness, such as overall health improvement, reliable systems of care, and established partnerships, will help us weather the next pandemic and improve the health and well-being of communities and individuals in our states. The foundational elements listed below are shared strategies to ensure North and South Carolina are better prepared to efficiently plan for and respond to future contagious disease outbreaks.

1 Identified as a priority and framing for all the task force's work at the very beginning, the need to promote **health equity** was pervasive throughout our research, discussions, and recommendation development. While all North Carolinians were at risk from COVID-19, rates of illness, death, unemployment, and other forms of instability did not affect all of us equally. People who face marginalization due to race, ethnicity, income, housing precarity, gender identity, immigration status, and disability faced inequitable challenges in accessing treatment, preventing infection, and finding trusted sources of reliable information. The evidence clearly demonstrates that COVID-19 exacerbated existing inequalities and injustices; our task force members emphasized that creating systems designed to achieve health equity should be a priority for our states, and that they will require new resources, commitment, and an intentional focus on equity.

2 The need for a robust, supported **workforce** underpins many of our recommendations and is a concern for implementation of any of the recommendations of the task force. Without an adequate, high-functioning workforce prepared to respond to a crisis, the best programmatic recommendations will be limited in their effectiveness. An environment ready to respond to and endure a pandemic requires doing more to support the traditional and non-traditional public health and health care workforces across the Carolinas before, during, and after an emergency.

3 Providing accurate **information** to the public about what is happening and how to stay safe during a pandemic is essential, but communicating about evolving situations can be tricky and lead to mistrust if not done with extreme caution and care. We must strengthen the infrastructure for data collection and analysis, communicate to targeted populations through trusted messengers, and ensure that health care providers have the **data** they need to make the best evidence-based recommendations for patient care.

4 The Carolinas need to improve the resiliency and flexibility of **supply chain** operations to safeguard an adequate supply and equitable distribution of personal protective equipment, food, and other commodities needed during an emergency.

5 **Health care** systems must be accessible to all and innovative in their care delivery. Traditional models must evolve to meet the needs of people in their communities and address the social determinants of health along with more clinical concerns. Systems must be flexible enough to shift to emergency operations as needed. Should the next contagious disease outbreak have equal or higher hospitalization rates than COVID-19, the strain on health systems will be too much to bear without appropriate planning and adaptive leadership and systems.

6 Everyone needs the ability to access a continuum of **behavioral health** services and resources. Within and beyond the current context of a strained workforce, our states need better access to services for people who are struggling with everything from serious mental illness to the anxiety and depression caused by the virus and ensuing isolation. The social isolation of the pandemic also led to a significant rise in substance use and deaths from overdose.[1] We must do more to care for people of all ages before and then, during a pandemic, especially those working on the front lines of the crisis.

7 Our states need more adaptive **educational systems** to limit the impact of gaps in school attendance and to support the people working in early care environments, schools, and universities. The impacts of not attending school go beyond educational attainment and learning; we must also adapt to meeting the social and emotional needs of students in the event a virus makes in-person instruction too risky.

We recognize these are bold and ambitious goals, with many applications to pandemic and non-pandemic times. Our reports focus on specific recommendations and action steps that can be taken in each state to address these concerns and provide context from COVID-19 that may be helpful in fighting future pandemics. Experts tell us that new contagious disease outbreaks are imminent.[2,3] For the sake of the health of all the people of the Carolinas, we must act now to ensure a better response in the future.

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[1] *Friedman, J. & Akre, S. (2021). COVID-19 and the drug overdose crisis: Uncovering the deadliest months in the United States, January–July 2020. American Journal of Public Health, e1-e8, [Epub ahead of print]. DOI: 10.2105/AJPH.2021.306256*
[2] *Bakar, F. (2021, June 12). Scientists Say Another Pandemic Is Inevitable, Here's Why. Huffington Post. https://www.huffingtonpost.co.uk/entry/new-pandemic-is-inevitable-deforestation-agriculture-globalisation_uk_61adfbf3e4b07fe20129f87a*
[3] *Jain, K. (2014, December 10). 'Epidemics are optional'. The Harvard Gazette. https://news.harvard.edu/gazette/story/2014/12/epidemics-are-optional/*

In July 2021, the North Carolina Institute of Medicine (NCIOM) and the South Carolina Institute of Medicine and Public Health (IMPH) launched the Carolinas Pandemic Preparedness Task Force. This two-state task force was charged with examining lessons learned during the COVID-19 pandemic and developing consensus around actionable recommendations for a resilient future. The work of the task force was guided by a focus on equity, a cross-sector approach to health and well-being, and attention to the needs of vulnerable and historically marginalized populations, which have been disproportionately impacted by COVID-19.

This report presents 24 recommendations addressing such topics as infrastructure improvements, expanded access to services, and collaborative partnerships. This report presents the scientific evidence and data underpinning these recommendations, as well as the wisdom gleaned from task force members' actions and experiences during the COVID-19 pandemic. The recommendations are both attempts to remedy problems that arose during the pandemic and suggestions for permanently adopting emergent solutions that proved successful and should be implemented in a future public health emergency.

The task force took a "wide-angle lens" approach to the pandemic because of members' common understanding that health is not simply a physiological phenomenon. Health issues are embedded within social and political contexts, which have a definitive influence on the health of individuals and populations. The particular impact of any given pandemic pathogen is a result of the complex interplay of multiple factors: the pathogen's ability to spread and the severity of the illness caused by it; the level of disruption to normal activities required to prevent infection; the availability of effective treatments and preventive agents, such as vaccines; the social and political landscape; and the capabilities—both in terms of technical expertise and cooperation and trust between sectors and among the public —of the societies in which pandemics occur.

Future pandemics are inevitable. The degree of devastation wrought by these pandemics will be determined by such factors as a strong health and public health infrastructure; a well-prepared workforce, a vibrant economy; effective and trusted communications; a robust social services safety net; and adequate access to equipment, supplies, diagnostic tools, and treatments. This report from the North Carolina task force offers policymakers and stakeholders a set of actionable recommendations based on a shared vision and tailored to the needs of North Carolinians. Similarly, the report from the South Carolina task force contains a set of recommendations tailored to the needs of South Carolinians, and the preface to this report highlights the cross-cutting, foundational recommendations shared by both states.[a]

Each report represents a time capsule of the challenges, successes, and lessons learned, and reflects the shared experiences of North and South Carolinians during the first two years of the COVID-19 pandemic.

Task Force Vision for Pandemic Preparedness in North Carolina

Our vision for pandemic preparedness, response, and recovery in North Carolina is a system and culture that centers the needs of vulnerable and historically marginalized populations and elevates strategies to achieve equity; supports data-driven decision-making and emergency management; and promotes effective coordination in navigating the challenges presented by disease outbreaks, pandemics, and other public health emergencies. The North Carolina task force identified the following components as essential to achieving this vision:

- Access to the supplies necessary to effectively control the spread of disease and reduce disease risk, particularly among the most vulnerable and those at highest risk, and a robust supply chain to support access to needed supplies (Chapter 3)
- Infrastructure changes to support adaptability in meeting response-related needs and promoting health and safety by reducing the transmission of respiratory pathogens (Chapter 4)
- Workforce development that prioritizes retention and strengthening the workforce pipeline to promote sustainability (Chapter 5)
- Modernized surveillance and information systems to support data-driven decision-making and clear, effective, and tailored communication of public health guidance to North Carolinians (Chapter 6)
- Expansion of broadband infrastructure and addressing digital literacy to bridge the digital divide, and improved provider capacity to offer supports and services (Chapter 7)
- System changes to ensure supports and services exist to be accessed before, during, and after public health emergencies, and clear, effective, and tailored communications about accessible supports and services to North Carolinians (Chapters 8 and 9)
- Promotion of effective coordination and maximizing resources by establishing new partnerships and maintaining existing partnerships, and system changes to support partnerships and collaboration (Chapter 10)

In addition, the task force recognizes that this report will be used by different people across North Carolina for a variety of purposes and goals. Policymakers, organization leaders, and practitioners will consult these pages for context as well as for concrete actions to improve our state's resilience, preparation, and emergency response. Community members, employers, and other private sector leaders will use the background information and stakeholder perspectives in this report to inform the development of new or continued partnerships. Partnerships across these stakeholders and with government agencies will allow communities to better prepare neighborhoods, economic sectors, and other entities for the economic and social shocks of a future pandemic or other public health

[a] *Lessons Learned from COVID-19: Contagious Disease Outbreak Planning and Response in South Carolina, full report can be accessed at https://imph.org/wp-content/uploads/2022/08/SCIMPH-Pandemic-Preparedness-Taskforce-Report-2022.pdf*

emergency. Researchers, advocates, and scholars of public policy may focus on the recommendations in this report to assess the impacts of existing policies and identify gaps that need urgent attention.

The needs of one specific additional audience—posterity—also deserve our consideration. Future North Carolinians may, in calmer times, use this report to better understand the conditions and challenges of the COVID-19 pandemic and our collective successes and failures in addressing them. Should these future leaders also face the daunting task of responding to a rapidly spreading infectious disease, the lessons learned and documented in this report may provide guidance for their decisions and their work.

Recommendations from the Carolinas Pandemic Preparedness Task Force

Building a Resilient Supply Chain

The COVID-19 pandemic exposed existing and long-standing vulnerabilities across multiple supply chains. Supply chain challenges that arose during the COVID-19 pandemic varied widely in terms of the strategies used by manufacturers, purchasers, and vendors to manage their inventories, and within distribution channels.[1,2] There have also been widespread labor and material shortages, disruptions in shipping supplies, and other challenges associated with fluctuating demand. Many products—food, cleaning supplies, hand sanitizer, thermometers, and testing kits, for example—became inaccessible or otherwise unaffordable in the early months of the pandemic.[3]

The drivers of supply chain challenges during the COVID-19 pandemic have been complex, and national and state-level experts have proposed many different solutions to improve supply chain resilience.[4–6] Some experts have proposed regionalizing the production of supplies to reduce foreign dependency and shifting away from "lean" manufacturing and procurement practices to build supply inventories in anticipation of distribution delays,[7,8] while others have suggested that sustainable, long-term solutions to ensure access to supplies should instead leverage the strengths of supply chain globalization and increase visibility into supply levels to inform strategic planning.[9] The strategies in **Chapter 3** represent actions recommended by the task force that can be undertaken at the local and state levels to build supply chain resilience in North Carolina. These strategies focus on personal protective equipment (PPE) and other supplies needed by the health care and frontline essential workforces, although the task force emphasized the need for future efforts to investigate and address the wide-ranging impacts of shortages, distribution delays, and inadequate access to other essential supplies on North Carolinians during the COVID-19 pandemic.

RECOMMENDATION 3.1

Ensure adequate personal protective equipment (PPE) and other supplies to protect the health and safety of the health care and frontline essential workforces.

Strategy 3.1a: The North Carolina Division of Emergency Management should conduct a study to assess emergency declarations and other local, state, and national-level processes or mechanisms (including but not limited to the Defense Production Act) that could help to (1) shift the distribution of PPE and other supplies and (2) ramp up the production of PPE and other supplies in North Carolina in response to needs. This assessment should also identify strategies to strengthen communication with procurement and purchasing offices and support their understanding of PPE and other supplies needed during public health emergencies.

Strategy 3.1b: The North Carolina Department of Health and Human Services should develop and regularly update a policy manual to establish guidelines for stockpiling and monitoring PPE and other health care supply levels in partnership with the North Carolina Healthcare Association, North Carolina Health Care Facilities Association, North Carolina Medical Society, North Carolina Nurses Association, North Carolina Medical Group Management Association, and Western North Carolina Medical Managers Association. This policy manual should include guidelines around the collection, interpretation, and reporting of data on PPE and other health care supply levels and the distribution of these supplies.

Strategy 3.1c: The North Carolina Department of Commerce, NC Chamber, North Carolina Nurses Association and other partners should work with hospitals and health systems to ensure the development of local infrastructure for PPE and other supplies in North Carolina.

Strategy 3.1d: The Office of State Budget and Management, in partnership with the North Carolina Department of Administration, should (1) survey North Carolina Department of Administration subcontractors that purchased and distributed PPE using CARES Act funding to assess the effectiveness of this model in streamlining PPE delivery to health care providers and facilities and (2) consider opportunities to modify procurement processes during public health emergencies based on the results of this assessment.

Strategy 3.1e: Building on the work outlined in Executive Order 143 and in the North Carolina Department of Commerce's Strategic Economic Development Plan for the State of North Carolina, the North Carolina Department of Administration should conduct an annual procurement planning survey to (1) identify local contracting opportunities for PPE and other needed supplies and (2) increase access to contracting opportunities for historically underutilized and other small businesses. The results of this survey should be publicly accessible and widely disseminated to support the North Carolina Department of Commerce, the North Carolina Pandemic Recovery Office, and other economic development partners in identifying and working to increase the manufacturing of PPE and other needed supplies locally.

Strategy 3.1f: The North Carolina Department of Commerce should partner with the NC Chamber and other economic development partners to consider opportunities to incentivize or otherwise encourage the formation of public and private sector partnerships to manufacture, purchase, or distribute PPE and other needed supplies in alignment with the North Carolina Department of Commerce's Strategic Economic Development Plan for the State of North Carolina.

Strategy 3.1g: The North Carolina Healthcare Association, NC Chamber, and partners at the Duke University School of Medicine, UNC Health Care System, ECU Health, Atrium Health Wake Forest Baptist, and other North Carolina health systems should establish an advisory group to study the challenges associated with verifying the quality of PPE purchased from new suppliers and develop a plan to ensure the provision of high-quality PPE to health care providers and frontline essential workers.

Improving Infrastructure to Promote Health, Safety, and Well-Being

The strategies in **Chapter 4** represent actions recommended by the task force to improve North Carolina's infrastructure with the goal of ensuring indoor air quality before, during, and after infectious disease outbreaks and other public health emergencies. When an outbreak does occur, these strategies will support efforts to keep schools and other indoor facilities open by reducing the spread of disease and better protecting frontline essential workers and vulnerable populations, along with their loved ones and communities. Additionally, these strategies address the ways in which historically marginalized populations may be at greater risk of infection and illness due to disparities in infrastructure quality in homes, schools, and other facilities. It is important to note that the task force discussions did not include all built environments; instead, the discussions focused on environments where closures would be (or were) highly disruptive and would (or did) impact large numbers of people and/or highly vulnerable individuals, such as workplaces, schools, and prisons. In response, the task force recommends five strategies to improve indoor air quality and strengthen infrastructure to deliver services to communities in need:

RECOMMENDATION 4.1

Upgrade existing structures and construct new facilities with infection control measures in mind.

Strategy 4.1a: To reduce the spread of airborne pathogens among students, teachers, and school system employees, the North Carolina General Assembly should provide funding to (1) support ventilation upgrades and carbon dioxide (CO_2) monitoring in schools and (2) ensure proper ventilation and CO_2 monitoring in the construction of new school facilities in accordance with the recommendations for reducing airborne infectious aerosol exposure provided by the Centers for Disease Control and Prevention, Environmental Protection Agency, American Society for Heating, Refrigerating and Air-Conditioning Engineers, and the North Carolina Department of Health and Human Services.

Strategy 4.1b: The North Carolina Department of Public Instruction and the North Carolina Department of Health and Human Services' Occupational and Environmental Epidemiology Branch should work together to develop and provide ongoing guidance for school systems and state agencies to (1) understand the risk of exposure to airborne infectious aerosols based on carbon dioxide (CO_2) level monitoring and (2) identify effective strategies to reduce exposure and infection risk.

Strategy 4.1c: The North Carolina Department of Health and Human Services, North Carolina Society for Human Resource Management, Office of State Human Resources, and other private sector partners should work together to (1) establish minimum standards to reduce the risk of exposure to airborne infectious aerosols in workplaces and (2) evaluate and assess opportunities to provide incentives for employers and employees that implement additional evidence-based strategies to reduce the risk of exposure to airborne infectious aerosols in workplaces.

Strategy 4.1d: The North Carolina General Assembly should provide additional funding to the North Carolina Department of Public Safety to (1) upgrade heating, ventilation, and air conditioning (HVAC) systems to improve indoor air quality and reduce airborne infectious aerosol exposure in North Carolina prison facilities and (2) create a multidisciplinary team to provide infection control guidance and other forms of technical assistance to state prisons, county jails, and detention centers with the goal of promoting the health, safety, and well-being of justice-involved populations and staff.

Strategy 4.1e: North Carolina Emergency Management, North Carolina Office of Emergency Medical Services, North Carolina Healthcare Association, and other partners should work together to develop a plan to (1) ensure that existing assets can be quickly converted into mobile care units and (2) identify locations that would most benefit from the deployment of mobile care units during declared emergencies. This plan should consider the need for potential revisions to existing statutes to allow for payment for mobile services within and/or outside the context of declared emergencies.

Strengthening the Health Care and Frontline Essential Workforces

The health care and frontline essential workforces provide vital services and supports to North Carolinians before, during, and after public health emergencies and other times of crisis. When SARS-CoV-2 emerged in late 2019, long-standing vulnerabilities in the health care and frontline essential workforces were exposed, threatening the health, well-being, and safety of workers and further straining systems that ensure access to food, housing, health care, transportation, and education services.[10] The COVID-19 pandemic has also created new, unanticipated challenges, leading to exhaustion, burnout, and other harms to workers and to the sustainability of these workforces.

The challenges of the COVID-19 pandemic have reinforced the need for system-level changes that promote flexibility and adaptability in response to the evolving and fluctuating needs of populations served across the state.[11] In response, the task force has provided five recommendations that will ensure the development of effective solutions that address the needs of the health care and frontline essential workforces in particular, and the workers who comprise these workforces. The recommendations provided in **Chapter 5**, which include a number of actionable strategies to support the overarching goals described within each recommendation, are collectively intended to strengthen the health care and frontline essential workforces:

RECOMMENDATION 5.1

Develop and implement an action plan to respond to urgent and long-term health care workforce needs.

Strategy 5.1a: The North Carolina General Assembly, North Carolina Department of Health and Human Services, and/or philanthropic organizations should provide sustained, ongoing funding to establish and resource the North Carolina Center on Workforce for Health. The work of the Center should include an assessment of staffing and resource allocation levels to understand workforce shortages, areas in which workload has exceeded capacity, and adequate staffing levels needed in the event of another COVID-19 surge or other public health emergency; and the identification and sharing of best practices to address these issues.

Strategy 5.1b: The Center on Workforce for Health should develop an action plan that focuses on: (1) recruitment and retention of the health care workforce, ensuring that provider and clinician perspectives are included in the development and implementation of this action plan; and (2) pathways into health professions and opportunities to strengthen the health care workforce pipeline.

Strategy 5.1c: The North Carolina Department of Health and Human Services should work with leadership of the forthcoming Center on Workforce for Health to identify areas of alignment between the Department's strategic plan and the research and analysis work of the Center.

Strategy 5.1d: The North Carolina Healthcare Association, North Carolina Healthcare Facilities Association, Association for Home & Hospice Care of North Carolina, North Carolina Medical Society, North Carolina Nurses Association, Old North State Medical Society, North Carolina Medical Group Management Association, and Western North Carolina Medical Managers Association should work with local coalitions and partners engaged in implementing the forthcoming Center on Workforce for Health to assess health care workforce shortages (including those facing hospitals, health systems, independent physician practices, long-term care, and other elements of the health care ecosystem in the state) and develop short, medium, and long-term solutions.

RECOMMENDATION 5.2

Assess workforce shortages and other needs of frontline essential workers to support continuity-of-operations planning.

Strategy 5.2a: North Carolina county commissioners should conduct a study of the issues facing the frontline essential workforce to understand shortages and requirements for ensuring continuity of operations in North Carolina's cities and counties during public health emergencies. This study should focus on water and wastewater management, solid waste services, emergency medical services, public safety, and other community-specific areas of interest.

Strategy 5.2b: The North Carolina Association of County Commissioners should provide guidance and technical assistance to county commissioners in their efforts to study issues facing the frontline essential workforce described in Strategy 5.2a.

Strategy 5.2c: The Office of Human Resources for the University of North Carolina system, Office of Human Resources for the North Carolina community college system, and North Carolina's independent colleges and universities should conduct a study to ensure adequate staffing levels for essential personnel.

RECOMMENDATION 5.3

Prioritize the health, well-being, and safety of the health care and frontline essential workforces.

Strategy 5.3a: The following entities should continuously evaluate evidence-based strategies to address burnout, compassion fatigue, and other mental and behavioral health needs—including but not limited to existing peer-to-peer support programs, support lines, and incentives to increase mental and behavioral health services available to workers—and consider opportunities for expansion of these strategies (see Strategy 5.3a for additional information).

Strategy 5.3b: The North Carolina Society for Human Resource Management, North Carolina Office of State Human Resources, and employers should develop and update policies and procedures to: (1) establish clear expectations and channels of communication between employees, managers, and human resources; (2) provide employees with tools and resources to manage stress and conflict; and (3) increase employee awareness of the resources available to help manage stress and conflict.

Strategy 5.3c: The North Carolina General Assembly should amend relevant statutes to include an add-on criminal charge or other penalty for harassment of a health care worker and/or frontline essential worker in relation to action(s) undertaken in furtherance of implementing one or more policies related to a state of emergency declared pursuant to G.S. 166A-19.20.

Strategy 5.3d: The North Carolina Department of Health and Human Services should convene representatives from the North Carolina Healthcare Association, North Carolina Association of Local Health Directors, North Carolina Medical Society, Old North State Medical Society, North Carolina Nurses Association, North Carolina Association of Physician Assistants, North Carolina Health Care Facilities Association, NC Chamber, North Carolina Department of Commerce, North Carolina Department of Public Safety, and the North Carolina Medical Group Managers Association to develop and implement other strategies to protect health care and frontline essential workers from threats, harassment, and other forms of violence before, during, and after public health emergencies.

Strategy 5.3e: The UNC School of Government, North Carolina Institute for Public Health, North Carolina Public Health Association, and North Carolina Association of Local Health Directors should work together to address threats and harassment of the local public health workforce (see Strategy 5.3e for additional information).

RECOMMENDATION 5.4

Strengthen workforce recruitment and retention.

Strategies 5.4a–5.4d focus on retention and well-being of North Carolina's workforce across sectors and industries, while **Strategies 5.4e–5.4g** are designed to support recruitment of health care workers and pathways into the health care workforce in particular.

Strategy 5.4a: The North Carolina Department of Commerce, NC Chamber, North Carolina Society for Human Resource Management, the Office of State Human Resources, and Family Forward NC should work together to develop additional tools, resources, and guidance for employers on:

- Managing remote work and employees working remotely;
- Offering flexibility during public health emergencies and other crises, as well as developing strategies to improve employers' ability to offer flexibility to employees as a long-term strategy of promoting recruitment and retention; and
- Creating staff development and training opportunities that are accessible remotely, and strategies to support employers in pivoting to alternative methods of delivering staff development and training opportunities.

Strategy 5.4b: The North Carolina General Assembly should consider statewide approaches to paid sick leave to help workers maintain financial stability during public health emergencies, ensuring that paid sick leave can be used by workers when experiencing illness and when providing care to their loved ones.

Strategy 5.4c: The North Carolina Department of Commerce, NC Chamber, Economic Development Partnership of North Carolina, and other partners should study the potential impact of providing wage supports—such as retention bonuses, hazard pay, and other monetary rewards—to increase retention.

Strategy 5.4d: Hospitals across the state should establish policies and procedures to promote the inclusion of bedside clinicians and practitioners in decision-making processes.

Recruitment and Workforce Pathways

Strategy 5.4e: The North Carolina Department of Health and Human Services, in partnership with historically minority-serving institutions, should consider strategies to increase the accessibility and affordability of educational opportunities with the goal of improving diversity and economic stability across the health care workforce. Strategies should include (1) offering resources and supports for students applying to college who intend on taking health-related courses to advance their career or major in a health-related program, (2) expanding access to tuition assistance and paid internships, and (3) elevating existing opportunities focused on increasing diversity.

Strategy 5.4f: The North Carolina Area Health Education Centers should consider strategies to increase the accessibility and affordability of educational opportunities with the goal of improving diversity and economic stability across the health care workforce. Strategies should include promoting access to mentorship beginning in the middle grades.

Strategy 5.4g: University of North Carolina system schools, North Carolina's community colleges, and independent colleges and universities across the state should apply findings from **Recommendation 5.1** to the development of curricula, recruitment efforts, and other strategies of illuminating workforce pathways into health care.

RECOMMENDATION 5.5

Provide flexibility to health care workers to increase surge capacity during public health emergencies.

Strategy 5.5a: The North Carolina Medical Board, North Carolina Board of Nursing, North Carolina Healthcare Association, North Carolina Medical Society, North Carolina Nurses Association, Old North State Medical Society, North Carolina Medical Group Management Association, Western Medical Group Managers Association, and others should work together to (1) identify potential areas of flexibility for health care providers during declared public health emergencies and (2) consider criteria that must be met before flexibilities can be used by providers during declared public health emergencies.

Strategy 5.5b: The North Carolina General Assembly and/or Executive Order from the Governor should provide immunity from medical malpractice liability[12] and address other vulnerabilities associated with practicing under unusual circumstances to encourage providers who have met the criteria identified as part of **Strategy 5.5a** to exercise their flexibilities with the goal of increasing surge capacity.

Data-Driven Decision-Making and Effective Communication with the Public

Developing core capabilities to identify, report, and respond to infectious disease outbreaks and other public health emergencies is central to North Carolina's preparedness.[13] During a crisis, state and local leaders need timely, reliable data to identify the populations and communities at highest risk and potential actions that can be taken to address those risks. Timely, reliable data can also help leaders understand the health challenges and structural barriers faced by communities at baseline, supporting equity-focused policies and strategies that can better protect these communities when a public health emergency occurs. North Carolinians need timely, reliable data to understand their individual risks and guide their day-to-day decisions as well, especially during times of crisis. The translation of data into actions that can or should be taken by individuals in communities across the state relies on effective communication by leadership, along with trust in those leaders and the policies they develop. The recommendations in **Chapter 6** are designed to strengthen North Carolina's systems and structures to better support data-driven decision-making and effective communications with the public:

RECOMMENDATION 6.1

Advance equitable access to vaccines and therapeutics through data development.

Strategy 6.1a: The North Carolina General Assembly, North Carolina Department of Health and Human Services, local health departments, health systems, pharmacies, other health care providers, and community partners should ensure ongoing investment in data collection on vaccine distribution and uptake, including the collection of data disaggregated by race, ethnicity, age, gender, preferred language, geography (region, county, ZIP code, census tract, etc.), and other demographic characteristics to inform policies, procedures, and outreach strategies that promote equity and minimize disparities.

RECOMMENDATION 6.2

Strengthen state and local communications infrastructure and capabilities.

Strategy 6.2a: The North Carolina General Assembly and county commissioners should provide additional state and local appropriations to ensure that all local health departments have public health information officers and other staff with the majority of their time allocated to internal and external communications.

Strategy 6.2b: The North Carolina General Assembly and county commissioners should provide additional state and local appropriations to support community health workers and other trusted messengers in the community working in partnership with state and local public health to deliver targeted, accessible communications and increase community engagement.

RECOMMENDATION 6.3

Ensure the inclusion of key perspectives in the development, implementation, and evaluation of communication strategies.

Strategy 6.3a: The North Carolina Department of Health and Human Services and local health departments should continue to (1) engage and include community representatives and representatives from business, traditional, and social media and public relations; K–12 and higher education; and other key perspectives from targeted audiences in the development, implementation, and evaluation of communication strategies, and (2) conduct community listening sessions and message-testing sessions to inform communication strategies as part of their shared work.

Strategy 6.3b: The North Carolina Department of Health and Human Services should establish a statewide consortium with regional representatives from business, media and public relations, public health, health care systems, faith-based leaders, education, trusted community-level messengers, and other partners to (1) establish or strengthen trusting relationships, (2) strategize opportunities to promote consistent, collaborative messaging, and (3) develop recommendations around communicating data and scientific information.

Note: Additional recommendations were developed by the North Carolina Institute of Medicine Task Force on the Future of Local Public Health and supported by the Carolinas Pandemic Preparedness Task Force. Please see the final report from the Task Force on the Future of Local Public Health for additional details and information (www.nciom.org/publications).

Improving Access to Information and Services: Broadband Infrastructure, Telehealth, and Remote Learning

Closing the digital divide and achieving digital equity are critical to promoting the health, safety, and well-being of North Carolinians by ensuring ongoing access to health care services, remote instruction, and other services and supports before, during, and after future COVID-19 surges and other public health emergencies. Closing the digital divide is also critical to supporting small businesses in unserved or underserved areas of the state without access to affordable high-speed internet in efforts to modernize their practices, which can strengthen the stability and resilience of North Carolina's economy.

The task force's recommendations in **Chapter 7** include actions that can be undertaken across the state to improve access to information and services before, during, and after public health emergencies. These recommendations focus on increasing access to affordable high-speed internet in unserved and underserved communities, ensuring internet-enabled devices for students, and supporting partnerships to close the digital divide. **Chapter 7** also focuses on telehealth services, understanding that closing the digital divide is a key aspect of promoting ongoing access to health care services and supports in a remote setting. Together, the recommendations in **Chapter 7** will build the capacity of communities across the state to receive information and effective communications from state and local entities.

RECOMMENDATION 7.1

Strengthen broadband infrastructure and improve digital equity.

Strategy 7.1a: The North Carolina Department of Information Technology should continue to work with private and public sector partners to strengthen broadband infrastructure, improve digital equity, and close the digital divide by:

1. Establishing and tracking performance measures to assess digital equity, support strategic planning to promote digital equity, and examine opportunities to use current performance measures more effectively.
2. Mapping initiatives and partnerships to promote coordination around efforts to assess and address gaps and needs across the state.
3. Partnering with NC Medicaid and commercial insurers to assess the effects of digital equity initiatives on utilization of telehealth services and resulting health outcomes.

RECOMMENDATION 7.2

Support ongoing access to clinically appropriate telehealth services and medications.

Strategy 7.2a: NC Medicaid should continue to track evidence-based service delivery offerings to expand clinically appropriate health care services for Medicaid beneficiaries.

Strategy 7.2b: NC Medicaid and private insurers should explore opportunities to build the capacity of health care providers to deliver telehealth services by improving digital literacy, offering additional administrative and technical support, and considering potential incentives for health care providers to expand access to telehealth services for beneficiaries.

RECOMMENDATION 7.3

Improve the transition to remote learning for school systems, teachers, students, and their families during public health emergencies.

Strategy 7.3a: The North Carolina Department of Public Instruction should evaluate existing one-to-one (1:1) computing initiatives to (1) assess their effectiveness and impact on student learning and (2) consider whether the 1:1 model should be pursued statewide based on the results of this evaluation.

Strategy 7.3b: The Digital Teaching and Learning Division within the North Carolina Department of Public Instruction should partner with public and charter schools, also known as Public School Units (PSU), faith-based organizations, and other community-based organizations to provide digital literacy training and technical assistance to parents and guardians. These organizations should share learnings from these trainings with MCNC (a technology nonprofit based in North Carolina) to inform MCNC's ongoing provision of direct technologies (connectivity, cybersecurity, and consulting) to PSUs.

Ensuring the Availability of Health Care Services

Access to comprehensive, quality health care services is critical to achieving and maintaining health, preventing and managing disease, and achieving health equity. Throughout the task force process, task force members identified the need for comprehensive access to health care services as a critical component of pandemic preparedness. Individuals need to be able to receive affordable and high-quality health care services, including care for emerging infectious diseases as well as preventive care, acute care, and behavioral health and substance use services. In addition, as policymakers address learnings from the pandemic, it is important to prioritize a thorough understanding of the drivers and impacts of forgone care during pandemic closures or due to other circumstances. While health care services are clearly of dire importance during a pandemic or other infectious disease outbreak, the recommendations in **Chapter 8** acknowledge that regular and affordable preventive care, acute care, and chronic condition management are critical at all times.

RECOMMENDATION 8.1

Ensure access to high-quality, low-barrier health care before, during, and after public health emergencies.

Strategy 8.1a: The North Carolina General Assembly should increase access to and utilization of health care services for uninsured residents.

Strategy 8.1b: NC Medicaid and private insurers should explore opportunities to relieve prior authorization requirements for prescription medications.

RECOMMENDATION 8.2

Ensure comprehensive and equitable access to diagnostic testing services.

Strategy 8.2a: State and local health departments should enhance coordination with and support for laboratory infrastructure to ensure efficient testing services and procurement of necessary materials.

Strategy 8.2b: Stakeholders should develop standards of care and ongoing implementation strategies that incorporate best practices from innovative approaches implemented during the COVID-19 pandemic. Health systems, state and local health departments, laboratory partners, employers, schools, higher education institutions, and community-based organizations should identify the most successful strategies that prioritized continued access to diagnostic testing services, particularly among historically marginalized populations and/or those most heavily impacted. Strategies may include use of community health workers, mobile testing units, school- and employer-based services, faith-based organizations, and other approaches.

The North Carolina Department of Health and Human Services, local public health departments, federally qualified health centers (FQHCs), higher education institutions, and other partners should continue and expand the convening of cross-sector work groups to identify, share, and plan implementation of best practices in improving access to testing services. Work groups should have an intentional and consistent focus on addressing and alleviating disparities and inequities in access to testing services. Participants should include health systems, community-based organizations, local public health leaders, and other community representatives.

RECOMMENDATION 8.3

Ensure comprehensive and equitable access to diagnostic testing services.

Strategy 8.3a: The North Carolina General Assembly, North Carolina county commissioners, the North Carolina Association of County Commissioners, and the UNC School of Government should provide ongoing financial and technical assistance support to sustain existing harm reduction programs, including syringe services programs and naloxone distribution, before, during, and after public health emergencies to reduce the risk of fatal and non-fatal overdose and infectious disease transmission.

Strategy 8.3b: NC Medicaid and private payers should explore opportunities to increase support for, and provide incentives to, providers offering low-barrier access to evidence-based treatment with buprenorphine and methadone to reduce the risk of overdose and improve outcomes for people who use drugs.

Strategy 8.3c: NC Medicaid and private insurers, the UNC Injury Prevention Research Center, community-based harm reduction programs, and other partners should strategize opportunities to increase access to evidence-based treatment with buprenorphine and methadone in alignment with federal guidance during public health emergencies.

For each of the above strategies, *support* should include financial resources to modify spaces, adjust staffing, or take other necessary actions to reduce exposure to infectious airborne aerosols while providing services.

RECOMMENDATION 8.4

Examine the impact of the COVID-19 pandemic on access to and utilization of health care services.

Strategy 8.4a: Academic research centers, including (but not limited to) the UNC Gillings School of Global Public Health, Sheps Center for Health Services Research, Wake Forest University Maya Angelou Center on Health Equity, Duke-Margolis Center for Health Policy, and others, should examine the impact and burden of missed or delayed health care during the COVID-19 pandemic. Subjects of study should include drivers of missed care, data on resumption of care, impact on health care costs, health outcomes, and projected disease burden. Policymakers should use study results to inform ongoing policies to improve access to preventive and acute care during a public health emergency

Addressing Disparities to Promote Whole-Person Health and Economic Stability

The Carolinas Pandemic Preparedness Task Force prioritized the discussion of long-standing societal and structural factors—such as employment and income, housing, food security, access to child care and human services, and overall financial and economic stability—that contributed to the impact of the COVID-19 virus and the effectiveness of the state pandemic response. These factors will deeply influence the state's ability to withstand future pandemics and public health emergencies.

While the task force recognized that recommendations broadly aimed at improving food security, employment rates, and economic stability were out of its scope of work, members developed several specific recommendations, found in Chapter 9, aimed at understanding and addressing the broad and long-lasting impact of the pandemic and mitigation strategies on economic stability, child care, and education.

RECOMMENDATION 9.1

Assess pandemic-driven impacts on economic stability to mitigate the impact of closures intended to promote public health.

Strategy 9.1a: The North Carolina Department of Commerce, NC Chamber, local chambers of commerce, the Economic Development Partnership of North Carolina, and other work groups created during the course of the pandemic should conduct assessments of the impact of county and state closure policies on small businesses, including short- and long-term financial stability, staffing needs, and ongoing business viability. State and local policymakers should use study results and ongoing input from the business sector to inform revisions of emergency response plans.

Strategy 9.1b: The North Carolina General Assembly, state agencies, community-based organizations, and philanthropic organizations should assess the impact of pandemic-driven closures on families and children, along with historically marginalized and vulnerable populations, such as persons involved in the justice system, individuals facing housing insecurity, and people who use drugs.

Strategy 9.1c: The North Carolina General Assembly, state agencies, community-based organizations, and philanthropic organizations should develop and implement policies to provide additional support and relief to alleviate ongoing impacts based on the results of the assessment described in Strategy 9.1b.

RECOMMENDATION 9.2

Ensure access to high-quality early childhood education.

Strategy 9.2a: The North Carolina Early Education Coalition, in partnership with the North Carolina Early Childhood Foundation, the Child Care Services Association, and the North Carolina Department of Health and Human Services Division of Child Development and Early Education should assess the impact of federal and state action to alleviate financial and staffing impacts of the COVID-19 pandemic on the early care and education industry and provide recommendations for ongoing support, including provisions and planning for emergency child care services.

Strategy 9.2b: Public and private employers should consider policies, such as wage support, additional paid leave, and on-site child care, that support families in obtaining high-quality and affordable child care.

RECOMMENDATION 9.3

Ensure access to social, emotional, and physical health resources in K–12 Public School Units (PSU).

Strategy 9.3a: To provide access to mental and behavioral health support services, the North Carolina General Assembly should provide funding to improve ratios of Specialized Instructional Support Personnel (SISP)—including nurses, counselors, psychologists, and social workers—to students.

Strategy 9.3b: The North Carolina General Assembly should provide funding for a statewide coordinator for the Child and Family Support Team (CFST) initiative for technical assistance and data collection for existing CFST programs and to help expand the CFST across the state.

Strategy 9.3c: North Carolina philanthropic and community-based organizations should provide ongoing funding and technical assistance for training and practices that can be incorporated into PSU Improvement Plans for Social Emotional Learning and School Mental Health

RECOMMENDATION 9.4

Address student learning loss caused or exacerbated by school closures and remote learning.

Strategy 9.4a: To provide increased support for students through one-on-one remediation and enrichment, the North Carolina General Assembly should provide funding to increase the amount of teacher assistants in Public School Units (PSU).

Strategy 9.4b: The North Carolina General Assembly and North Carolina county commissioners should provide increased funding to instructional and non-instructional staff for summer enrichment.

Promoting Collaboration and Coordination to Support Pandemic Preparedness, Response, and Recovery

Effective partnerships are critical to the development and implementation of preparedness, response, and recovery plans that protect the health, safety, and well-being of North Carolinians during times of crisis. In the early months of the COVID-19 pandemic, representatives from local and state-level organizations had frequent meetings—over the phone or virtually, and often on a daily basis—to share information and updates from their agencies or sectors, or from within their communities, to promote collaboration and coordination. These partnerships also helped to promote sharing of technical expertise and skills across organizations, along with personal protective equipment (PPE) and other supplies and resources. At a time when support and resources from the federal government were limited

or inaccessible, cross-sector collaboration and coordination bridged gaps and generated creative solutions to new and complex challenges presented by SARS-CoV-2. Although the COVID-19 pandemic continues as of the writing of this report, many partnerships established during the response will endure, providing new and ongoing opportunities to align around shared goals before, during, and after other public health emergencies. The COVID-19 pandemic underscored the value of building and maintaining effective cross-sector partnerships to promote collaboration and coordination, as well as sharing technical expertise, skills, and resources to address gaps within individual agencies. The recommendations in **Chapter 10** aim to strengthen collaboration and coordination in anticipation of future public health emergencies.

RECOMMENDATION 10.1

Strengthen emergency management infrastructure to support collaboration and coordination around emergency preparedness, response, and recovery

Strategy 10.1a: The North Carolina General Assembly should explore opportunities to provide sustained, multi-year state appropriations to the North Carolina Department of Public Safety's Division of Emergency Management and the North Carolina Department of Health and Human Services' Healthcare Preparedness Program to ensure stable funding and reduce reliance on federal grant funds.

Strategy 10.1b: The North Carolina General Assembly should provide direct access to emergency funding to allow the North Carolina Department of Health and Human Services and local health departments to support ongoing COVID-19 response and recovery needs, such as vaccine administration, testing, communications and outreach, and protective equipment, once federal funds are no longer available for this purpose.

Strategy 10.1c: The North Carolina Department of Health and Human Services should expedite the establishment of the Office of Emergency Preparedness, Response, and Recovery to promote effective collaboration and coordination with North Carolina Emergency Management and leverage their successful partnership in the work of the State Emergency Response Team.

Strategy 10.1d: The North Carolina General Assembly should explore opportunities to provide sustained, multi-year state appropriations to the Office of Emergency Preparedness, Response, and Recovery in SFY 2024–2026.

Strategy 10.1e: North Carolina Emergency Management, the Office of Emergency Medical Services, and the Division of Public Health should define and update the roles and responsibilities of partnering entities outlined in the North Carolina Emergency Operations Plan and other preparedness plans based on input from partnering entities, which should be reviewed and signed by partnering entities annually.

RECOMMENDATION 10.2

Improve communications between local and state-level agencies to promote collaboration and coordination in the absence of a coordinated federal response strategy to guide response efforts.

Strategy 10.2a: North Carolina Emergency Management (NCEM), in partnership with the North Carolina Department of Health and Human Services, should convene local health departments and other partners on a quarterly basis to increase awareness and understanding of the role of NCEM in providing technical assistance and support during emergencies, the value of the incident command system, and the role of the forthcoming Office of Preparedness, Response, and Recovery.

Strategy 10.2b: Local health departments and/or regional coalitions should convene quarterly meetings with local businesses, community-based organizations, faith-based leaders, and other partners to strategize, develop, and update communication plans that can be leveraged before, during, and after public health emergencies.

Strategy 10.2c: The North Carolina Department of Health and Human Services, North Carolina Healthcare Association, North Carolina Medical Society, Old North State Medical Society, North Carolina Medical Group Managers Association, Western Medical Group Managers Association, and philanthropic organizations should work together to identify sustainable funding sources to provide compensation to partners working in community-based organizations for their time, expertise, and contributions.

Strategy 10.2d: The North Carolina General Assembly should (1) provide additional state appropriations to support state and local public health infrastructure, including positions focused on community engagement, small business support, and partnerships, and (2) provide state appropriations to increase capacity among community-based organizations to engage and partner with local and state public health; the Departments of Commerce, Labor, and Agriculture and Consumer Services; Economic Development Partnership of North Carolina; and other organizations.

Strategy 10.2e: The North Carolina Department of Health and Human Services, North Carolina Association of Local Health Directors, North Carolina Emergency Management, North Carolina Department of Commerce, and NC Chamber should establish an advisory group charged with developing strategies to ensure the ongoing, sustainable inclusion of business and private-sector emergency management representatives in public health emergency preparedness, response, and recovery planning.

Strategy 10.2f: The North Carolina Department of Health and Human Services should (1) consider opportunities to strengthen the partnership between state and local public health and the Centers for Disease Control and Prevention (CDC) to increase awareness of resources and tools needed locally, regionally, and statewide, and (2) engage with entities receiving CDC funding to promote coordination.

RECOMMENDATION 10.3

Sustain and strengthen partnerships between school districts, local public health departments, and community partners.

Strategy 10.3a: The North Carolina General Assembly should amend § 115C-81.30(f) to define school health coordinators as employed by public schools and charter schools, also known as Public School Units (PSU), for the purposes of (1) providing support for any portions of the comprehensive health education programs for public and charter schools, (2) serving as liaisons between the local health department and public and charter schools, and (3) providing support for the policy recommendations that School Health Advisory Councils (SHACs) develop.

Strategy 10.3b: The North Carolina General Assembly should provide funding annually for dedicated school health coordinators for each PSU to carry out the responsibilities defined in Strategy 10.3a.

Strategy 10.3c: The State Board of Education should revise administrative code HSP-S-000 (The Healthy Active Children Policy) to require the following representation on School Health Advisory Councils: (1) the local public health department, (2) the office of the district's superintendent, and (3) the PSU school health coordinator.

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In July 2021, the North Carolina Institute of Medicine (NCIOM) and the South Carolina Institute of Medicine and Public Health (IMPH) launched the Carolinas Pandemic Preparedness Task Force. This two-state task force was charged with examining lessons learned during the COVID-19 pandemic and developing consensus around actionable recommendations for a resilient future. The work of the task force was guided by a focus on equity, a cross-sector approach to health and well-being, and attention to the needs of vulnerable and historically marginalized populations, which have been disproportionately impacted by COVID-19.

This report presents 24 recommendations in eight chapters, including such topics as infrastructure improvements, expanded access to services, and collaborative partnerships. This report presents the scientific evidence and data underpinning these recommendations, as well as the wisdom gleaned from task force members' actions and experiences during the COVID-19 pandemic. The recommendations are both attempts to remedy problems that arose during the pandemic and suggestions for permanently adopting emergent solutions that proved successful and should be implemented in a future public health emergency.

As the first task force jointly convened by the NCIOM and IMPH, the Carolinas Pandemic Preparedness Task Force included more than 90 experts and key perspectives from both states across many areas, representing state and local health departments, health care associations and health systems, health care providers, academia, community representatives, philanthropy, social services, behavioral health providers, chambers of commerce and business representatives, advocates for vulnerable populations, and public safety organizations. The NCIOM, IMPH, and partnering agencies prioritized diversity in perspectives, expertise, experience, and demographics among the task force membership, resulting in wide, multidisciplinary stakeholder engagement, robust discussion throughout the task force process, and ultimately a task force report produced by each state that reflects a shared vision. Generous funding and support for this work was provided by The Duke Endowment, the Kate B. Reynolds Charitable Trust, the BlueCross BlueShield of South Carolina Foundation, and the North Carolina Department of Health and Human Services.

A steering committee contributed to the development of goals and refinement of the scope of work to be undertaken by the task force and selection of speakers, and supported the formation of dissemination and communication strategies to promote the final task force report produced by each state. North Carolina Secretary of Commerce Machelle Baker Sanders and Harris Pastides, PhD, MPH, President Emeritus of the University of South Carolina, served as co-chairs of the task force. In total, the NCIOM and IMPH convened the full task force seven times between July 2021 and April 2022 to develop consensus-based, evidence-based, and actionable recommendations to strengthen pandemic preparedness, response, and recovery in the Carolinas. The NCIOM also convened the North Carolina task force for two additional meetings in the fall of 2021, while the IMPH conducted key perspective interviews with South Carolina steering committee and task force members during that time. The scope of the task force's work was structured around four conceptual pillars: economic and social stability, education, equity, and health.

The task force took this "wide-angle lens" approach to the pandemic because of members' common understanding that health is not simply a physiological phenomenon. Health issues are embedded within social and political contexts, which have a definitive influence on the health of individuals and populations. The particular impact of any given pandemic pathogen is a result of the complex interplay of multiple factors: the pathogen's ability to spread and the severity of the illness caused by it; the level of disruption to normal activities required to prevent infection; the availability of effective treatments and preventive agents, such as vaccines; the social and political landscape; and the capabilities—both in terms of technical expertise and with cooperation and trust—of the societies in which pandemics occur.

To achieve the task force's goal of developing consensus-driven and actionable recommendations for timely, coordinated response that maximizes community resilience, members spent hours reflecting on information presented by state and national leaders about these conceptual pillars; studied articles and analyses; and discussed and debated priorities, strategies, and solutions. To effectively address these pillars, task force members were chosen for their professional expertise and lived experience in these sectors, bringing voices from business, education, nonprofits, advocacy groups, and community development alongside health leaders from a variety of health care and public health settings. Task force members committed to learning about issues outside of their own areas of expertise to thoughtfully engage with all aspects of the inclusive scope of this project. Each of the conceptual pillars plays a decisive role in community resilience, and this task force plays a unique role in our state by bringing representatives of these areas together for shared reflection, policy deliberation, and problem-solving.

Future pandemics are inevitable. The degree of devastation wrought by these pandemics will be determined by such factors as a strong health and public health infrastructure, a well-prepared workforce, a vibrant economy, effective and trusted communications, a robust social services safety net, and adequate access to equipment, supplies, diagnostic tools,

and treatments. This report from the North Carolina task force offers policymakers and stakeholders a set of actionable recommendations based on a shared vision and tailored to the needs of North Carolinians. Similarly, the report from the South Carolina task force contains a set of recommendations tailored to the needs of South Carolinians, and the preface to this report highlights the cross-cutting, foundational recommendations shared by both states.[1] Each report represents a time capsule of the challenges, successes, and lessons learned, and reflects the shared experiences of North and South Carolinians during the first two years of the COVID-19 pandemic.

Task Force Vision for Pandemic Preparedness in North Carolina

Our vision for pandemic preparedness, response, and recovery in North Carolina is a system and culture that centers the needs of vulnerable and historically marginalized populations and elevates strategies to achieve equity, supports data-driven decision-making and emergency management, and promotes effective coordination in navigating the challenges presented by disease outbreaks, pandemics, and other public health emergencies. The North Carolina task force identified the following components as essential in achieving this vision:

- Access to the supplies necessary to effectively control the spread of disease and reduce disease risk, particularly among the most vulnerable and those at highest risk, and a robust supply chain to support access to needed supplies (**Chapter 3**)
- Infrastructure changes to support adaptability in meeting response-related needs and promoting health and safety by reducing the transmission of respiratory pathogens (**Chapter 4**)
- Workforce development that prioritizes retention and strengthening the workforce pipeline to promote sustainability (**Chapter 5**)
- Modernized surveillance and information systems to support data-driven decision-making and clear, effective, and tailored communication of public health guidance to North Carolinians (**Chapter 6**)
- Expansion of broadband infrastructure and addressing digital literacy to bridge the digital divide, and improved provider capacity to offer supports and services (**Chapter 7**)
- System changes to ensure supports and services that exist to be accessed before, during, and after public health emergencies, and clear, effective, and tailored communications about accessible supports and services to North Carolinians (**Chapters 8 and 9**)
- Promotion of effective coordination and maximizing resources by establishing new partnerships and maintaining existing partnerships, and system changes to support partnerships and collaboration (**Chapter 10**)

This report has been structured to provide recommendations in support of each component of the vision outlined above, and to provide context and background to support the recommendations of the task force. The task force offers these recommendations with humility and with recognition of the valiant work of the many leaders across our state who made critical decisions with the best information they could gather, often with inadequate resources and incomplete data. This report does not intend to denigrate their work; rather, the recommendations included in this report are designed to identify critical gaps and areas of opportunity, while also elevating, enhancing, and building upon work currently underway in North Carolina that is in alignment with the vision of the task force. The recommendations in this report, if implemented by our legislative and agency leaders, will make our state even more prepared, resilient, and equitable in responding to future emergencies.

[1] *Lessons Learned from COVID-19:Contagious Disease Outbreak Planning and Response in South Carolina, full report can be accessed at https://imph.org/wp-content/uploads/2022/08/SCIMPH-Pandemic-Preparedness-Taskforce-Report-2022.pdf*

Putting the Pandemic in Context: Major Milestones, Challenges, and Policies, 2020–2022

The task force recognizes that this report will be used by different people across North Carolina for a variety of purposes and goals. Policymakers, organization leaders, and practitioners will consult these pages for context as well as for concrete actions to improve our state's resilience, preparation, and emergency response. Community members, employers, and other private sector leaders will use the background information and stakeholder perspectives in this report to inform the development of new or continued partnerships. Partnerships across these stakeholders and with government agencies will allow communities to better prepare neighborhoods, economic sectors, and other entities for the economic and social shocks of a future pandemic. Researchers, advocates, and scholars of public policy may focus on the policy recommendations in this report to assess the impacts of existing policies and identify gaps that need urgent attention.

The needs of one specific additional audience, posterity, also deserve our consideration. Future North Carolinians may, in calmer times, use this report to better understand the conditions and challenges of the COVID-19 pandemic and our collective successes and failures in addressing them. Should these future leaders also face the daunting task of responding to a rapidly spreading infectious disease, the lessons learned and documented in this report may provide guidance for their decisions and their work.

A definitive and comprehensive history of this period has yet to be written; that is not the aim of this report. This background chapter endeavors to provide sufficient context for understanding the conditions under which major policy and response decisions were made. With the benefit of additional hindsight, delineations between phases of the pandemic may become clearer.

For simplicity's sake, this background chapter uses calendar year 2020 to represent the initial phase of the pandemic, as it was a year that began with the first confirmed case in the United States (January 20, 2020)[1] and ended with the first vaccines offered to health care workers in North Carolina, in mid-December.[2] Calendar year 2021 roughly represents the intermediate phase of the pandemic. The year began intensely with a focus on mass vaccine distribution[3] and management of a surge of hospitalizations that deeply taxed acute care resources.[4] Late spring brought some reprieve with increased vaccination rates and an easing of some social distancing restrictions,[5] but the Delta variant caused a new surge of hospitalizations in the latter half of the year.[6] Calendar year 2022 roughly represents the phase of response "maturity," with continued spread of virus variants;[7] incremental gains and improvements in testing,[8] vaccination,[9,10] and treatment options;[11] and popular risk perception tilting toward the resumption of normal school, business, and social activities.[12]

For each of these phases, we summarize the major challenges and milestones, as well as political, social, and cultural conditions. We also provide an overview of major federal and state policy changes adopted. Additional details can be found in Appendix C: a series of issues briefs published by the NCIOM and IMPH in April 2020, May 2020, February 2021, and April 2021.

2020: Emergency of the Virus, Initial Response, Societal Trauma, and Vaccine Development

It is difficult to adequately convey the intense uncertainty of the initial weeks and months after the first United States case of COVID-19 was confirmed in the state of Washington in January 2020. Between January 21 and February 23, 14 cases of COVID-19 were confirmed in six states, in individuals who had traveled from China and their household contacts. At this point in the pandemic, health officials anticipated that the virus would spread rapidly across the country as it shifted from travel-related cases to transmission within communities. Their assumptions were correct; by April 21, there were 793,669 confirmed COVID-19 cases in the United States.[13] In these early days, officials lacked important understanding of elemental aspects of the virus's characteristics and likely impacts. While experts expected that COVID-19 could manifest similarly to other coronaviruses, specific aspects of transmission were unknown and untested, such as whether it was spread through droplets from coughs and sneezes or through airborne transmission, and whether it lived long enough on surfaces to spread through touch. Whether and how a vaccine could be developed, and how long that process would take, was also unknown.[14] Physicians and researchers began to identify how the virus was transmitted and sickened people, observed patterns of disease trajectory, and shared theories of possible comorbidities that contributed to disease severity, as well as possible treatments and techniques to provide symptom relief. In the absence of full knowledge and without effective medical strategies for treatment and prevention, federal and state officials took unprecedented steps to implement exposure-limiting strategies, such as minimizing travel (especially for foreign nationals into the United States and between states in some cases), limiting large gatherings, and closing schools and some workplaces.[15,16,17] On March 14, 2020, Governor Cooper issued Executive Order 117, which closed all public schools for at least two weeks and prohibited gatherings of 100 people or more.[18] Many public schools in North Carolina remained closed through the rest of the school year and reopened in the fall of 2020 with most or all students attending remotely.[19]

It quickly became clear that these exposure-limiting strategies imposed unequal burdens and would be unsustainable for some (such as people with limited incomes and savings to allow them to remain home from work) and impossible for those whose work could not be performed remotely, such as health care workers, transit employees, and many other frontline essential workers. In addition to these challenges, access to COVID-19 tests was extremely limited and global demand for personal protective equipment (PPE) had increased so rapidly that many health care providers had to develop new partnerships with local manufacturers (many of whom had never before produced medical PPE) for assistance in procuring sufficient stock.[20, 21, 22] Health systems, hospitals, and settings such as long-term care facilities took measures to prevent staff exposures and preserve supplies and equipment, such as cancelling elective and non-urgent procedures and strictly limiting visitors.[23, 24] Anticipating a surge in cases that could exceed capacity for acute care beds, staff, and equipment, the NCIOM, in partnership with the North Carolina Medical Society and the North Carolina Healthcare Association, convened stakeholders in late March and early April to provide recommendations to the North Carolina Department of Health and Human Services (NCDHHS) for the *North Carolina Protocol for Allocating Scarce Inpatient Critical Care Resources in a Pandemic*.[25] Long-term care facilities were especially hard hit in these early months; by May 2020, over 2,500 cases had been confirmed in nursing homes in North Carolina, accounting for 350 deaths.[26]

Amid these challenges, our state was achieving important milestones. COVID-19 testing, which had previously only been available through the CDC, state labs, and inpatient hospital labs to patients who met strict criteria, became more widely available. These tests became an important tool for people to know their status and manage their risk, as well as for developing effective mitigation strategies, including contact tracing, quarantine, and isolation guidelines. In late February, the FDA published its COVID-19 testing guidance for clinical laboratories, and throughout the spring, testing became available for the general public through local health departments, health systems, retail pharmacies, and clinics. Specimen collection was often performed in large-scale, drive-through formats[27,28] and through mobile units sent to locations that were underserved by existing health care facilities, and/or were in areas of elevated risk of exposure and severe illness. [29, 30]

March 25, 2020, brought the sad but expected news of the first confirmed deaths due to COVID-19[31] in North Carolina. In addition, in March 2020, the United States Congress passed three significant pieces of federal legislation to address the pandemic: the Coronavirus Preparedness and Response Supplemental Appropriations Act (March 6), the Families First Coronavirus Response Act (March 18), and the Coronavirus Aid, Relief, and Economic Security (CARES) Act (March 27). The appropriations act provided funds for response and preparedness activities at the state and local level (such as epidemiology, laboratory capacity, and communications), as well as funding to federal institutes to research and develop vaccines, therapeutic measures, and diagnostics.[32] The Families First Coronavirus Response Act provided up to 80 hours of paid sick leave for employees without that benefit, mandated that health insurers provide coverage for COVID-19 diagnostic testing, lifted work requirements associated with food assistance benefits through the SNAP program, and increased unemployment assistance to states.[33, 34, 35, 36]

The CARES Act included $2.5 trillion in federal spending on the first round of direct stimulus payments to individuals, loans for businesses (including the Paycheck Protection Program), and funding for hospitals, health care providers and independent physician practices, community health centers, and state and local governments.[37] **Table 1** includes additional details on CARES Act funding.

Throughout the late summer and fall of 2020, acute care providers prepared for a seasonal surge in cases and worked tirelessly to care for large numbers of ill patients.[38] Also during this time, public health authorities worked to expand access to testing and prepare for mass distribution of vaccine, pending federal authorization based on its safety and effectiveness. In November, important achievements in treatment and vaccine development were announced. The United States Food and Drug Administration (FDA) issued the first Emergency Use Authorization (EUA) for monoclonal antibody treatment and Moderna and Pfizer reported their vaccines to be 94.5% and 95% effective, respectively, in their large-scale clinical trials.[39] North Carolina policymakers began the process of developing the state's vaccine allocation strategy, based on providing vaccinations to those at higher risk of contracting the virus and to those at higher risk of severe disease, with a focus on building on community strengths to develop equitable vaccination access strategies. On December 14, North Carolina received 85,800 doses of vaccine and began immunizing health care workers.[40] In the final months of 2020, hospitals were filling up. By year's end, almost 580,000 positive cases in North Carolina had been confirmed through laboratory testing and the deaths of over 8,000 North Carolinians were attributed to COVID -19.[41]

Events of 2020: Additional Federal and State Context

These challenges and achievements were taking place within a time of deep political, social, and cultural change in the United States. We will not do these circumstances justice here, but briefly mention four key issues that both influenced and were influenced by the pandemic: the 2020 presidential campaign, anti-Asian bias, renewed calls for policing reform and racial justice after the deaths of Ahmaud Arbery, Breonna Taylor, and George Floyd, and transformational changes in the workforce and working conditions.

Table 1. Funding Details in the Coronavirus Aid, Relief, and Economic Security Act and Estimated Beneficiaries in North Carolina

STIMULUS PAYMENTS TO INDIVIDUALS AND FAMILIES	ESTIMATED* % OF HOUSEHOLDS THAT WILL RECEIVE A PAYMENT
• One-time payments of up to $1,200 per adult, $500 per child under 17 • Eligible individuals include all U.S. residents with a Social Security Number who are not claimed as a dependent for tax purposes • Payments calculated using 2019 tax return, or 2018 if not yet filed • Payments will be directly deposited if deposit information avaliable from tax return, otherwise checks will be mailed out beginning around April 17 • Individuals earning $75,000 or less annually (adjusted gross income) will receive $1,200; payments decrease with increasing income and are phased out at $99,000 annually • Individuals filing taxes as "head of household" (usually single parents with children) will receive $500 per child under 17 and are eligible for the full amount if their earnings are $112,500 or less; individual payments are phased out at $136,500 annually; for each additional $10,000 of earnings over $136,500, payment for children will decrease by $500 (e.g., head of household earning $156,600 with two children will not receive payment, but would receive $500 if they had three children) • Married couples earning $150,000 or less annually will receive $2,400; payments are phased out at $198,000 annually • Married couples with children receive $500 per child under 17; for each additional $10,000 of earnings over $198,000, payment for children will decrease by $500 (e.g., married couples earning $218,000 with two children will not receive a payment, but would receive $500 if they had three children)	83% of married parents 94% of single parents 99% of individuals who are single and living with others (no children) 89% of individuals living alone
PANDEMIC UNEMPLOYMENT ASSISTANCE	**STATE UNEMPLOYMENT DETAILS**
• Expands unemployment benefits 13 weeks beyond what states provide • Temporary supplement of $600 per week to unemployment benefits provided by state for four months • Eligible individuals include those who worked part-time, were self-employed, and/or were gig economy workers, if allowed by the state • Furloughed employees can qualify even if still receiving benefits from employer • Federal government will pay first week of benefits if state waives one-week waiting period	New unemployment claims last two weeks of March: 305,804 State unemployment benefits: $350 max weekly; $265 avg. weekly Current recipiency rate***:10% One-week waiting period waived?: Yes
AID TO STATE AND LOCAL GOVERNMENTS = $150 BILLION	**AMOUNT ALLOCATED TO EACH STATE (LOCAL CAP**) $ IN MILLIONS**
• Use for COVID-19-related expenses incurred between March 1, 2020, and December 30, 2020, that are not accounted for in state budgets • 45% of state funds allocated for local governments for areas with populations of 500,000 or more • $8 billion of these funds set aside for tribal governments	$4,067 ($1,830)
LOANS TO SMALL BUSINESSES = $350 BILLION	**ESTIMATED NUMBER OF QUALIFYING BUSINESSES AND EMPLOYEES^**
• Companies with 500 employees or fewer • Up to eight weeks of cash-flow assistance to maintain payroll • If payroll maintained, any funds used for payroll costs, interest on mortgage, rent, or utilities will be forgiven • Loans available retroactively to February 15, 2020, and up to June 30, 2020 • Maximum loan amound based on formula (average monthly payroll x 2.5); maximum loan size $10 million • Applications must be submitted online, available through the US Department of Treasurey website • Also available, Economic Injury Disaster Loans with $10,000 advance	Establishments with 1 to 499 employees: 226,766 Individuals employed by these establishments: 2.98 million
PUBLIC HEALTH AND SOCIAL SERVICES EMERGENCY FUND = $127 BILLION	
• $100 billion intended to "reimburse, through grants or other mechanisms, eligible health care providers for health care related expenses or lost revenues that are attributable to coronavirus" • Hospitals can apply for funding for a variety of COVID-19-related expenses (e.g., construction of temporary structures, medical supplies) • Distribution at the discretion of Secretary of the US Department of Health and Human Services • There are no formulas, eligibility criteria, or requirements for specific geographic distribution • Hospitals will receive a 20% increase in Medicare reimbursement for expenses related to COVID-19 • Scheduled reductions in Disproportionate Share Hospital payments delayed until December 2020 • $27 billion for developing vaccines and purchasing supplies; $16 billion must be allocated to purchases from the Strategic National Stockpile	

Source: North Carolina Institute of Medicine and South Carolina Institute of Medicine and Public Health. Issue Brief: COVID-19 and the Carolinas State Responses and Federal Legislation to Address the Crisis. April 2020. https://nciom.org/wp-content/uploads/2020/04/COVID-Brief_final2.pdf Accessed July 14, 2022.

Table 1. Continued on next page

Continued **Table 1. Funding Details in the Coronavirus Aid, Relief, and Economic Security Act and Estimated Beneficiaries in North Carolina**

LOANS TO LARGE CORPORATIONS = $500 BILLION

- Provided for loans, loan guarantees, and other investments; for up to five years and not forgiven
- Program will be overseen by an inspector general at the Treasury Department
- Specific payments allocated to airlines ($50 billion) and cargo carriers ($8 billion)
- Prohibitions on businesses owned by U.S. President, Vice President, members of Congress, and heads of Executive Departments benefiting

OTHER SELECT APPROPRIATIONS

- COVID-19 testing and vaccines to be provided at no cost to patients
- $1 billion for Indian Health Service for support of medical services, equipment, and supplies
- $1.3 billion for emergency funding of community health centers
- $19.6 billion for Department of Veterans Affairs equipment, testing, and support services
- $1.5 billion for Economic Development Administration to assist communities with economic revitalization after pandemic
- $5 billion to the Community Development Block Grant program to help states and localities respond to COVID-19-related economic and housing impacts (e.g., expanding community health centers, child care, food banks, and senior services)
- $45 billion for Disaster Relief Fund for state and local needs related to the pandemic (e.g., National Guard deployment, personal protective equipment, medical response)
- $30.75 billion Educational Stabilization Fund for states to use for elementary, secondary, and higher education; allocations to states based on formulas^^
- Agriculture-related funding, including $14 billion for Commodity Credity Corporation and $9.5 billion for additional assistance to livestock and specialty crop farmers
- Suspension of federal student loan playments to September 30 with no accrued interest; applies to loans made within past 10 years

**Estimates based on Cecil G. Sheps Center for Health Services research analysis of 2014-2018 American Community Survey (ACS) 5-Year Public Use Microdata Sample (PUMS) Files; U.S. Census Bureau (2020); retrieved from https://www2.census.gov/programs-surveys/acs/data/pums/2018/5-Year/. Assumptions used for estimates: Individuals and couples have filed a tax return in 2018 or 2019; married couples file jointly; individuals who are single may be overestimated due to inclusion of all adults 18 and older without knowledge of dependency status for tax purposes.*

***Local cap refers to the maximum amount a local government can be given from the total state allocation.*

**** Recipiency rate refers to the percent of people applying for unemployment benefits who receive them. North Carolina has the lowest recipiency rate in the country. The US average is 28%. (United States Department of Labor. Recipiency Rates, By State. 2019. https://oui.doleta.gov/unemploy/Chartbook/a13.asp)*

^ Calculations from American Community Survey.2016 Business patterns. CB1600A12: Geography Area Series: County Business Patterns by Legal Form of Organization. North Carolina and South Carolina.

^^ The Center for Budget and Policy Priorities has estimated the amount states will receive from the Education Stabilization Fund and projects that North Carolina will receive $831.6 million ($378.4 million for K-12 schools, $357.6 million for higher education, and $95.6 million for Governors' emergency education relief grants) and South Carolina will receive $410.2 million ($204.0 million, $159.0 million, and $47.3 million, respectively). https://www.cbpp.org/research/state-budget-and-tax/how-much-will-states-receive-throughthe-education-stabilization-fund

In June 2020, Joseph Biden, Jr., secured the Democratic Party nomination for President; the race between Biden and incumbent President Donald Trump played out amid a vastly changed campaign environment that included modifications to election processes to allow for socially distanced voting.[42] Changes to North Carolina election rules included requiring one witness signature (rather than two) on mail-in ballots, submitting mail-in ballot request forms by email or fax, and an online ballot tracking system; this latter change remains in effect but other provisions have reverted back for the 2022 election cycle.[43] Biden's and Trump's distinct approaches to large gatherings and rallies reflected their vastly different approaches to the pandemic, with Trump endorsing return-to-normal activities and reticence regarding masking in public and other public health directives, while Biden's campaign emphasized social distancing[44] and virtual events.

President Trump's time in the White House was uniquely polarizing among American voters, as reflected in opinion polls, voter mobilization, and the close election results in North Carolina. Gallup reported that an average of 88% of Republicans approved of the job Trump was doing during his presidency, while only 7% of Democrats approved,[45] a record-setting divide in Republican-Democrat approval of a sitting president. Trump's 1.3% margin of victory over Biden in North Carolina was an indication of the tight nature of this race in a hard-fought state. The 2020 election had North Carolina's highest voter turnout ever, with over 1 million votes cast absentee-by-mail.[46]

Within this polarized and extraordinarily stressed environment, issues of racial and ethnic inequity and discrimination were prominent throughout the pandemic. Two developments during this initial phase of the pandemic—anti-Asian bias and police-involved deaths of Black Americans—are particularly important to understand because of their relevance to health inequities before and during the pandemic. Early national and state data on COVID-19 indicated deep racial disparities in both infection rates and deaths. For example, while Black or African American residents constitute 22% of the North Carolina population, they accounted for 27% of confirmed COVID-19 cases and 33% of deaths from March 2020 through June 9, 2020. People of Hispanic ethnicity comprise almost 10% of the state's population, but represented 42% of COVID-19 cases during that same period. White residents were underrepresented in both confirmed cases and deaths from March through the end of May 2020. White North Carolinians make up about 61% of the state's population, but accounted for only 43% of cases and 44% of deaths during these first three months of the pandemic,[47, 48] according to publicly available data.

While North Carolinians identifying as Asian (3.3%) were underrepresented in cases (2.7%) and deaths (<1%) during this time period, across the country, reports of violence, discrimination, and hate speech against Asians and Asian Americans rose precipitously, as many blamed China for the pandemic and directed vitriol against Asian people of all backgrounds.[49] The increase in racist incidents in North Carolina prompted a special message in late March from University of North Carolina at Chapel Hill Chancellor Kevin M. Guskiewicz and other campus leaders, as well as an initiative from North Carolina Asian Americans Together to document incidents of discrimination.[50,51] A national study of anti-Asian messages on Twitter from November 1, 2019, through May 15, 2020, identified a large section of North and South Carolina as one of 15 geographic clusters in the country with an elevated and statistically significant rate of anti-Asian tweets.[52] This study also identified two national spikes in anti-Asian tweets during this time period: at the end of January with the first confirmed case of COVID-19 in the United States, and after President Trump tweeted about the "Wuhan flu" and "Chinese virus" in mid-March.

The early months of the pandemic were also marked by repeated incidents of law enforcement-involved deaths of Black people. On February 23, 2020, 25-year-old Ahmaud Arbery was jogging in the neighborhood of Satilla Shores, Georgia, when he was pursued by three men, one of whom shot and killed Arbery after an exchange of words and brief physical confrontation. One of the three, Gregory McMichael, had served as both a police officer in the county and an investigator in the District Attorney's office; no arrests were made at the time of Arbery's death and charges were first filed after bystander video emerged months later, in May 2020.[53] After midnight on March 13, 2020, in Louisville, Kentucky, police used a battering ram to enter medical worker Breonna Taylor's apartment in search of evidence related to a former associate of Taylor's; she was shot multiple times and died on the scene.[54] On May 25, 2020, George Floyd was detained by four police officers in Minneapolis and died in the street after officer Derek Chauvin pressed his knee into Floyd's neck for approximately nine minutes. Each of these cases led to charges against the officers (and former officers) involved. The defendants in Ahmaud Arbery's trial were convicted of felony murder, aggravated assault, and false imprisonment in November 2021, and of federal hate crimes in August 2022.[55] Also in August 2022, the United States Department of Justice announced charges against four police officers involved in the death of Breonna Taylor; to date, one former detective has pleaded guilty to falsifying information to obtain the search warrant of her home.[56,57] Chauvin was convicted of the murder of George Floyd in April 2021.[58]

These and other incidents led to protests across the country and inspired prominent displays and messages from political figures, organizations, and corporations expressing support for changes to combat systemic racism and achieve racial equity in the United States.[59] The impacts of these events on the nation and on the pandemic are far too complex to adequately address here, but some effects of racialized stress and violence on the health of historically marginalized populations are known. Multiple studies indicate the differential traumatic impact of witnessing violent incidents of systemic racism,[60,61,62] with Black individuals reporting far more sadness, anger, depression, and other forms of poor mental health than other racial groups.

These tragic events also spurred leaders to more transparently discuss and attempt to address the effects of systemic racism on pandemic-related outcomes, as well as to develop initiatives to promote equity. For example, in June 2020, Governor Cooper issued Executive Order 143 to address multiple disparities—social, economic, and environmental—in communities of color that have exacerbated health disparities in the pandemic.[63] Also in June, NCDHHS announced grants to five local organizations to address the disproportionate impact of COVID-19 among the state's Hispanic communities.[64] NCDHHS also prioritized the collection and reporting of data disaggregated by race and ethnicity throughout the pandemic, allowing researchers, public health workers, and others involved in the COVID-19 response to gain a better understanding of the disparate impacts of the pandemic and develop strategies for alleviating these impacts and addressing issues of health equity.

Against this backdrop, North Carolinians were also experiencing fundamental changes in their working lives. Stay-at-home orders and social-distancing measures issued in the early weeks of the pandemic had immediate economic impacts, especially to restaurants, hotels, providers of personal care services, and small business and retailers. In the final two weeks of March 2020, new unemployment claims passed 300,000—far more claims than would typically be filed annually.[65,66,67] According to the Quarterly Census of Employment and Wages, North Carolina businesses reported 500,000 fewer jobs in April 2020 than in the previous month, with the largest percentage drops in Dare, Alexander, Watauga, Yadkin, and Buncombe counties.[68] This translated into loss of health insurance for many North Carolinians whose coverage was tied to employment; an estimated 257,000 North Carolinians lost coverage in the first six months of the pandemic.[69] Women's employment swung dramatically in the early months of the pandemic: while it fell 17.3% in May 2020 (versus 10% for men), women's employment improved substantially by the next month and gained steadily, outperforming national rates for women's participation in the labor force and surpassing pre-pandemic levels late in 2021.[70] Those who remained in the workforce in 2020 faced either a higher risk of exposure[71] to infected individuals if their positions required in-person work, or adaptation to the new environment of remote work, sometimes while also caring for children who were at home due to school closures. A Pew Research Center study conducted in October 2020 examined workforce trends due to the pandemic, finding a clear economic and educational

divide in the transition to remote work. While 62% of Americans with a bachelor's degree or more reported that their work could be done from home, only 23% of those without a four-year degree reported the same. A clear majority of high-income employees (56%) reported being able to fulfill their work responsibilities from home, while most middle- (63%) and low-income (76%) workers could not. Of those who did report being able to fulfill their work responsibilities from home, over 70% were working remotely and 54% reported a desire to continue doing so after the end of the pandemic .[72] As we now know, hastily planned transitions to remote work for a large segment of the population in spring 2020 have shifted from temporary pandemic measures to becoming established as preferred modes of working, with more organizations adopting fully remote and hybrid arrangements .[73]

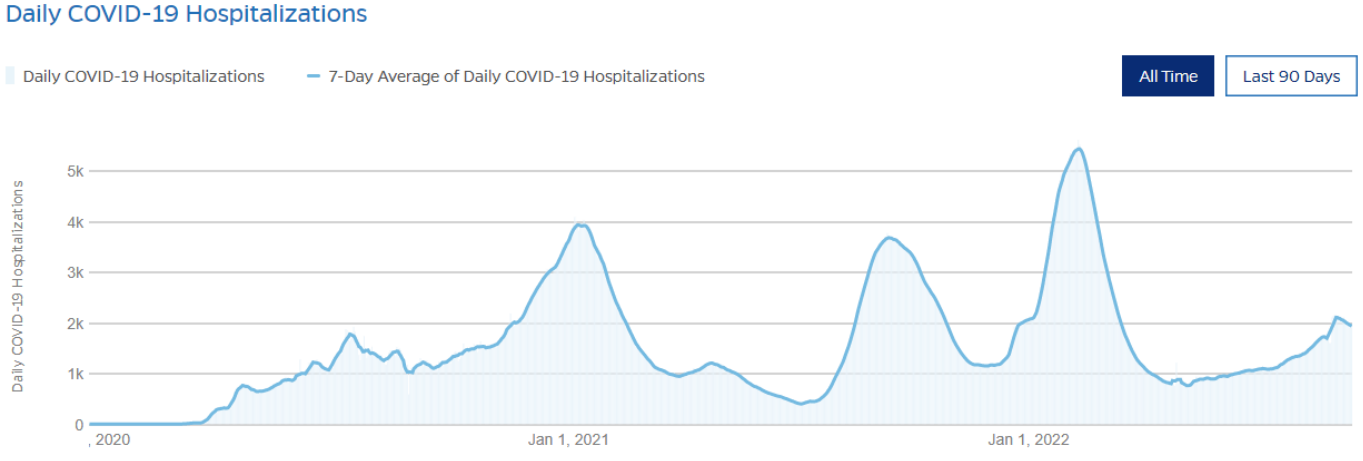
By the end of 2020, Americans had spent months coping with the concerns of not only a deadly global pandemic but also a divisive presidential campaign; an unprecedented array of isolating and disorienting changes to work, school, and personal lives; experiencing and/or witnessing vivid examples of violence and discrimination based on race and ethnicity; and growing fears of overwhelming the capacity of our health care system to manage large surges in demand for medical care.

2021: Mass Vaccine Distribution, Hospital Surges, Political Polarization, and Mental Health Challenges

January 2021 began with both deeply distressing and markedly hopeful developments. Controversy over the results of the presidential election reached a boiling point on January 6, 2021, when supporters of President Trump organized large protests in Washington D.C. and several thousand joined a violent attack on the United States Capitol. These actions succeeded in delaying certification of the election results until later that evening, and the violence of the event—during which legislators were urgently evacuated and lives were lost—brought condemnation from members of both political parties.[74] As this turmoil unfolded in Washington D.C., North Carolina hospitals were feeling a different kind of stress while caring for 4,079 people hospitalized with COVID-19, the highest number to that point (**Figure 1**). Health systems struggled to find sufficient staffing, with many of their employees out of work due to their own COVID-19 illness or that of a family member.[75] However, 100,000 health care workers had received first doses of COVID-19 vaccine by early January, and the next steps for broader vaccine distribution were beginning to take hold across the state.

Priorities in emergency response of any type include saving lives, preventing injuries and illness, and preserving critical community infrastructure, such as hospitals. In the first weeks of 2021, as cases, hospitalizations, and deaths rose dramatically, these critical priorities were the focus of response efforts at local, regional, and state levels. With the virus spreading rapidly, Governor Cooper extended his modified stay-at-home order, requiring people to stay at home from 10PM to 5AM, and then North Carolina Secretary

Figure 1: Hospitalizations in North Carolina



Data Sources: Cases and deaths data from JHU CSSE; testing and vaccine data from JHU CCI; and hospitalization data from the U.S. Department of Health and Human Services.

Source: Johns Hopkins Coronavirus Resource Center. North Carolina - COVID-19 Overview. Accessed August 31, 2022. https://coronavirus.jhu.edu/region/us/north-carolina

of Health and Human Services Mandy K. Cohen issued a special Secretarial Directive advising North Carolinians to stay home and avoid gathering with anyone living outside their homes.[76,77] In addition, on January 11, 2021, NCDHHS adopted the *North Carolina Protocol for Allocating Scarce Inpatient Resources in a Pandemic*. This protocol's purpose was to "provide recommendations for the triage of all adult inpatients in the event that a pandemic creates demand for critical care resources (e.g., ventilators, critical care beds) that outstrips the supply."[8]

As acute care leaders across the state coped with the overwhelming demand for hospital care, providers began distribution of vaccine to priority groups. With North Carolina receiving only about 120,000 doses of vaccine weekly during January, in early 2021 demand for vaccine far exceeded supply. North Carolina's winter and spring 2021 vaccine distribution began with health care workers and residents of long-term care facilities, then moved on to people aged 65 and older (after January 14), frontline essential workers[79,80] (child care and PreK–12 teachers on February 24, other frontline workers beginning March 3), people aged 16–64 with underlying health conditions[3,80,76] (beginning March 17), and all adults (beginning April 7). Local health departments led distribution in the initial weeks, joined later by collaborative efforts between health systems, contractors, volunteers, and federal personnel, repurposing large conference facilities, empty warehouse spaces, shopping malls, and even sporting facilities, such as the Charlotte Motor Speedway and Bank of America Stadium, to "get shots in arms" efficiently, effectively, and equitably .[81,82] During this time, there were broadly varied opinions and attitudes about the vaccinations; many people of color, in particular, worried about the vaccine's safety due to mistrust of health care systems because of systemic mistreatment. Others worried about whether the vaccine had been adequately tested, or were concerned about whether they would be required by employers or others to receive the vaccine .[83]

Initiatives to expand testing and vaccination, as well as to address individuals' and communities' concerns with the vaccine, began to bear fruit. Over the course of late winter and early spring of 2021, cases, deaths, and hospitalizations dropped dramatically. By March, case rates in long-term care facilities had fallen 15-fold from the peak of transmission in January 2021, and most facilities were cleared to resume in-person visitation.[84] On March 11, 2021, Governor Cooper signed a law requiring all K–12 public schools to offer the option of in-person learning by April 1.[85] Indoor occupancy allowances for businesses and gatherings increased; the statewide indoor mask mandate remained in effect until May 14.[16,15,86,17,87] In mid-summer (June 19, 2021), weekly cases and hospitalizations were at 2,647 and 458, respectively (numbers that resembled those of the earliest months of the pandemic in 2020).[41,88] Social-distancing restrictions were eased to reflect improvements in the rates of COVID-19 and to balance vigilance against further spread with the widely held goals of reducing the impact of these restrictions on economic activity, children's learning, and social well-being.

In March 2021, the United States Congress passed the American Rescue Plan Act (ARPA), which provided $1.9 billion intended to support families, stimulate the economy, and combat the pandemic. For individuals and households, ARPA funds provided another round of direct stimulus payments to individuals, made changes to the Child Tax Credit and Earned Income Tax Credit to benefit families with children and low-income households, extended the timeline for the $300-per-week federal benefit for Pandemic Unemployment Insurance, and increased subsidies for Affordable Care Act Marketplace plan premiums. ARPA provided funds to local and state governments for infrastructure investments (economic development, water, sewer, and broadband), health and human services (both pandemic response and other services, especially for medical safety net providers, housing, food assistance, child care, and behavioral health services), and education (to support costs of reopening schools). The Paycheck Protection Program was funded through ARPA (although at a lower amount than previously), and ARPA included provisions for small business support through a combination of loans and targeted relief. **Table 2** provides details of direct aid provided to North Carolina through ARPA.

Table 2 : Direct Aid to North Carolina from the American Rescue Plan Act

State Aid	$5,196,748,534
Local Aid	$3,783,654,988
Number of Carolinians Receiving Stimulus Checks	89% of adults (6,582,400) 89% of children (2,693,100)
Capital Projects	$277,000,000
Elementary and Secondary School Emergency Relief (ESSER) Fund	$3,599,191,706
COVID Testing and Help with Reopening	$315,895,947
Expanded Child Care Assistance	$503,793,710
Emergency Rental Assistance	$556,000,000
Child Care Stabilization Fund	$805,767,458
Estimated SNAP Participants	1,430,000
Estimated SNAP Benefit Increase per Person	$28

Source: North Carolina Institute of Medicine and South Carolina Institute of Medicine and Public Health. Issue Brief: COVID-19 and the Carolinas Part IV: State Responses and Federal Legislation to Address the Crisis. April 2021. https://nciom.org/wp-content/uploads/2021/04/COVID-and-the-Carolinas-Part-IV_Final.pdf Accessed September 4, 2022.

While spring and early summer of 2021 brought welcome relief from the stress of peak case rates, people were still managing a multitude of stressors over a year into the pandemic. Reports on the behavioral health effects of the pandemic demonstrate the extent to which individuals and families struggled to cope effectively. A nationally representative survey of high school students (grades 9–12) conducted from January through June of 2021 found that 37% of adolescents reported poor mental health during the pandemic, with almost 20% seriously considering suicide and 10% reporting having attempted suicide.[89] A survey of more than 26,000 local, state, territorial, and tribal public health workers conducted from March 29 through April 16, 2021, found that more than half (59.2%) of the survey respondents typically worked 41 or more hours weekly, and more than half (52.8%) reported experiencing symptoms of one or more mental health conditions in the prior two weeks, including depression (30.8%), anxiety (30.3%), PTSD (36.8%), or suicidal ideation (8.4 %).[90]

Health care workers struggled with long days and continued high demand for their services, especially as fall 2021 brought a new surge of cases and hospitalizations due to the Delta variant. While the early months of the pandemic were marked by a surge of support for health care workers, with meals, gifts, and gestures of support flowing abundantly, many workers felt a change in this support as the pandemic continued.

WakeMed (Raleigh, NC) pulmonologist David Kirk summed up the vast changes in perception and support of health care workers in the second year of the pandemic: "Last year, everyone had a single vision that we as a society are all going to rally together and beat COVID. It's not that way now. Nobody's donating food. Nobody's sending kind words. It's not that our teams necessarily need that praise all the time. But I just think it's incredibly hard for our staff to continue to battle day after day after day and to feel that society and our community around us doesn't understand what's going on."[91]

Representing another grim metric of the toll of the pandemic on behavioral health, between 2019 and 2020, North Carolina saw a 40% increase in overdose deaths. In 2018 and 2019, there were 2,302 and 2,352 total drug overdose deaths in North Carolina, respectively, a metric that the state was hoping would hold steady or decrease through efforts like the Opioid Action Plan. However, heightened stressors and changes in access to preventive services, harm reduction strategies, and treatment during the pandemic were associated with a dramatic increase in overdose deaths in 2020 (3,304), a number that grew again in 2021 to 3,759.[92]

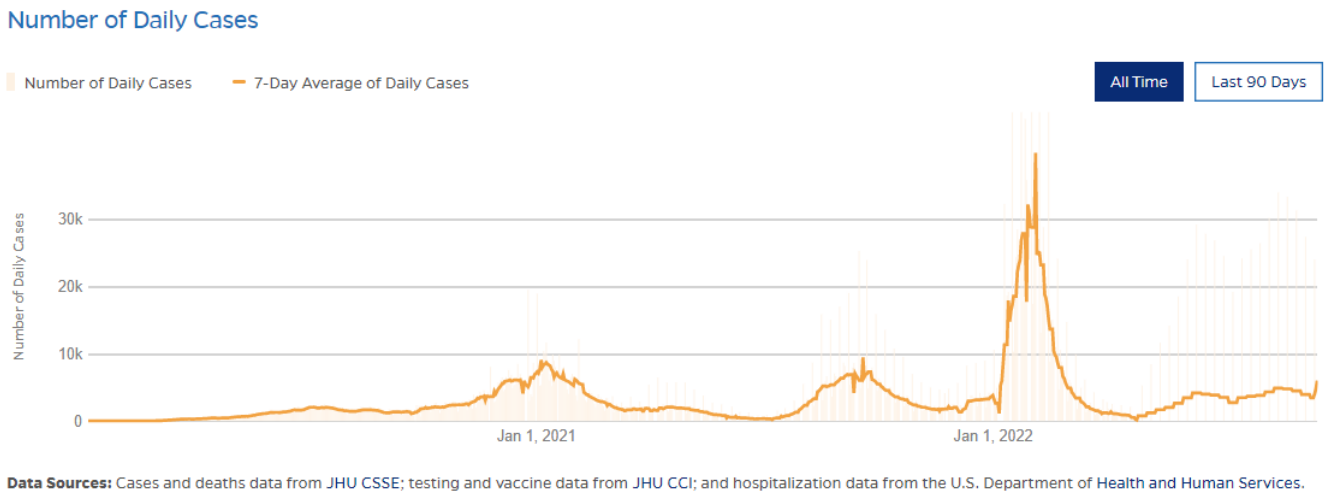
While the early months of 2021 were marked by high demand for vaccine distribution, and the distribution was limited to prioritized groups, by April 7 anyone aged 16 and older who wanted a vaccine could get one, and vaccines for children aged 12 and older became available on May 12.[t] NCDHHS conducted public opinion research in November 2020 and March 2021 to better understand North Carolinians' perceptions and motivations regarding COVID-19 vaccination, finding that by March 2021 public views of the vaccine had grown more positive, perception of risk had decreased significantly, and the majority of residents (almost 7 in 10) had already gotten the vaccine or planned to do so.[93] In April 2021, the Duke-Margolis Center for Health Policy and the National Governors Association released a report on model practices to achieve vaccine health equity, highlighting the following practices implemented in North Carolina:[94]

- Increasing supply allotments to counties with a larger share of historically marginalized populations (HMP) and providers who demonstrate a track record of serving these groups.
- Providing weekly equity data reports to providers to document achievement toward equity goals.
- Extensive partnerships with community-based organizations and community health workers for outreach and special vaccination events conducted in partnership with trusted community leaders.
- Allocating $2.5 million to offset the costs of providing free public transportation to vaccination sites.
- Requiring all providers to collect and report race and ethnicity data for vaccinations, and publishing these data weekly on the state dashboard.
- Providing clear guidance to not turn away people due to lack of identification.
- Establishing a state-level team charged with monitoring vaccination data.

While the majority of adult North Carolinians chose to get vaccinated, and North Carolina celebrities from NASCAR star Richard Petty to then Duke and UNC basketball coaches Mike Krzyzewski and Roy Williams visibly demonstrated their support for the vaccines, others remained deeply wary of vaccine efficacy and safety.[95,96] For some, this skepticism persisted well beyond normal, healthy questioning of something new and reached a level described by former North Carolina state epidemiologist (2002–2009) and health director (2009–2012) Jeffrey Engel as, "like nothing I've ever seen, because it seems to obviously have taken advantage of the major political divisions that we're seeing in the United States today."[97] False information about COVID-19 treatments, masks, and vaccines was widespread on various social media platforms, despite efforts by sites like Facebook, Twitter, and YouTube to curtail it.[98,99] A March 2021 report from the Center for Countering Digital Hate titled, "The Disinformation Dozen: Why Platforms Must Act on Twelve Leading Online Anti-Vaxxers," found that 65% of the anti-vaccination content stemmed from 12 leading promoters of false information (including a physician based in Charlotte), and that their collective followers had grown to 59 million.[100]

In July of 2021, cases of COVID-19 began to rise due to the spread of the Delta variant, a form of COVID -19 that caused those infected to produce more virus in their bodies and remain contagious for longer than with earlier strains.[101] The number of daily cases rose from 864 on June 28 to 2,633 on July 28, reaching a peak on September 10, 2021, of 5,877 cases (**see Figure 2**). Hospitalizations in the Delta-variant-fueled surge peaked on September 2 at 3,764, less than the January 2021 peak of 4,015 but nonetheless very taxing to a health care system working through its second wave of cases within less than a calendar year. However, this wave was different for several reasons. Many (but not all) people who were vaccinated were protected from infection, and typically developed milder cases if they were infected. Unvaccinated people were much more vulnerable to becoming infected with the Delta variant, developing severe disease, and needing hospitalization.[102,103,104] Physicians also reported that their hospitalized patients, the vast majority of whom were unvaccinated, were younger adults in their 30s, 40s, and 50s.[91,105,106]

Figure 2: Cases in North Carolina



Data Sources: Cases and deaths data from JHU CSSE; testing and vaccine data from JHU CCI; and hospitalization data from the U.S. Department of Health and Human Services.

Source: Johns Hopkins Coronavirus Resource Center. North Carolina - COVID-19 Overview. Accessed August 31, 2022. https://coronavirus.jhu.edu/region/us/north-carolina[107]

A survey conducted in August 2021 by the North Carolina Nurses Association called attention to the high risk of burnout among nurses, their highly demanding working hours, vaccine controversies among their ranks—both in support of and in opposition to employer vaccine mandates—as well as "compassion fatigue" in caring for unvaccinated patients.[108] Respondents voiced frustration with the public's lack of adherence to preventive measures:

"The first year on [COVID-19] was really tough and we thought we were on the right track until everyone stopped wearing masks and vaccinations decreased. It's incredibly tough to treat these patients when we all know that this second round could have been prevented."

"In conversations with providers, we all agree that what we are experiencing now is significantly more frustrating than a year ago, as people now are just being intentionally obstinate, even as this virus is literally killing them."

"Being the only medical person in my family it is hard to explain what I'm feeling to others. I have family members that are still unvaccinated after all of the education I'm providing them. Seeing our ICU fill with unvaccinated or partially vaccinated patients is heartbreaking. I have turned in my [30-day] notice at the hospital and do not currently have another job lined up."

Masking policies generally continued to be divisive, and those who chose not to wear masks reported many varied reasons: nearly one-fifth of North Carolinians surveyed who reported not wearing masks said it was because they did not believe masks were effective in preventing transmission of COVID-19. More than 30% said it was inconvenient or uncomfortable. Other responses indicated the potential impact of mask requirements and community norms, with 17% saying they did not always wear a mask because "most people are not wearing masks" and 14% were "concerned what others will think of me or do to me if I wear a mask."[109]

The summertime rise in cases and hospitalizations of younger adults occurred at the same time that schools were preparing to begin a new year with in-person instruction. The excitement for this return to "normal" was tempered by concerns about the lack of child vaccine (it was not yet available to children under 12) and controversies (often falling along partisan lines) over requiring face masks to be worn in school.[110] As the first day of school approached, Governor Cooper declined to extend the mask mandate, but encouraged school leaders at the district level to maintain required masking in schools. Over the month of August 2021, as cases rose, 34 school districts voted to reverse earlier decisions to make masks optional and reinstate mask requirements; almost 80% of North Carolina school children were enrolled in a district that required face coverings at the start of the 2021–2022 school year, in red and blue counties alike. The remaining districts where masks remained optional rather than required were all in rural areas with predominantly Republican voting patterns.[110] While school boards made difficult decisions in contentious meetings over measures to prevent the spread of COVID-19 among schoolchildren, the North Carolina General Assembly passed a law requiring them to vote at least monthly on their face-covering policy.[111,112]

The second year of the COVID-19 pandemic was markedly different from the first. North Carolina made great strides in vaccine availability and equity, but professionals in public health and health care suffered high levels of work stress, mental health concerns, and a perception of a loss of support from and unity with the public. Despite the success of the vaccine in preventing severe illness from the very contagious Delta variant, the vaccines were also very polarizing. Differences in beliefs about the safety and efficacy of vaccines were societally divisive, and to some health care providers, deeply demoralizing. As 2021 came to a close, a post-Thanksgiving uptick in cases proved to be the beginning of the state's largest surge yet. North Carolina's first case of the Omicron variant was confirmed on December 10, and the year ended with a record-high number of 18,571 positive tests reported.[113]

2022: Gains in Testing, Vaccination, and Treatment; Economic Growth and Inflation; Adapting to Ongoing Illness in an Uncertain "New Normal"

The third year of the pandemic opened in a manner painfully similar to the first weeks of 2021, with rapidly rising cases and hospitalizations. The previous positive case record was quickly surpassed as the highly contagious Omicron variant spread rapidly, with an average of 29,000 new cases a day for the first three weeks of January, and a peak of 235,693 cases for week ending January 15, 2022.[41] Daily hospitalizations peaked during the week ending January 29, 2022, at 5,049, considerably higher than previous peaks of daily hospitalizations in the surges in January 2021 and September 2021.[114] However, the steep upward trend in cases also decreased quickly. On February 1, Governor Cooper announced the approval of a staffing support request made to FEMA to provide reinforcements to North Carolina hospitals managing record levels of patients.[115] But by February 17, Governor Cooper and Secretary of Health and Human Services Kody H. Kinsley were touting improved COVID-19 metrics and encouraging schools to drop mask mandates.[116] While cases and hospitalizations continued to drop through early April 2022, they have been on a slow increase since then; however, as of this writing in August 2022, rates remain far lower than in the 2021 and early 2022 surges. In August 2022, 286 individuals died from COVID-19-related illness in North Carolina in the four reported weeks of the month.[41] This stage of the pandemic is marked by the continued growth and advancement of response initiatives, with incremental gains and improvements building on the foundations of breakthrough advances in 2020 and 2021.

The first eight months of the third year of the pandemic brought gains in testing accessibility, vaccination, and treatment. Rapid tests for use at home became widely available in groceries, pharmacies, and convenience stores, providing a more accessible way for people to assess and manage their risk. The Biden Administration announced plans in January to purchase 1 billion at-home test kits and ship four free test kits per household.[117] In April, for the first time in its history, Medicare approved coverage of an over-the-counter test,[118] making it possible for Medicare beneficiaries to access up to eight free at-home COVID-19 tests per month. North Carolina health leaders continued to work to improve rates of vaccinations and boosters, and two major vaccine milestones were achieved in 2022. The CDC approved a vaccine for children aged six months to five years in June, meaning that everyone six months or older has access to an approved vaccine in the United States.[119] In August 2022, the FDA announced the first bivalent COVID-19 vaccine for people aged 12 and older; the bivalent vaccine will include the original vaccine as well as components intended to provide protection from recent Omicron subvariants.[120] However, rates of adult boosters and rates of child vaccination overall have been challenging to improve,[121] making some wonder whether people will opt for additional boosters even as vaccine technology advances.[122] Treatment options have also grown in 2022. There are two types of treatments for COVID-19—antiviral medications and monoclonal antibodies—and one medication authorized for pre-exposure prophylaxis for those at high risk.[123] Until 2022, both existing treatments—the antiviral remdesivir and the monoclonal antibody bebtelovimab—required intravenous administration. In 2022, two new antiviral medications (Paxlovid and Lagevrio) were emergency use authorized by the FDA and can be taken at home orally.[124]

While there has been tremendous progress in the development of vaccines and therapeutics to address COVID-19 since the virus first emerged, much remains unknown about the physiological trajectory of the virus in many individuals. Post-COVID-19 condition, known informally as "long COVID," is of increasing concern. This condition is defined as, "the condition that occurs in individuals with a history of probable or confirmed SARS-CoV-2 infection, usually 3 months from the onset of COVID-19, with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis."[125] Researchers estimate that among individuals who contract an initial COVID-19 infection, up to 80% may experience at least one long-term symptom. Long COVID symptoms vary, but generally include persistent fatigue, cognitive impairment, and neurological symptoms.[126] For some people, these symptoms have been severe enough to impact their ability to work or resume other usual activities. The full impact of long COVID on overall health outcomes, employment, and other indicators remains to be seen; however, it bears repeating that there is much still unknown about the overall physiological impact of infection over a lifespan.

Along with the physical health challenges of COVID-19, since 2020 the pandemic has catalyzed a host of mental and behavioral health challenges; leaders and experts in North Carolina have described the

prevalence of these issues among children and adolescents as constituting "the next wave of the pandemic."[127] In July 2022, Duke University psychiatrist Nathan Copeland described drastic changes to children's mental health in an interview with North Carolina Health News:

> **"We saw increased loneliness. Increased isolation. Increased parental distress. Increased substance abuse disorders across the entire population. The murder of George Floyd exacerbating racial trauma and highlighting the systemic racism that so many individuals experience. And we've just seen that temperature rise. We have seen a nearly two-fold increase in depressive symptoms and anxiety symptoms among children and adolescents. Nearly 20 percent of kids experiencing depression that's impairing them, nearly 25 percent of kids experiencing anxiety that's impairing them."**

The statistics for adult mental health are similarly concerning. In April 2020, the CDC and the United States Census began conducting a monthly online "pulse survey" to monitor changes in reported symptoms consistent with anxiety disorder and depressive disorder. August 2022 survey results suggested rates more than double those of the 2019 baseline rates of 8.1% (anxiety disorder), 6.5% (depressive disorder), and 10.8% (either anxiety or depressive disorder).[128] For North Carolina adults, 26.2% reported symptoms of anxiety disorder in August 2022; 20.8% reported symptoms of depressive disorder; and 29.7% reported symptoms of anxiety or depressive disorder.[129] This alarming report brings no surprises, and the recovery phase of this pandemic will require deep investments in mental and behavioral health care. It is also important to note that the COVID-19 pandemic has exacerbated the overdose crisis in North Carolina and across the United States, with more than 100,000 Americans dying as a result of overdose in 2021 alone, the highest number on record.[130]

Widespread vaccine and testing availability and growing treatment options are signs of a new phase of the pandemic. There is no longer need for daily or weekly press conferences to announce new social-distancing measures, nor blockbuster federal legislation to jump-start the economy. In contrast to the early months of 2020, clinicians and researchers have a much greater understanding of the nature of the virus, including modes of transmission, infection rates, and efficacy of mitigation measures. In addition, the state has multiple tools for testing, treatment, and prevention available. And while the early months of the pandemic saw record filings of unemployment claims in North Carolina, now the dominant economic concerns are labor shortages and inflation due to rapid growth.[131] Talent acquisition company Indeed reported in January 2022 that the Durham-Chapel Hill and Greensboro-High Point areas were in the top 10 metro areas with the fastest growth in job postings, boasting an increase of 90.7% and 70.5%, respectively, since February 2020.[132] Despite substantial epidemiological and economic progress since January 2020, uncertainty remains: whether another dangerous variant will emerge, whether and when economic recession will occur, when everything will feel "back to normal," and what changes brought about by COVID-19 will be integrated into that new normal. This report steps into that uncertainty, providing direction for critical initiatives to shore up our state's foundational capabilities and capacity for response, based on the experiences and thoughtful deliberations of the members of the Carolinas Pandemic Preparedness Task Force.

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The COVID-19 pandemic exposed existing and long-standing vulnerabilities across multiple supply chains. Supply chain challenges that arose during the COVID-19 pandemic varied widely in terms of the strategies used by manufacturers, purchasers, and vendors to manage their inventories, and within distribution channels.[1,2] There have also been widespread labor and material shortages, disruptions in shipping supplies, and other challenges associated with fluctuating demand. Many products—food, cleaning supplies, hand sanitizer, thermometers, and testing kits, for example—became inaccessible or otherwise unaffordable in the early months of the pandemic.[3] Other important health care supply shortages have included dialysis materials, pharmaceuticals, and other essential products for patients with and without COVID-19.[4] Supply chain disruptions have also resulted in inadequate access to materials used in the production of other items, such as foam, lumber, and semiconductors, contributing to a variety of downstream effects on consumers.[5]

The drivers of supply chain challenges during the COVID-19 pandemic have been complex, and national and state-level experts have proposed many different solutions to improve supply chain resilience.[5–7] Some experts have proposed regionalizing the production of supplies to reduce foreign dependency and shifting away from "lean" manufacturing and procurement practices to build supply inventories in anticipation of distribution delays,[8,9] while others have suggested that sustainable, long-term solutions to ensure access to supplies should instead leverage the strengths of supply chain globalization and increase visibility into supply levels to inform strategic planning.[1,2] The strategies in **Chapter 3** represent actions recommended by the task force that can be undertaken at the local and state levels to build supply chain resilience in North Carolina. These strategies focus on personal protective equipment (PPE) and other supplies needed by the health care and frontline essential workforces in particular, although the task force emphasized the need for future efforts to investigate and address the wide-ranging impacts of shortages, distribution delays, and inadequate access to other essential supplies on North Carolinians during the COVID-19 pandemic.

Personal Protective Equipment and Other Health Care Supplies

In the decades that preceded the COVID-19 pandemic, scientists and other preparedness experts underscored the need to develop quality assurance processes and regulations for PPE during infectious disease outbreaks to protect health care and frontline essential workers, understanding that certain pathogens may require more stringent measures to mitigate exposure and infection risks.[10] Experts also identified a need for face masks and respirators that could be disinfected and reused during public health emergencies, along with the need to expand research into improving respiratory protection.[9,11,12] Although experts recognized and communicated the risk that PPE and other health care supply shortages were likely to occur during a pandemic or other infectious disease outbreak, health care and frontline essential workers in North Carolina and across the United States were still vulnerable when SARS-CoV-2 emerged in late 2019. North Carolina's Emergency Operations Plan, which is updated annually and as needed, includes a Communicable Disease and Biohazard Response Operations Plan that outlines the supporting role of the Office of Emergency Medical Services (OEMS) in coordinating and directing the activation and deployment of medical personnel, PPE and other supplies, equipment, and pharmaceuticals in collaboration with the Division of Public Health (DPH). North Carolina Emergency Management (NCEM), housed within the Department of Public Safety (NCDPS), serves as the lead state agency by providing technical assistance and coordinating overall emergency response efforts, while the DPH Public Health Preparedness and Response Steering Committee serves as the lead technical agency.[13]

An Overview of the Strategic National Stockpile (SNS)

The U.S. Congress first authorized $51 million in appropriations for pharmaceutical and vaccine stockpiling activities to be managed by the Centers for Disease Control and Prevention (CDC) in 1998. The SNS program was formally established as a result of the Public Health Security and Bioterrorism Preparedness Act of 2002, which directed the Department of Health and Human Services (HHS) to maintain a "Strategic National Stockpile" to "provide for the emergency health security of the United States, including the emergency health security of children and other vulnerable populations, in the event of a bioterrorist attack or other public health emergency".[a] The SNS includes medical equipment (such as ventilators), as well as pharmaceuticals and medical supplies, including PPE. The SNS program was transferred over to the Department of Homeland Security (DHS) as a result of the Homeland Security Act of 2002, although coordination with HHS continued until 2004, when the program was moved back to the HHS. From 2004 to 2018, the HHS—specifically the CDC—managed the SNS program with support provided by DHS. Since October 2018, the SNS program has been managed by the Office of the Assistant Secretary for Preparedness and Response (ASPR), an agency established in response to Hurricane Katrina.[14] ASPR's Public Health Emergency Medical Countermeasures Enterprise (PHEMCE) program is charged with making decisions about supplies included in the SNS and coordinating with the CDC, Food and Drug Administration (FDA), National Institutes of Health (NIH), and interagency partners such as DHS and the Departments of Defense (DOD), Veterans Affairs (DVA), and Agriculture (USDA).[15]

[a] North Carolina Institute of Medicine and South Carolina Institute of Medicine and Public Health. Issue Brief: COVID-19 and the Carolinas State Responses and Federal Legislation to Address the Crisis. April 2020. https://nciom.org/wp-content/uploads/2020/04/COVID-Brief_final2.pdf Accessed July 14, 2022.

The COVID-19 Pandemic Response: Access to SNS Supplies

In the early weeks and months of the pandemic, state agencies were unable to obtain assistance from other states, which were similarly overwhelmed, and federal assistance from the Federal Emergency Management Agency (FEMA) and resources from the Strategic National Stockpile (SNS) program were either insufficient or inadequate.[16] In many ways, the federal government was ill-prepared to receive requests from all 56 state, local, tribal, and territorial (SLTT) governments, causing significant delays in processing and responding to requests. Evaluation studies focused on the SNS program during the COVID-19 pandemic have cited four points of failure: (1) unrealistic expectations about the capacity of the SNS, (2) historical underfunding of the program and public health preparedness efforts more broadly, (3) the lack of timely decision-making regarding supply chains, and (4) changes to the mission and scope of the SNS program by the federal government while simultaneously navigating the COVID-19 pandemic.[15] As a result of these and many other challenges in accessing support and resources, health care and frontline essential workers may remember the early months of the pandemic as a time when they were called upon to perform their job duties without the face masks, respirators, and other PPE they needed to be safe in environments where they contended with frequent exposure to SARS-CoV-2, and they may also remember the creative but imperfect solutions that were developed in response.

RECOMMENDATION 3.1

Although the regionalization (i.e., bringing the production of supplies closer to end users) of health care supply chains during the COVID-19 pandemic reflects resilience, the early months of the pandemic were defined, in part, by inadequate access to the supplies needed to protect the health care and frontline essential workers most at risk of exposure and infection with SARS-CoV-2.[17]

The increased demand for PPE and other supplies from not only other health care providers, but also the general public, has been unique to the COVID-19 pandemic. Competition for PPE and other supplies—particularly face masks, N95 respirators, and nitrile gloves—caused increasing prices and the proliferation of manufacturers and vendors operating without appropriate quality assurance and quality control processes in place .[18] Inadequate access to high-quality, reliable PPE endangers health care and frontline essential workers in addition to those they interact with at the bedside and in other settings should they become infected. Delays in care, rationing or denial of care, and increased risk of error when using new, unfamiliar, and alternative products can also result from inadequate access to PPE and other supplies. Importantly, trust in employers and institutions can be diminished when workers are expected to function without the supplies they need to do their jobs safely, understanding that they are at undue risk and could be passing that risk onto their patients, families, and communities.

Personal protective equipment (PPE) includes protective clothing, helmets, gloves, face shields, goggles, face masks and/or respirators, or other equipment designed to protect the wearer from injury or the spread of infection or illness.[19]

All PPE that is intended for use as a medical device must comply with the regulations set forth by the U.S. Food and Drug Administration (FDA). The FDA also states that "applicable voluntary consensus standards for protection" should be met. The regulations set forth by the FDA and the consensus standards vary depending on the specific type of PPE, but when followed, provide reasonable assurance that the device is safe and effective. Some types of PPE must be reviewed by the FDA before they can be legally sold in the United States.[19] For additional information, visit the FDA website: (https://www.fda.gov/medical-devices/general-hospital-devices-and-supplies/personal-protective-equipment-infection-control).

Strategies to Address the Shortage of Health Care Supplies During the COVID-19 Pandemic

Several strategies were developed and implemented at the national level to address health care supply shortages. The Coronavirus Aid, Relief, and Economic Security Act (CARES Act), which was signed into law on March 27, 2020, gives the U.S. Food and Drug Administration (FDA) the statutory authority to "help prevent or mitigate device shortages during, or in advance of, a public health emergency for the first time".[20] The FDA's budget for the current fiscal year (FY 2021–2022) also includes $21.6 million for a new Resilient Supply Chain and Shortages Prevention Program (RSCSPP) in the Center for Devices and Radiological Health (CDRH) to establish a permanent program for nationwide supply chain resilience for medical devices. This program will build on the FDA's work to implement CARES Act funding with the goal of strengthening domestic supply chains by investing in preventive measures, assessing potential health care supply product shortages, and continuing surveillance and rapid intervention efforts.[20]

The Defense Production Act (DPA), which can be implemented by the President and exercised by the FDA and other entities, provides emergency authority over domestic industries. In the early months of the COVID-19 pandemic, President Trump used this authority to limit hoarding and exportation of health care supplies, while also increasing production of essential supplies. Since taking office in January 2021, President Biden has focused on expediting vaccination and testing efforts.[21,b] The overall

effectiveness of the federal government's use of the DPA to increase the production and distribution of PPE and other health care supplies, and in monitoring and coordinating COVID-19 pandemic response activities more broadly, remains unclear,[22] although the President's ability to address supply chain issues under the DPA in an increasingly globalized market has been cited as a limiting factor.[23]

At the state level, the North Carolina General Assembly directed two divisions of the North Carolina Department of Health and Human Services and the North Carolina Department of Public Safety's Division of Emergency Management to coordinate on the development of a plan for a "Strategic State Stockpile" modeled after the SNS by July 1, 2020.[c]

Despite these important actions, additional efforts are needed to improve the resilience of the health care supply chain in anticipation of future COVID-19 surges and other public health emergencies. In response, the task force recommends seven strategies to protect the health and safety of health care and frontline essential workers:

RECOMMENDATION 3.1

Ensure adequate personal protective equipment (PPE) and other supplies to protect the health and safety of the health care and frontline essential workforces.

Strategy 3.1a: The North Carolina Division of Emergency Management should conduct a study to assess emergency declarations and other local, state, and national-level processes or mechanisms (including but not limited to the Defense Production Act) that could help to (1) shift the distribution of PPE and other supplies and (2) ramp up the production of PPE and other supplies in North Carolina in response to needs. This assessment should also identify strategies to strengthen communication with procurement and purchasing offices and support their understanding of PPE and other supplies needed during public health emergencies.

Strategy 3.1b: The North Carolina Department of Health and Human Services should develop and regularly update a policy manual to establish guidelines for stockpiling and monitoring PPE and other health care supply levels in partnership with the North Carolina Healthcare Association, North Carolina Health Care Facilities Association, North Carolina Medical Society, North Carolina Nurses Association, North Carolina Medical Group Management Association, and Western North Carolina Medical Managers Association. This policy manual should include guidelines around the collection, interpretation, and reporting of data on PPE and other health care supply levels and the distribution of these supplies.

Strategy 3.1c: The North Carolina Department of Commerce, NC Chamber, and other partners should work with hospitals and health systems to ensure the development of local infrastructure for PPE and other supplies in North Carolina.

Strategy 3.1d: The Office of State Budget and Management, in partnership with the North Carolina Department of Administration, should (1) survey North Carolina Department of Administration subcontractors that purchased and distributed PPE using CARES Act funding to assess the effectiveness of this model in streamlining PPE delivery to health care providers and facilities and (2) consider opportunities to modify procurement processes during public health emergencies based on the results of this assessment.

Strategy 3.1e: Building on the work outlined in Executive Order 143 and in the North Carolina Department of Commerce's Strategic Economic Development Plan for the State of North Carolina, the North Carolina Department of Administration should conduct an annual procurement planning survey to (1) identify local contracting opportunities for PPE and other needed supplies and (2) increase access to contracting opportunities for historically underutilized and other small businesses. The results of this survey should be publicly accessible and widely disseminated to support the North Carolina Department of Commerce, the North Carolina Pandemic Recovery Office, and other economic development partners in identifying and working to increase the manufacturing of PPE and other needed supplies locally.

Strategy 3.1f: The North Carolina Department of Commerce should partner with the NC Chamber and other economic development partners to consider opportunities to incentivize or otherwise encourage the formation of public and private sector partnerships to manufacture, purchase, or distribute PPE and other needed supplies in alignment with the North Carolina Department of Commerce's Strategic Economic Development Plan for the State of North Carolina.

Strategy 3.1g: The North Carolina Healthcare Association, NC Chamber, North Carolina Nurses Association and partners at the Duke University School of Medicine, UNC Health Care System, ECU Health, Atrium Health Wake Forest Baptist, and other North Carolina health systems should establish an advisory group to study the challenges associated with verifying the quality of PPE purchased from new suppliers and develop a plan to ensure the provision of high-quality PPE to health care providers and frontline essential workers.

[b] *Executive Order on a Sustainable Public Health Supply Chain, 2021 https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/21/executive-order-a-sustainable-public-health-supply-chain/*

[c] *House Bill 1037 https://www.ncleg.gov/Sessions/2019/Bills/House/PDF/H1037v2.pdf*

The following organizations are responsible for implementing the strategies included in Recommendation 3.1:

- **PUBLIC SAFETY:** North Carolina Division of Emergency Management
- **HEALTH:** North Carolina Department of Health and Human Services, North Carolina Healthcare Association, North Carolina Health Care Facilities Association, North Carolina Medical Society, North Carolina Nurses Association, North Carolina Medical Group Managers Association, and Western North Carolina Medical Managers Association, North Carolina health systems
- **BUSINESS:** North Carolina Department of Commerce, NC Chamber, local businesses
- **OTHER:** Office of State Budget and Management, North Carolina Department of Administration, North Carolina Pandemic Recovery Office

Strategy 3.1a

Tailoring the production and distribution of PPE and other health care supplies in response to needs.

The North Carolina Division of Emergency Management should conduct a study to assess emergency declarations and other local, state, and national-level processes or mechanisms (including but not limited to the Defense Production Act) that could help to (1) shift the distribution of PPE and other supplies and (2) ramp up the production of PPE and other supplies in North Carolina in response to needs. This assessment should also identify strategies to strengthen communication with procurement and purchasing offices and support their understanding of PPE and other supplies needed during public health emergencies.

DESIRED RESULT

Increased production of PPE and other supplies to meet the needs of all workers, particularly health care and frontline essential workers; ensure equitable distribution of these supplies; and reduce illness, hospitalization, and death.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Emergency declarations and other local, state, and national-level processes and mechanisms designed to empower government officials during public health emergencies must be used prudently to be effective.[22] The task force recommends **Strategy 3.1a** with the goal of identifying opportunities to increase the production of PPE and other supplies to protect those at highest risk of exposure and infection: health care and frontline essential workers. **Strategy 3.1a** will produce an assessment of the processes that can be used to expand access to PPE and other supplies during public health emergencies—options that may not exist in the absence of an emergency declaration or the activation of other emergency powers. The effective use of these processes can ensure that North Carolina's residents—especially those at higher risk, such as health care and frontline essential workforces, as well as their patients, families, and communities—are better protected when called on during times of crisis.

ADDITIONAL CONTEXT

The North Carolina Division of Emergency Management, housed within the North Carolina Department of Public Safety, is the responsible entity involved in **Strategy 3.1a**. The Secretary of the Department of Public Safety is responsible to the Governor for all state emergency management activities outlined in the North Carolina Emergency Management Act, located in Chapter 166A of the North Carolina General Statutes. This act establishes the authority and responsibility of the Governor, state agencies, and local government for emergency management in North Carolina.[24]

Strategy 3.1b

Stockpiling and monitoring PPE and other health care supply levels to inform decision-making.

The North Carolina Department of Health and Human Services should develop and regularly update a policy manual to establish guidelines for stockpiling and monitoring PPE and other health care supply levels in partnership with North Carolina Emergency Management, North Carolina Healthcare Association, North Carolina Health Care Facilities Association, North Carolina Medical Society, North Carolina Medical Group Managers Association, and Western North Carolina Medical Managers Association. This policy manual should include guidelines around the collection, interpretation, reporting, and sharing of data on PPE and other health care supply levels and the distribution of these supplies.

DESIRED RESULT

Improved coordination around stockpiling and monitoring PPE and other health care supply levels between key partners, and data collection to better understand the needs of health care providers and guide decision-making to ensure the equitable distribution of these supplies.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The lack of data on the PPE and other supply needs of health care providers, particularly among independent physician practices, was identified by the task force as a barrier to an effective response early on in the COVID-19 pandemic. Data to understand the needs of health care providers and increased visibility into supply inventories are essential to monitor supply levels and expiration dates, prevent waste and hoarding of supplies, and promote cost-effective spending and equitable resource allocation.[25] **Strategy 3.1b** will leverage existing efforts to establish a state stockpile, improve procurement processes, and ensure the equitable distribution of PPE and other supplies, while also standardizing the collection, interpretation, reporting, and sharing of data to provide inventory visibility and improved understanding of health care provider needs and their supply usage patterns.

ADDITIONAL CONTEXT

On May 4, 2020, Governor Cooper signed into law the COVID-19 Recovery Act, which directed two divisions within the North Carolina Department of Health and Human Services and the North Carolina Department of Public Safety's Division of Emergency Management to develop and submit a plan for stockpiling PPE and testing supplies for public health emergencies to the Joint Legislative Oversight Committee by July 1, 2020.[d] Modeled after the SNS, this plan outlines the creation and maintenance of a "Strategic State Stockpile" for PPE and testing supplies that would be accessible to "public and private acute care providers, first responders, health care providers, long-term care providers, and non-health care entities located within the State for the purposes of addressing the COVID-19 pandemic and future public health emergencies." The North Carolina Department of Health and Human Services is the responsible organization charged with leading the activities under **Strategy 3.1b**, given its important role in developing plans for the state's strategic stockpile under SL2020-3.

Strategy 3.1c

Developing local infrastructure for the production of quality-assured PPE and other health care supplies.

The North Carolina Department of Commerce, NC Chamber, local business, and other partners should work with hospitals and health systems to ensure the development of local infrastructure for quality-assured PPE and other health care supplies in North Carolina.

DESIRED RESULT

Increased access to quality-assured PPE and other health care supplies, reduced reliance on out-of-state and global supply vendors, and a stronger economy in North Carolina through the creation of new opportunities to support businesses across the state.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force noted that reliance on federal support in the form of the SNS program and globally manufactured supplies represented a vulnerability in protecting North Carolina's health care and frontline essential workforces. **Strategy 3.1c** is intended to support the local production of health care supplies and long-term investments in the infrastructure needed to ensure access to these supplies. **Strategy 3.1c** should be understood to include infrastructure for the production of other health care resources that may be needed in the future, such as software and transportation.[9]

ADDITIONAL CONTEXT

During the COVID-19 pandemic, North Carolina developed creative solutions to meet the needs of health care and frontline essential workers. One such example involved North Carolina State University's Nonwovens Institute (NWI), Blue Cross and Blue Shield of North Carolina (Blue Cross NC), Freudenberg Performance Materials, UNC Health, the North Carolina Healthcare Association, and the North Carolina Medical Society, which partnered to manufacture N95 respirators to safely and cost-effectively equip health care and frontline essential workers across North Carolina.[26] **Strategy 3.1c** aims to build on this and other examples of innovation during the COVID-19 pandemic by incorporating the North Carolina Department of Commerce, NC Chamber, and other members of the business community into a partnership supporting the development of local infrastructure for PPE and other essential supplies to ensure that the state is better prepared for future COVID-19 surges and other public health emergencies.

Strategy 3.1d

Streamlining the procurement and distribution of PPE and other health care supplies.

The Office of State Budget and Management, in partnership with the North Carolina Department of Administration, should (1) survey North Carolina Department of Administration subcontractors that purchased and distributed PPE using CARES Act funding to assess the effectiveness of this model in streamlining PPE delivery to health care providers and facilities and (2) consider opportunities to modify procurement processes during public health emergencies based on the results of this assessment.

DESIRED RESULT

Streamlined procurement processes to expedite access to high-quality PPE and other essential supplies for health care and frontline essential workers at highest risk of exposure and infection.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Government contracting regulations—specifically, regulations around purchasing and reimbursement—were identified by the task force as a significant limitation to swiftly obtaining PPE and other essential health care supplies early in the COVID-19 pandemic. Assessing the effectiveness of efforts to expedite the delivery of these supplies to health care providers and facilities in 2020 could illuminate opportunities to simplify procurement processes and ensure that health care providers have the supplies they need during public health emergencies and beyond.

ADDITIONAL CONTEXT

The North Carolina Medical Society, the North Carolina Health Care Facilities Association, and the North Carolina Healthcare Association—specifically, the North Carolina Healthcare Foundation and NCHA Strategic Partners—were awarded CARES Act funding by the Office of State Budget and Management (OSBM) to purchase and distribute PPE to health care providers and facilities

[d] *SB704/SL2020-3 https://www.ncleg.gov/EnactedLegislation/SessionLaws/HTML/2019-2020/SL2020-3.html*

in 2020.[27,28] These organizations accessed funds through contracts with the North Carolina Department of Administration to ease the administrative burden of the procurement process and distribute supplies to those on the front lines of the COVID-19 pandemic response. As the organizations that managed the distribution of these funds and the contracting process, OSBM and the North Carolina Department of Administration are the responsible organizations involved in **Strategy 3.1d**.

Strategy 3.1e

Increasing opportunities for historically underutilized and small businesses to expand access to PPE and other health care supplies.

Building on the work outlined in Executive Order 143 and in the North Carolina Department of Commerce's *First in Flight: Strategic Economic Development Plan for the State of North Carolina*, the North Carolina Department of Administration should conduct an annual procurement planning survey to (1) identify local contracting opportunities for PPE and other needed supplies and (2) increase access to contracting opportunities for historically underutilized and other small businesses. The results of this survey should be publicly accessible and widely disseminated to support the North Carolina Department of Commerce, the North Carolina Pandemic Recovery Office, and other economic development partners in identifying and working to increase the manufacturing of PPE and other needed supplies locally.

DESIRED RESULT

Increasing opportunities for historically underutilized and other small businesses to obtain contracts with the North Carolina Department of Administration for PPE and other needed supplies, a stronger economy that reflects reduced reliance on out-of-state and global supply vendors, and health care and frontline essential workforces who are better protected during public health emergencies.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Minority-owned and small businesses energize local communities and sustain North Carolina's overall economy.[29] The COVID-19 pandemic has had disproportionate impacts on these businesses, necessitating the development of strategies to promote their recovery. **Strategy 3.1e** aims to imbed the procurement planning survey conducted in connection with Executive Order 143 into ongoing efforts by the North Carolina Department of Administration to ensure the viability of these businesses and expand their access to opportunities for state contracts. **Strategy 3.1e** also includes the publication of the annual procurement planning survey results, supporting the North Carolina Department of Commerce and other partners in their strategic plans around small business recovery and manufacturing infrastructure.

ADDITIONAL CONTEXT

The North Carolina Pandemic Recovery Office (NCPRO), established under Session Law 2020-4 (House Bill 1043), is charged with overseeing the distribution of $3.6 billion in federal relief funds to state agencies, local governments, nonprofit organizations, hospitals and health systems, educational systems, and research organizations, and promoting coordination among recipients of these funds.[30] Executive Order 143, signed by Governor Cooper on June 4, 2020, calls for NCPRO to work with the North Carolina Department of Administration's Office of Historically Underutilized Businesses (HUB) to support the economic recovery of minority-owned businesses across the state. Executive Order 143 recognized HUBs as essential to building and maintaining a "vibrant, sustainable, and diverse business community in North Carolina," and emphasized the disproportionate impacts of the COVID-19 pandemic on these businesses and the need to support and encourage their growth and development.[e] As a result, HUB was directed to coordinate with NCPRO and the North Carolina Department of Health and Human Services to ensure minority-owned and small businesses have access to economic recovery funds and contract opportunities with the state. In alignment with the goals and purpose of Executive Order 143, North Carolina Department of Administration leadership asked those involved in procurement processes in state agencies, institutions, and universities to complete a procurement planning survey to identify opportunities for these businesses.[29] The North Carolina Department of Commerce's *Strategic Economic Development Plan for the State of North Carolina* also includes a strategic focus on small business recovery.[31]

Strategy 3.1f

Strengthening partnerships to support the manufacturing, purchasing, and distribution of PPE and other health care supplies.

The North Carolina Department of Commerce should partner with the NC Chamber and other economic development partners to consider opportunities to incentivize or otherwise encourage the formation of public and private sector partnerships to manufacture, purchase, or distribute PPE and other needed supplies in alignment with the North Carolina Department of Commerce's Strategic Economic Development Plan for the State of North Carolina.

DESIRED RESULT

Ongoing public and private sector partnerships that include a strategic focus on addressing PPE and other health care supply needs, helping to ensure that health care and frontline essential workers are better protected during public health emergencies.

[e] *Executive Order No. 143, Addressing the Disproportionate Impact of COVID-19 on Communities of Color https://files.nc.gov/governor/documents/files/EO143-Addressing-the-Disproportionate-Impact-of-COVID-19-on-Communities-of-Color.pdf*

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Strategy 3.1f aims to build on existing momentum between public and private sector partners to develop solutions responsive to PPE and other health care supply shortages during the COVID-19 pandemic, and aligns with the strategic plan published by the North Carolina Department of Commerce, *First in Talent: Strategic Economic Development Plan for the State of North Carolina* (2021).

ADDITIONAL CONTEXT

Tactic 8.1 (develop a statewide comprehensive strategy that supports and enables North Carolina manufacturers to seize emerging opportunities utilizing automation and smart technologies) of the North Carolina Department of Commerce's *Strategic Economic Development Plan for the State of North Carolina* describes a partnership between the North Carolina Department of Commerce, the North Carolina Manufacturing Extension Partnership at NC State University, the Economic Development Partnership of North Carolina, NC Chamber, the Community College System, and others to address challenges integrating new technologies; building the appropriate infrastructure; enabling the development of new supply chains; building and enhancing the workforce; and supporting entrepreneurship and small business growth (p. 11).

Strategy 3.1g

Verify and ensure the quality of PPE purchased from new suppliers.

The North Carolina Healthcare Association, NC Chamber, and partners at Duke University School of Medicine, UNC Health Care System, ECU Health, Atrium Health Wake Forest Baptist, and other North Carolina health systems should establish an advisory group to study the challenges associated with verifying the quality of PPE purchased from new suppliers and develop a plan to ensure the provision of high-quality PPE to health care providers and frontline essential workers.

DESIRED RESULT

Increased understanding of the quality assurance challenges around PPE purchased from new suppliers during the COVID-19 pandemic and the development of solutions responsive to those challenges with the goal of ensuring access to high-quality, reliable PPE for health care and frontline essential workers.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Health care and frontline essential workers are often at highest risk of exposure and infection, necessitating access to high-quality, reliable PPE to mitigate this risk and protect their health and well-being, as well as that of their patients, families, and communities. Without access to the resources needed to do their jobs safely, workers can lose trust in the organizations and institutions that are obligated to provide reasonable protections to ensure a safe, healthy working environment. Job satisfaction can be diminished as a result, contributing to retention challenges that may have downstream impacts on access to insurance coverage, high-quality care, and additional services for communities served.

Although the FDA is responsible for regulating PPE in the United States, the task force identified the need to assess the challenges associated with PPE purchased from unfamiliar and non-traditional manufacturers and vendors as part of North Carolina's response to the COVID-19 pandemic and develop strategies to ensure that health care and frontline essential workers are adequately protected moving forward.[20]

ADDITIONAL CONTEXT

Changing regulations and guidance around PPE quality, the use of supplies from new and non-traditional suppliers, and the absence of scientific data to explain evolving regulations and guidance have been challenges for North Carolina and many other states during the COVID-19 pandemic.[9] **Strategy 3.1g** aligns with the goals of the North Carolina Association of Healthcare Resource and Materials Management (NCAHRMM), which includes representation from the North Carolina Healthcare Association (NCHA), Duke University, and other health care system representatives committed to raising health care supply chain management standards.[32] **Strategy 3.1g** also leverages the existing momentum and expertise of NCAHRMM and includes other key perspectives to develop a plan to verify PPE for North Carolina's health care and frontline essential workforces.

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The buildings and spaces where we work, live, and visit meaningfully impact our health, safety, and well-being.[1] The air we breathe can expose us to environmental pollutants that can cause or exacerbate chronic conditions such as asthma, in addition to airborne infectious pathogens such as SARS-CoV-2 and other viruses. Estimates show that we spend 90% of our time indoors,[2] where reduced air circulation, filtration, and ventilation can result in lower air quality that leads to higher risk of exposure.[1]

The Carolinas Pandemic Preparedness Task Force recognized the role of infrastructure in the COVID-19 pandemic response and identified several improvements to built environments as necessary for preparedness and prevention. Although the influence of other forms of infrastructure such as roads, bridges, housing, and wastewater systems on the health, safety, and well-being of North Carolinians cannot be understated, for the purposes of the recommendations included in **Chapter 4**, *infrastructure* refers to built environments such as schools, workplaces, justice system facilities, and other spaces where health care services can be delivered. *Infrastructure* also refers to the systems and processes necessary to promote health before, during, and after public health emergencies. Recommendations from the task force to strengthen North Carolina's broadband infrastructure and close the digital divide can be found in **Chapter 7** (Improving Access to Information and Services: Broadband Infrastructure, Telehealth, and Remote Learning).

The Impact of the Built Environment on Health

In the context of the COVID-19 pandemic, several challenges related to our built environments emerged. Many facilities across the state had inadequate systems and processes to ensure air quality when confronted with a novel and highly transmissible airborne virus. Many facilities were also unprepared and unable to provide adequate space for social distancing and isolation or quarantine when infection occurred, contributing to challenges in mitigating the spread of SARS-CoV-2.[3]

Increased risk of exposure and infection with SARS-CoV-2 and other airborne viruses has been linked to a number of contributing factors. Crowding and close proximity to other people indoors, particularly in the absence of masking and other mitigation measures to reduce transmission, increases this risk.[3,4] COVID-19 outbreaks have been attributed to indoor spaces where people are in close proximity, such as in justice system facilities (i.e., jails, prisons, and detention centers), buses and other modes of public transport, churches, and certain types of workplaces.[5-7] Congregate living settings where people receive long-term care—including nursing homes, hospice facilities, and other institutional settings—and food production locations, such as meatpacking facilities where workers were unable to work remotely, were especially vulnerable at the start of the pandemic. Shortages of personal protective equipment (PPE) and other health care supplies also heightened their risk as described in **Chapter 3** (Building a Resilient Supply Chain).

Defining the "Workplace"

To support COVID-19 surveillance, the Council for State and Territorial Epidemiologists defined non-residential, non-health care workplace settings as workplaces where employees do not live onsite, including "food and other manufacturing facilities such as meat and poultry processing, construction sites, office buildings, warehouses, restaurants/grocery stores, personal care and other service providing establishments such as salons, cleaners, and maid services."[8] The Occupational Safety and Health Administration defines health care workplaces as "hospitals, clinics, dental offices, outpatient surgery centers, birthing centers, emergency medical care, home health care, and nursing homes." Health care workers are directly or indirectly involved in the provision of services to individuals.[9]

Inadequate air circulation, filtration, and ventilation in indoor spaces can allow airborne viruses to linger in the air for hours, and these conditions have been linked to COVID-19 outbreaks.[10–12] SARS-CoV-2 is more readily transmitted between people indoors, where viral particles are often more concentrated compared to outdoor settings.[10] In addition, the probability of infection indoors depends on the amount of virus inhaled, the number of people present over time, length of exposure, types of activities (such as singing), and the quality of ventilation.[13]

Infrastructure and Health Equity

The roles of poverty and structural racism in infectious disease transmission and lower health status overall have been demonstrated over many years,[14–18] leading the U.S. Department of Health and Human Services to prioritize structural racism and other social determinants of health in Healthy People 2030 plans, objectives, and tools for action.[19] Similarly, Healthy North Carolina 2030 establishes indicators and objectives focused on addressing the harms of structural racism in alignment with North Carolina's State Health Improvement Plan and the North Carolina State Health Assessment.[20–22]

"Structural racism refers to the way public policies, institutional practices, cultural representations, and other social norms interact to generate and reinforce inequities among racial and ethnic groups."[22]

Poverty and structural racism have contributed to lower health status at baseline and inadequate access to health care among historically marginalized populations.[23] These populations are disproportionately harmed by food insecurity[23,24]—including higher rates of food deserts and swamps—and unsafe housing conditions that may expose residents to lead, asbestos, and other environmental pollutants that negatively impact

health and well-being irrespective of the COVID-19 pandemic and other public health emergencies. During the COVID-19 pandemic, crowded housing has been associated with higher risk of transmission because residents may be unable to isolate when infected and may be primary caregivers for others in the home.[25] People of color are more likely to live in crowded housing, have frontline essential jobs without the ability to work remotely,[26] and rely on public transit to commute to work .[27,28] While Black employees represent 13.6% of all workers, they are over-represented in certain industries, and they account for 19.3% of all frontline workers. Black employees are especially over-represented in public transit, health care and child care/social services.[29] These factors, along with lower baseline health and inadequate access to health care, have led to higher rates of SARS-CoV-2 exposure, infection, and severe disease among historically marginalized populations.

The North Carolina Department of Health and Human Services defines historically marginalized populations as "individuals, groups, and communities that have historically and systematically been denied access to services, resources and power relationships across economic, political, and cultural dimensions as a result of systemic, durable, and persistent racism, discrimination and other forms of oppression. Long standing and well documented structural marginalization has resulted in poor outcomes – health, social, political, economic and overall increased vulnerability to harm. Historically marginalized populations are often identified based on their race, ethnicity, social-economic status, geography, religion, language, sexual identity and disability status."[26]

Local, State, and Federal Initiatives to Improve Infrastructure

Addressing the infrastructure gaps that contributed to the rapid spread of SARS-CoV-2 is critical to ensuring that North Carolinians are better protected in anticipation of future surges of COVID-19 and other public health emergencies, and healthier overall.[30,31]

The American Rescue Plan Act (ARPA), passed by the U.S. Congress and signed into law by President Biden on March 11, 2021, provided $1.9 trillion in relief funds to address the ongoing impact of the COVID-19 pandemic on the economy, individuals and businesses, local and state governments, and public health. ARPA also builds on many of the goals of the Coronavirus Aid, Relief, and Economic Security Act (CARES Act),[a] which was signed into law by President Trump on March 27, 2020. The U.S. Department of Education received approximately $122 billion in ARPA funds, which will remain available through September 30, 2023, to support states and local education agencies in implementing strategies to improve infrastructure and address other needs. As part of this plan, the U.S. Department of Education received appropriations to distribute to states, which will in turn distribute funds to local education agencies to support heating, ventilation, and air conditioning-related projects and other efforts to reduce exposure to COVID-19, other airborne viruses, and environmental pollutants.[b]

North Carolina received more than $5.7 billion in total in ARPA funds.[32] Governor Cooper's proposed budget for North Carolina's use of these funds included a number of infrastructure investments to address the ongoing effects of COVID-19 and support the state's recovery.[33] These investments include assisting families and communities most impacted by the pandemic, strengthening the workforce, encouraging business development and innovation, and upgrading infrastructure, in addition to other key priorities. The North Carolina General Assembly allocated ARPA funds in Senate Bill 105, which Governor Cooper signed into law on November 18, 2021.

In April 2022, the Biden Administration unveiled the Biden-Harris Action Plan for Building Better School Infrastructure, which aims to leverage investments from the Bipartisan Infrastructure Law and ARPA to ensure public schools have "modern, clean, energy efficient facilities and transportation."[34] This action plan includes a specific focus on improving indoor air quality in classrooms by supporting states and localities in modernizing heating, ventilation, and air conditioning systems; obtaining air cleaning devices; and increasing air flow through windows and doors that function properly. In alignment with this focus area, the U.S. Department of Energy established a grant program that will provide $500 million in funding to support energy upgrades in K–12 public schools, understanding the important role that school facilities play in learning, performance, health, and well-being for students and teachers alike.[35] Additionally, the Department of Education has provided information to help school districts understand how they can use State and Local Fiscal Recovery Funds for a range of air quality and other school facility improvements.[36]

In March 2022, the Environmental Protection Agency also introduced the "Clean Air in Buildings Challenge," which is a call to action that includes a set of guiding principles to reduce the risks associated with airborne viral transmission and other pollutants by improving indoor air quality.[37] With recommendations and resources provided by the agency, the challenge asks building owners and operators to develop a clean indoor air action plan, increase fresh air ventilation and air filtration, and ensure community engagement, communication, and education.[38]

The Andrea Harris Social, Economic, Environmental, and Health Equity Task Force, established by Governor Cooper in Executive Order 1431, represents another important initiative to address the disproportionate impacts of the COVID-19 pandemic on North Carolina's communities of color.[39,40] The first report produced by the task force, released in December 2020, emphasizes

[a] *Senate Bill 3548 https://www.congress.gov/bill/116th-congress/senate-bill/3548/text*

[b] *Public Law 117-2, American Rescue Plan Act, https://www.congress.gov/117/plaws/publ2/PLAW-117publ2.pdf page 17. March 11, 2021*

that the COVID-19 pandemic has created an opportunity to address the issues caused by declining and poorly maintained public and private infrastructure. The report also elevates the importance of modernized heating, ventilation, and air conditioning systems to reduce exposure to SARS-CoV-2 and environmental pollutants in schools.[30]

> **"Nowhere is this problem more apparent than in NC's public schools, especially those in hyper-segregated, concentrated poverty communities. Due to aging and poorly functioning HVAC systems, young people attending these schools are exposed to a host of chemical and biological contaminants that adversely affect their health and overall well-being and their ability to learn. Reopening these schools amid the pandemic is likely to exacerbate the problem, as buildings with poor ventilation, already a crucible for building related diseases, can potentially become hotbeds for the spread of the coronavirus."[30]**
>
> ***- NC Department of Administration. Andrea Harris Social, Economic, Environmental Health Equity Task Force Biannual Report, 2020.***

RECOMMENDATION 4.1

Universal masking and widespread testing followed by isolation of infected individuals can significantly reduce the spread of COVID-19 and other airborne pathogens, but both measures have their limitations. Although masking has been widely accepted in other countries before and during the COVID-19 pandemic, it has become a politically charged topic in many areas of the United States and in North Carolina. At-home testing with rapid antigen tests produces less reliable results in asymptomatic individuals with the rise of the Omicron variant and its subvariants, and polymerase chain reaction (PCR) testing can continue to detect the presence of the virus long after an individual is contagious. PCR testing sites can also be challenging to find, with disparate access across many areas of the state making it less practical for routine screening and decision-making purposes. It is important to note that the COVID-19 vaccines produced by Pfizer/BioNTech, Moderna, and others carry a very low risk profile and remain highly effective at preventing hospitalization, severe disease, and death.[41] The Omicron variant and its subvariants, however, have been associated with higher rates of breakthrough infection among vaccinated people, enabling transmission of the virus to immunocompromised and unvaccinated individuals who remain vulnerable and in need of protection.[42,43]

While masking, testing, and other prevention measures require individual-level action, system-level actions can also be undertaken to protect individuals and populations from infection and promote health and well-being. Improving indoor air quality through increased ventilation and other measures can help to reduce the spread of COVID-19, the common cold, and other airborne infections, while also reducing exposure to allergens and other environmental pollutants that can cause or exacerbate acute and chronic conditions such as asthma. Carbon dioxide (CO_2) monitoring has emerged as a cost-effective method of assessing air flow and ventilation in indoor spaces—higher CO_2 levels indicate inadequate air flow that can increase the risk of exposure and infection with SARS-CoV-2 and other airborne infectious diseases. Research has also confirmed the relationship between elevated indoor CO_2 levels, which reflect the number of people in a given space, and infectious disease transmission during the COVID-19 pandemic.[44,45]

The strategies in **Chapter 4** represent actions recommended by the task force to improve North Carolina's infrastructure with the goal of ensuring indoor air quality before, during, and after infectious disease outbreaks and other public health emergencies. When an outbreak does occur, these strategies will support efforts to keep schools and other indoor facilities open by reducing the spread of disease and better protecting frontline essential workers and vulnerable populations, along with their loved ones and communities. Additionally, these strategies address the ways in which historically marginalized populations may be at greater risk of infection and illness due to disparities in infrastructure quality in homes, schools, and other facilities. It is important to note that the task force discussions did not include all built environments; instead, the discussions focused on environments where closures would be (or were) highly disruptive, impact large numbers of people, and/or impact highly vulnerable individuals, such as workplaces, schools, and prisons. In response, the task force recommends five strategies to improve indoor air quality and strengthen infrastructure to deliver services to communities in need:

RECOMMENDATION 4.1

Upgrade existing structures and construct new facilities with infection control measures in mind.

Strategy 4.1a: To reduce the spread of airborne pathogens among students, teachers, and school system employees, the North Carolina General Assembly should provide funding to (1) support ventilation upgrades and carbon dioxide (CO2) monitoring in schools and (2) ensure proper ventilation and CO2 monitoring in the construction of new school facilities in accordance with the recommendations for reducing airborne infectious aerosol exposure provided by the Centers for Disease Control and Prevention, Environmental Protection Agency, American Society for Heating, Refrigerating and Air-Conditioning Engineers, and the North Carolina Department of Health and Human Services.

Strategy 4.1b: The North Carolina Department of Public Instruction and the North Carolina Department of Health and Human Services' Occupational and Environmental Epidemiology Branch should work together to develop and provide ongoing guidance for school systems and state agencies to (1) understand the risk of exposure to airborne infectious aerosols based on carbon dioxide (CO_2) level monitoring and (2) identify effective strategies to reduce exposure and infection risk.

Strategy 4.1c: The North Carolina Department of Health and Human Services, North Carolina Society for Human Resource Management, Office of State Human Resources, and other private sector partners should work together to (1) establish minimum standards to reduce the risk of exposure to airborne infectious aerosols in workplaces and (2) evaluate and assess opportunities to provide incentives for employers and employees that implement additional evidence-based strategies to reduce the risk of exposure to airborne infectious aerosols in workplaces.

Strategy 4.1d: The North Carolina General Assembly should provide additional funding to the North Carolina Department of Public Safety to (1) upgrade heating, ventilation, and air conditioning (HVAC) systems to improve indoor air quality and reduce airborne infectious aerosol exposure in North Carolina prison facilities and (2) create a multidisciplinary team to provide infection control guidance and other forms of technical assistance to state prisons, county jails, and detention centers with the goal of promoting the health, safety, and well-being of justice-involved populations and staff.

Strategy 4.1e: North Carolina Emergency Management, North Carolina Office of Emergency Medical Services, North Carolina Healthcare Association, and other partners should work together to develop a plan to (1) ensure that existing assets can be quickly converted into mobile care units and (2) identify locations that would most benefit from the deployment of mobile care units during declared emergencies. This plan should consider the need for potential revisions to existing statutes to allow for payment for mobile services within and/or outside the context of declared emergencies.

The following organizations and entities are responsible for implementing the strategies included in Recommendation 4.1:

- **STATE AND LOCAL GOVERNMENT:** North Carolina General Assembly, North Carolina Department of Public Instruction, North Carolina Department of Public Safety, North Carolina Department of Health and Human Services, North Carolina Department of Health and Human Services' Occupational and Environmental Epidemiology Branch, Office of State Human Resources, North Carolina Office of Emergency Medical Services
- **PUBLIC SAFETY:** North Carolina Department of Public Safety, North Carolina Emergency Management
- **HEALTH:** North Carolina Healthcare Association
- **OTHER:** North Carolina Society for Human Resource Management, private sector partners

Strategy 4.1a

Improve indoor air quality in schools through modernized ventilation and carbon dioxide monitoring.

To improve indoor air quality and reduce the spread of airborne pathogens among students, teachers, and school system employees, the North Carolina General Assembly should provide funding to (1) support ventilation upgrades and carbon dioxide (CO_2) monitoring in schools and (2) ensure proper ventilation and CO_2 monitoring in the construction of new school facilities in accordance with the recommendations for reducing airborne infectious aerosol exposure provided by the Centers for Disease Control and Prevention, Environmental Protection Agency, American Society for Heating, Refrigerating and Air-Conditioning Engineers, and the North Carolina Department of Health and Human Services.

DESIRED RESULT

Modernized ventilation systems and CO_2 monitoring in schools to reduce the transmission of airborne infectious diseases among students, teachers, school system staff, and their families and communities. Improved air quality in schools will also reduce exposure to allergens and other pollutants that can cause or exacerbate acute and chronic conditions.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Strategy 4.1a aims to improve air quality in schools through adequate ventilation of indoor spaces and CO_2 monitoring to provide a cost-effective method of assessing the risk of airborne infectious disease transmission. **Strategy 4.1a** also takes a system-level approach to protecting these populations and their communities rather than relying on individual-level measures to reduce infectious disease transmission.

Indoor air quality directly impacts the transmission of airborne infectious diseases and other health conditions, while also influencing learning outcomes and work performance. Investing in modernized ventilation systems and CO_2 monitoring to ensure indoor air quality can have many benefits, including:

- Driving down health care costs for infectious diseases, asthma, and other conditions by reducing exposure to airborne infectious diseases, allergens, and other pollutants;

- Supporting efforts to keep schools open to reduce learning loss and absenteeism, and protect the social-emotional health and well-being of students and school system staff;[46,47] and
- Creating safer, healthier working environments for teachers and other school system staff to improve quality of life and contribute to their retention and productivity.[46–48]

ADDITIONAL CONTEXT

The importance of indoor air quality to prevent the transmission of COVID-19 and other infectious airborne diseases has been established,[49,50,51] leading the Centers for Disease Control and Prevention, the Environmental Protection Agency, and the North Carolina Department of Health and Human Services to issue guidance on ventilation in classrooms as a critical means of preventing exposure and infection among students, teachers, school system staff, and the people they interact with outside of school.[38,52,53] The American Society for Heating, Refrigerating and Air-Conditioning Engineers convened a task force in spring 2020 that issued core recommendations and guidance on specific actions to reduce airborne infectious aerosol exposure to SARS-CoV-2.[54,55] These recommendations address the deployment of ventilation, filtration, and air cleaners to reduce airborne infectious aerosol exposure. **Strategy 4.1a** also builds on existing efforts by the North Carolina General Assembly to protect the health of children from toxicants at school, which are reflected in the School Children's Health Act (SL 2006-143/HB 1502). This legislation, enacted on July 10, 2006, outlines specific actions to be undertaken by the State Board of Education to "address public health and environmental issues in the classroom and on school grounds."[c]

Strategy 4.1b

Support the interpretation and translation of data and other information into effective strategies to reduce exposure and infection risk.

The North Carolina Department of Public Instruction and the North Carolina Department of Health and Human Services' Occupational and Environmental Epidemiology Branch should work together to develop and provide ongoing guidance for school systems and state agencies to (1) understand the risk of exposure to airborne infectious aerosols based on carbon dioxide (CO_2) level monitoring and (2) identify effective strategies to reduce exposure and infection risk.

DESIRED RESULT

Evidence-based, actionable guidance to help school system staff interpret and apply the results of CO_2 monitoring to classroom practices, and technical assistance to identify effective, tailored strategies to reduce the risk of exposure to airborne infectious aerosols.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

CO_2 monitoring has emerged as a cost-effective method of assessing the risk of airborne infectious disease transmission by providing data that reflect the air flow and resulting air quality of spaces.[44,45] While these data can help school system staff to make decisions about whether to open windows, require face masks, or implement another strategy to reduce the risk of airborne infectious disease transmission, the task force also identified the need for guidance and technical assistance to support school systems in their decision-making. **Strategy 4.1b** also reflects survey findings published by the Center for Green Schools and the American Society for Heating, Refrigerating and Air-Conditioning Engineers, which underscore the need for clear guidance on acceptable CO_2 levels to help schools monitor and translate their indoor air quality data into tailored infection control and prevention strategies.[56]

ADDITIONAL CONTEXT

The North Carolina Department of Public Instruction and the North Carolina Department of Health and Human Services' Occupational and Environmental Epidemiology Branch—which provides guidance and technical assistance to state agencies, schools, and other facilities on indoor environmental air quality[57]—are the responsible organizations involved in **Strategy 4.1b.** This strategy builds on the work that the North Carolina Department of Health and Human Services, North Carolina Department of Public Instruction, and the State Board of Education have already done to provide guidance to local school systems in navigating the challenges presented by the COVID-19 pandemic in *Lighting Our Way Forward: North Carolina's Guidebook for Reopening Public Schools* (2021) and other technical assistance resources.[58]

Strategy 4.1c

Establish and implement standards to reduce exposure and infection risk in workplaces.

The North Carolina Department of Health and Human Services, North Carolina Society for Human Resource Management, Office of State Human Resources, North Carolina Department of Labor, and other private sector partners should work together to (1) establish minimum standards to reduce the risk of exposure to airborne infectious aerosols in workplaces and (2) evaluate and assess opportunities to provide incentives for employers and employees that implement additional evidence-based strategies to reduce the risk of exposure to airborne infectious aerosols in workplaces.

[c] *Session Law 2006-143, HB 1502, Schoolchildren's Health Act of 2006. https://www.ncleg.net/sessions/2005/bills/house/html/h1502v5.html*

DESIRED RESULT

Concerted efforts to reduce airborne infectious disease transmission in public and private sector workplaces to promote the health, safety, and well-being of employees and their families and communities.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

COVID-19 and other infectious disease outbreaks frequently occur in the workplace.[59] While some employees may be able to work remotely, other employees—particularly health care and frontline essential workers—may be unable to do so. **Strategy 4.1c** aims to establish minimum infection control standards that employers should implement to reduce the transmission of COVID-19 and other infectious diseases in the workplace.

Establishing and implementing standards to reduce the transmission of infectious disease in workplaces can improve economic stability for employers and North Carolina's economy overall. Fewer outbreaks of COVID-19 and other infectious diseases will reduce the number of employees out sick, fostering productivity and lowering health care costs. Safer, healthier workplaces can also make employees feel more protected, supported, and valued, leading to improved job satisfaction and better retention and recruitment. The protection of immunocompromised and vulnerable people inside and outside of the workplace is another essential component of building healthy communities across the state.

ADDITIONAL CONTEXT

The North Carolina Department of Health and Human Services, North Carolina Society for Human Resource Management, Office of State Human Resources, North Carolina Department of Labor, and other private sector partners identified by these entities are the responsible organizations involved in **Strategy 4.1c**. The Office of State Human Resources has published guidance to support North Carolina's employers and employees in navigating the many challenges of the COVID-19 pandemic[60] that aligns with the guidance provided by the Office of Safety and Health Administration and the North Carolina Department of Health and Human Services.[61] Governor Cooper also issued Executive Order 224 on July 29, 2021,[d] requiring state employees to furnish proof of vaccination or submit to weekly COVID-19 testing, and the Office of State Human Resources issued a policy to promote adherence to Executive Order 224 that has since been revised and updated as the state's response to the pandemic has evolved.[62,63] **Strategy 4.1c** recognizes these important steps in controlling the spread of COVID-19 in the workplace and beyond, and asks these entities to develop minimum standards to reduce transmission in anticipation of future outbreaks of COVID-19 and other infectious diseases.

The North Carolina Society for Human Resource Management—the local chapter of the Society for Human Resource Management—is another important partner in establishing standards to reduce airborne infectious disease transmission in North Carolina's workplaces.

Strategy 4.1d

Improve air quality in justice system facilities to reduce exposure and infection risk and protect staff, justice-involved populations, and communities.

The North Carolina General Assembly should provide additional funding to the North Carolina Department of Public Safety to (1) regularly/continuously upgrade heating, ventilation, and air conditioning (HVAC) systems to improve indoor air quality and reduce airborne infectious aerosol exposure in North Carolina prison facilities and (2) create a multidisciplinary team to provide infection control guidance and other forms of technical assistance to state prisons, county jails, and detention centers with the goal of promoting the health, safety, and well-being of justice-involved populations and staff.

DESIRED RESULT

Reduced transmission of airborne diseases in justice system facilities to promote healthy, safe environments for justice-involved persons, staff in these facilities, and their families and communities. Improved air quality in justice system facilities will also reduce exposure to allergens and other pollutants that can cause or exacerbate acute and chronic conditions experienced by those who live and work in justice system facilities.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Justice system facilities involve close living arrangements, necessitating the implementation of evidence-based strategies to reduce the transmission of infectious disease. During the COVID-19 pandemic, justice-involved populations and staff in North Carolina and across the United States have been particularly vulnerable as a result of overcrowding, high transmissibility, and racial disparities.[64,65] In response, scientists and other preparedness experts have prioritized the importance of strategies such as improved ventilation to mitigate the spread of the virus and elevate equity in justice system facilities.[65,66]

In alignment with recommendations and guidance from the Centers for Disease Control and Prevention,[67] **Strategy 4.1d** will improve indoor air quality to reduce the transmission of airborne infectious diseases and promote health among justice-involved populations and staff. **Strategy 4.1d** takes a system-level approach to protecting these populations and their communities, while aiming to reduce the burden of infection control on staff in justice system facilities, which have been strained throughout the COVID-19 pandemic.[68] By reducing the burden on staff, **Strategy 4.1d** also supports the North Carolina Department of Public Safety's strategic plan,[69] which prioritizes retention, morale, and wellness among staff in the Division of Prisons.

[d] *July 29, 2021, Executive Order 224, https://files.nc.gov/governor/documents/files/EO224-COVID-19-Measures.pdf*

ADDITIONAL CONTEXT

North Carolina's budget for the use of American Rescue Plan Act funds included $30 million for the North Carolina Department of Public Safety to address the need for heating,[33] ventilation, and air conditioning systems to be installed in 40 facilities without such systems. With this funding, which was ultimately approved by the North Carolina General Assembly in November 2021,[70] the North Carolina Department of Public Safety estimated that air quality and overall conditions would be improved for more than 15,000 justice-involved persons and nearly 9,000 staff in these facilities.[33] These funds enabled meaningful upgrades in facilities that had been relying on air purifiers to improve air quality during the COVID-19 pandemic.[71] However, the task force noted that additional funds are needed to resolve remaining issues and to meet the need for modernized ventilation and other upgrades or equipment in other justice system facilities across the state, many of which are more than 50 years old.[69] These infrastructure upgrades can lessen health care costs for the state in the short and long term.

The state's plan for allocating ARPA funds also included resources for detection and mitigation of COVID-19 in confinement facilities;[e] Governor Cooper's budget proposed specific plans to establish a "multi-disciplinary team to provide infection control guidance, outbreak management and technical assistance to state prisons, county jails and detention centers."[33] **Strategy 4.1d** supports this proposed work, while including other needed forms of technical assistance to prioritize health equity, improve safety, and promote the well-being of North Carolina's justice-involved populations and staff.

Strategy 4.1e

Ensure the rapid conversion and deployment of mobile care units based on community-level needs.

North Carolina Emergency Management, North Carolina Office of Emergency Medical Services, North Carolina Healthcare Association, and other partners should work together to develop a plan to (1) ensure that existing assets can be quickly converted into mobile care units and (2) identify locations that would most benefit from the deployment of mobile care units during declared emergencies. This plan should consider the need for potential revisions to existing statutes to allow for payment of mobile services within and/or outside the context of declared emergencies.

DESIRED RESULT

The development of an equity-centered plan to ensure the rapid conversion of existing assets into mobile care units in order to provide services including testing, treatment, and distribution of personal protective equipment, and the strategic deployment of these mobile care units to communities in need.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Mobile units are important tools in the delivery of health care services to historically marginalized and underserved communities that are at higher risk of COVID-19 and other health conditions[72,73] and at the same time isolated or otherwise unable to access services.[74] The distribution of fixed medical assets, such as clinics, urgent care centers, and other facilities, is not uniform across our state, resulting in fewer sites of care in communities that are more rural, have a lower average income, and have higher percentages of residents of color. Mobile care units can bridge gaps in North Carolina's health care safety net, particularly in the context of rural hospital closures[75] and other systemic barriers to care. Mobile care units also help to address structural barriers to care[74,76] such as transportation or inflexible work schedules, by bringing services to those in need, and their flexibility and adaptability make them ideal resources to deploy before, during, and after public health emergencies.[73] **Strategy 4.1e** will facilitate North Carolina's ability to quickly convert and deploy mobile care units to areas of the state in need, while also increasing the state's ability to provide assistance to neighboring states if needed.

ADDITIONAL CONTEXT

North Carolina Emergency Management, North Carolina Office of Emergency Medical Services, North Carolina Healthcare Association, and other partners identified by these entities are the responsible organizations involved in **Strategy 4.1e.** These organizations collaborate on the North Carolina Healthcare Preparedness Program, which develops plans, training, exercises, and guidance as the lead Emergency Support Function 8 organization of the State Emergency Response Team under the North Carolina Emergency Operations Plan.[77,78]

During the COVID-19 pandemic, mobile care units have been deployed to support the North Carolina Department of Health and Human Services' vaccination campaign and increase access to COVID-19 testing and screening and treatment services for a variety of health conditions. Another example involves the North Carolina Healthcare Foundation, the 501(c)3 affiliate of the North Carolina Healthcare Association, which established the COVID-19 Fill the Gap Response Fund to help health care organizations and community-based organizations implement mobile care models and other strategies to expand access to care.[79,80] **Strategy 4.1e** will increase planning, coordination, and support for mobile health units by leveraging the strengths of organizations partnered in the work of the North Carolina Healthcare Preparedness Program.

[e] *Session Law 2021-180. Senate Bill 105, An Act to Make Base Budget Appropriations for Current Operations of State Agencies, Departments, and Institutions and for Other Purposes.*

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The health care and frontline essential workforces provide vital services and supports to North Carolinians before, during, and after public health emergencies and other times of crisis. When SARS-CoV-2 emerged in late 2019, long-standing vulnerabilities in the health care and frontline essential workforces were exposed, threatening the health, well-being, and safety of workers and further straining systems that ensure access to food, housing, health care, transportation, and education services.[1] The COVID-19 pandemic has also created new, unanticipated challenges, leading to exhaustion, burnout, and other harms to workers and to the sustainability of these workforces.

"The COVID-19 pandemic thrust health care workers across the nation into rapidly changing care environments without adequate support or sufficient training tools for most. The lack of a systematic approach to workforce planning necessary to optimally deploy health care human resources during the pandemic endangered these workers and their families as well as their communities, health care systems, and patients."[2] – Dodson, et al., *Health Care Workforce Playbooks and the COVID-19 Pandemic* (2021)

The high transmissibility of SARS-CoV-2 and other specific characteristics of the virus, along with the unpredictable course of the disease for people infected, strained the health care workforce early on in the pandemic. As SARS-CoV-2 spread rapidly and case rates increased, the demand for health care services increased in turn. At the same time, health care workers did not have adequate access to the personal protective equipment (PPE) and other supplies needed to protect themselves from exposure and infection. **Chapter 3** (Building a Resilient Supply Chain) provides additional information on PPE and other health care supply shortages, along with strategies recommended by the task force to ensure adequate access to needed supplies for North Carolina's health care and frontline essential workers. **Chapter 4** (Improving Infrastructure to Promote Health, Safety, and Well-Being) includes system-level strategies to reduce infectious disease transmission and improve health.

Surges in cases have the potential to substantially limit the capacity of workers and systems to care for patients with needs unrelated to COVID-19—for example, injuries sustained in motor vehicle accidents, heart attacks, and other health issues requiring emergency care—in addition to the needs of COVID-19 patients. In North Carolina and throughout the United States, high case rates have not only strained workers and health care systems in their capacity to deliver services in a variety of ways, but also caused many of them to feel endangered and demoralized.[2,3] Despite risking their own health, safety, and well-being to provide care, this hard work hasn't necessarily translated to different outcomes or health behaviors among patients and communities. As a result, health care workers have understandably reported high rates of burnout, exhaustion, and other mental and behavioral health challenges.

Surges that increase the demand for health care services can also force health care systems to make difficult decisions regarding the allocation of resources, such as ventilators, that may be scarce or in high demand. These decisions can lead to moral injury, which occurs when clinicians are "repeatedly expected, in the course of providing care, to make choices that transgress their long-standing, deeply held commitment to healing."[4,5] Moral injury can have far-reaching impacts on the health and well-being of clinicians and the health care workforce overall, and targeted strategies are needed to address it.

Throughout the COVID-19 pandemic, difficulties in implementing public health mitigation measures to limit or control the spread of the virus have also strained the health care workforce and the frontline essential workforce more broadly.[6–9] Resistance to wearing face masks and vaccine hesitancy among the general public have been significant barriers to reducing viral transmission, protecting health care and frontline essential workers, and ensuring the capacity of health care and other systems to care for those in need. These challenges have been substantially worsened by the spread of misinformation, which has proven difficult to combat and has been a factor in increasing threats, harassment, and other forms of violence directed toward workers on the front lines of the response to the COVID-19 pandemic.[10] The task force underscored that public health has become increasingly politicized, while also recognizing that increased awareness of public health represents an opportunity to achieve meaningful change for local, state, and national systems that have been chronically underfunded. **Chapter 6** (Data-Driven Decision-Making and Effective Communications with the Public) includes recommendations for supporting effective communications with the public in response to misinformation and eroding public trust in government entities, as well as recommendations to strengthen public health infrastructure and data systems.

"To stand a chance against a threat like COVID-19, the nation needs to sustain higher funding year to year and invest resources in planning, workforce, and infrastructure beforehand. Not doing so is akin to hiring firefighters and purchasing hoses and protective equipment amid a five-alarm fire."[11] – Trust for America's Health, *The Impact of Chronic Underfunding on America's Public Health System: Trends, Risks, and Recommendations, 2021.*

The challenges of the COVID-19 pandemic have reinforced the need for system-level changes that promote flexibility and adaptability in response to the evolving and fluctuating needs of populations served across the state.[2] In response, the task force has provided five recommendations that will ensure the development of effective solutions that address the needs of the health care and frontline essential workforces in particular, and the workers who comprise these workforces. The recommendations provided below, which include a number of actionable strategies to support the overarching goals described within each recommendation, are collectively intended to strengthen the health care and frontline essential workforces:

Recommendation 5.1
Develop and implement an action plan to respond to urgent and long-term health care workforce needs.

Recommendation 5.2
Assess workforce shortages and other needs of frontline essential workers to support continuity of operations planning.

Recommendation 5.3
Prioritize the health, well-being, and safety of the health care and frontline essential workforces.

Recommendation 5.4
Strengthen workforce recruitment and retention.

Recommendation 5.5
Provide flexibility to health care workers to increase surge capacity during public health emergencies.

The following organizations are responsible for implementing Recommendations 5.1–5.5:

State and Local Government

- North Carolina General Assembly (NCGA)
- North Carolina Department of Health and Human Services (NCDHHS)
- North Carolina Department of Public Instruction (NCDPI)
- North Carolina Department of Public Safety (NCDPS)
- Office of State Human Resources (OSHR)
- North Carolina Association of County Commissioners (NCACC) and county commissioners
- North Carolina League of Municipalities (NCLM)
- University of North Carolina School of Government (UNC SOG)

Health Care

- North Carolina Healthcare Association (NCHA)
- North Carolina Health Care Facilities Association (NCHCFA)
- Association for Home & Hospice Care of North Carolina (AHHS NC)
- North Carolina Medical Society (NCMS)
- Old North State Medical Society (ONSMS)
- North Carolina Nurses Association (NCNA)
- North Carolina Academy of Physician Assistants (NCAPA)
- North Carolina Association of Local Health Directors (NCALHD)
- North Carolina Institute for Public Health (NCIPH)
- North Carolina Public Health Association (NCPHA)
- North Carolina Area Health Education Centers (NCAHEC)
- North Carolina Medical Group Management Association (NCMGMA)
- Western North Carolina Medical Managers Association (WNCMMA)
- National Alliance of Mental Illness North Carolina (NAMI NC)
- Hospitals and health care systems

Business

- North Carolina Society for Human Resource Management (NCSHRM)
- North Carolina Department of Commerce (NC Commerce)
- Economic Development Partnership of North Carolina (EDPNC)
- North Carolina College Personnel Association (NCCPA)
- NC Chamber
- Employers

Education

- North Carolina Association of Educators (NCAE)
- Office of Human Resources for the University of North Carolina and community college systems
- North Carolina's independent colleges and universities

Other

- Philanthropic organizations
- Other education, health care, mental, and behavioral health professional and advocacy organizations, including the North Carolina Early Childhood Foundation

Although the task force also recognized the importance of other workers and workforces in building and sustaining a vibrant, robust economy for North Carolina, the state relies on health care and frontline essential workers to ensure ongoing access to critical services and supports for North Carolinians during times of crisis and beyond. Their work on the front lines of the current COVID-19 pandemic has put them at higher risk of exposure, infection, and among certain types of frontline essential workers, severe disease and death.[12] In addition, as these workers continued to provide essential services to the state, many needed additional supports, such as accessible child care, mental health services, and other resources. As a result, the recommendations and strategies for system-level change outlined in **Chapter 5** focus on protecting the health, safety, and well-being of health care and frontline essential workers to ensure the state's ability to resiliently respond to future surges of COVID-19 and other public health emergencies.

For the purposes of this chapter, *frontline essential workers* refers to workers in the following industries or sectors: critical manufacturing, education, essential goods, food and agriculture, government and community services, health care and public health, public safety, and transportation.[1,13–16] Within the frontline essential workforce, *health care workers* refers to workers directly or indirectly involved in the provision of health care services to individuals in settings such as hospitals, clinics, provider offices, outpatient surgery centers, emergency medical care, home health care, and long-term care (nursing homes, hospice, etc.).[17] Several strategies included in **Chapter 5** focus more specifically on public health, which includes workers in state and local health departments and their partners.

RECOMMENDATION 5.1

A robust, resilient, and qualified health care workforce is essential to ensuring access to services and supports for all North Carolinians before, during, and after public health emergencies. Workers must be appropriately trained, adequately onboarded, supported and protected in their roles, and provided with professional development and learning opportunities to promote the flexibility and adaptability of hospital and health care systems to meet both emergent and long-standing needs in the communities they serve.

The COVID-19 pandemic has exacerbated structural and systemic challenges that have existed for years, while also presenting new and unique challenges that have further strained an under-resourced and exhausted health care workforce in the state.[18] Maldistribution of the health care workforce across the state, shortages in certain categories of health care workers,[17] and disinvestment in public health and rural health care systems are among the structural and systemic factors that have most impacted access to care. Non-medical drivers of health, or *social determinants of health*, also contribute to a scarcity of available and accessible health care services and supports. **Chapter 8** (Ensuring the Availability of Health Care Services) and **Chapter 9** (Addressing Disparities to Promote Whole-Person Health and Economic Stability) address the impact of the non-medical drivers of health on access to and utilization of health care services and supports, and include recommendations from the task force to ensure access and promote health before, during, and after public health emergencies.

"[A]n alarming downward spiral highlighted the precariousness of the health care system: There was a chronic health care workforce shortage when the sector experienced an increase in pandemic-related needs and nonessential services were suspended to accommodate surges and safety practices. Organizations then experienced financial losses, requiring them to furlough or terminate staff, which worsened the health care workforce shortage and increased stress on remaining workers."[18] – North Carolina Area Health Education Centers, *Pandemic Health Care Workforce Study* (2021)

"As COVID-19 arrived in the United States, massive cancellations of elective and non-essential medical procedures further reduced revenues and created problems for rural hospitals, such as employee layoffs, increased case overloads, patient transfers from neighboring hospitals, and delays in receiving medicines and personal protection equipment (PPE). Health experts recently predicted that as rural hospitals try to prioritize needs to meet deficiencies, seasonal influenza and pneumonia spikes combined with a steady rise in COVID-19 will overwhelm rural health care systems."[19] – Kearney, et al., *Journal of Public Health Management and Practice* (2021)

Surges in COVID-19 cases have also increased the need for health care services, contributing to burnout among health care workers across the state and exacerbating long-standing workforce shortages that have disproportionately impacted rural and historically marginalized communities. Public health policies have also been highly politicized during the COVID-19 pandemic, which has led to polarization, conflict, and mistrust in public health authorities and the government at the local, state, and federal levels. In addition to burnout, the stress experienced by the health care workforce throughout the COVID-19 pandemic has led to new or worsening mental and behavioral health challenges, along with lower morale, job satisfaction, and retention.

What factors are driving health care workforce shortages?

Inadequate access to care and other services, particularly among rural and historically marginalized communities, has been influenced by workforce shortages that existed long before the COVID-19 pandemic.[20] Rural areas also experience unique challenges in recruiting and retaining qualified health care providers compared to urban and suburban areas. Despite having the ninth-largest population in the country with nearly 10.4 million residents, 78 out of North Carolina's 100 total counties are considered rural.[11] In March 2022, the North Carolina Office of Rural Health reported that 91 out of 100 counties in North Carolina have shortages in three provider categories: primary care, mental and behavioral health, and oral health.[21] **Table 1** provides information on counties in North Carolina designated as Health Professional Shortage Areas (HPSAs) by the U.S. Health Resources and Services Administration (HRSA) for each category.

Table 1 : North Carolina Counties Designated as Health Professional Shortage Areas (HPSAs) by Category

PRIMARY CARE[22]	**93**
MENTAL AND BEHAVIORAL HEALTH	**94**
ORAL HEALTH	**100**

Rural areas experience a number of challenges in terms of recruiting and retaining health professionals, including lack of training opportunities, heavy workload, and unique community characteristics.[25] North Carolina continues to struggle to produce and retain primary care physicians in particular, making recruitment to rural areas of the state more challenging.[25] Training opportunities for health care professionals are also more limited in rural areas, where academic medical training programs and graduate medical education programs are less common.[25] Community characteristics shape recruitment and retention in rural areas as well, with these areas of the state having fewer child care, education, and entertainment options (restaurants, theaters, concert venues, etc.) that can help attract new residents.[25]

In addition to recruitment challenges facing the health care workforce in North Carolina, the COVID-19 pandemic has also contributed to the "Great Resignation" and other socio-cultural changes that have shaped the health care workforce alongside many other sectors.[26] In a fall 2021 survey of health care facilities across the state, 62% of respondents (including acute care, primary care, behavioral health, and long-term care, among others) reported that COVID-19's impact on their workforce had worsened over the previous six months. By spring 2022, a follow-up survey showed improvement: 39% of respondents reported that COVID-19's impact had worsened, and more than a quarter of respondents reported that the impact had gotten better (4% much better; 25% slightly better).[27] However, the same spring 2022 findings showed more than half of respondents (51%) reporting that burnout among employees had gotten slightly or much worse. Worryingly, 42% of respondents reported that the impact of staff shortages on the facilities' ability to provide care had gotten worse.[27]

"As a result of forces gathering before the pandemic, an aging population, aging physicians and nurses, increasing clinical demands, greater emotional and physical stresses of practice, and epidemic clinical burnout, it is no wonder that many health care professionals have left practice, joining other workers from diverse areas of employment in what has been termed the 'Great Resignation.' However, not all have fully retired. In fact, the average age of nurses leaving the field is only 41 years. Many clinicians have 'repurposed' themselves, taking on new roles in health care or related fields (e.g., information technology, administration, teaching, and so on), pursuing additional education, or switching professions altogether in what Harvard Business School Professor Ranjay Gulati has termed the 'Great Rethink.'"[28,29] – Edward T.A. Fry, *Journal of the American College of Cardiology* (2022)

Who is most impacted by shortages and maldistribution of the workforce?

Prior to the COVID-19 pandemic, the development of North Carolina's health care workforce had been identified as a key priority by experts across the state. Inadequate access to primary care, dental care, and behavioral health care services had been a significant issue prior to the COVID-19 pandemic, especially for North Carolinians in rural and historically marginalized communities.[30] North Carolina's rural communities have also had long-standing needs for nurses, allied health professionals, pharmacists, and certain types of specialists, to ensure adequate access to care.[30–32] These shortages have contributed to lower health status among rural residents in the years preceding the emergence of SARS-CoV-2, increasing their risk of severe disease, hospitalization, and death from COVID-19 when the pandemic occurred. This ultimately translated to a higher rate of death among rural residents from COVID-19 during the first year of the pandemic.[33]

To address these structural and systemic factors, with the goal of improving the capacity and sustainability of the health care workforce to provide services and supports to North Carolinians during times of crisis and beyond, the task force recommends the following:

STRATEGIES 5.1a–5.1d

Establish and provide resources for the forthcoming Center on Workforce for Health to develop solutions to address workforce shortages.

Strategy 5.1a: The North Carolina General Assembly, North Carolina Department of Health and Human Services, and/or philanthropic organizations should provide sustained, ongoing funding to establish and resource the North Carolina Center on Workforce for Health. The work of the Center should include an assessment of staffing and resource allocation levels to understand workforce shortages, areas in which workload has exceeded capacity, and adequate staffing levels needed in the event of another COVID-19 surge or other public health emergency; and the identification and sharing of best practices to address these issues.

Strategy 5.1b: The Center on Workforce for Health should develop an action plan that focuses on: (1) recruitment and retention of the health care workforce, ensuring that provider and clinician perspectives are included in the development and implementation of this action plan; and (2) pathways into health professions and opportunities to strengthen the health care workforce pipeline.

Strategy 5.1c: The North Carolina Department of Health and Human Services should work with leadership of the forthcoming Center on Workforce for Health to identify areas of alignment between the Department's strategic plan and the research and analysis work of the Center.

Strategy 5.1d: The North Carolina Healthcare Association, North Carolina Healthcare Facilities Association, Association for Home & Hospice Care of North Carolina, North Carolina Medical Society, North Carolina Nurses Association, Old North State Medical Society, North Carolina Medical Group Management Association, and Western North Carolina Medical Managers Association should work with local coalitions and partners engaged in implementing the forthcoming Center on Workforce for Health to assess health care workforce shortages (including those facing hospitals, health systems, independent physician practices, long-term care, and other elements of the health care ecosystem in the state) and develop short, medium, and long-term solutions.

DESIRED RESULT

Improved coordination and multi-sector strategic planning among state stakeholders (including health system representatives, academic researchers, community members, and others) to meet the urgent and long-term needs of the health care workforce with the goal of promoting workforce sustainability and access to high-quality health care for all North Carolinians.

WHY DOES THE TASK FORCE RECOMMEND THESE STRATEGIES?

The task force noted that efforts to strengthen the health care workforce have been disjointed and uncoordinated, despite increased awareness of the challenges caused or exacerbated by the COVID-19 pandemic and recent momentum to address these challenges. The forthcoming Center on Workforce for Health represents an opportunity to align and coordinate the activities of key perspectives and experts.

Past efforts to address challenges facing the health care workforce have not received sustained and collaborative funding, which the task force noted as a limitation to progress and long-lasting improvement. **Strategies 5.1a–5.1d** involve the establishment, funding, and core mission of the Center on Workforce for Health, and emphasize the need for partners involved in the work of the Center to meaningfully engage and include providers and clinicians who are ultimately responsible for delivering care to North Carolinians in need.

ADDITIONAL CONTEXT

The North Carolina General Assembly, North Carolina Department of Health and Human Services, and philanthropy organizations are the responsible organizations involved in **Strategy 5.1a**. Although the Center on Workforce for Health received seed funding in the summer of 2022, sustained funding will be needed to ensure the capacity of the Center to develop solutions to the complex challenges facing North Carolina's health care workforce. The absence of sustained funding to support collaborative efforts focused on strengthening the health care workforce was identified by the task force as a significant limitation to progress that **Strategy 5.1a** aims to prevent.

In alignment with the task force's focus on equity and achieving system-level change to address the disproportionate harms of the COVID-19 pandemic on historically marginalized and vulnerable communities, **Strategy 5.1b** also asks the forthcoming Center on Workforce for Health to prioritize the development of recruitment and retention strategies for North Carolina's health care workforce. **Strategy 5.1b** also underscores the importance of including provider and clinician perspectives—the perspectives of those who have served on the front lines of the COVID-19 pandemic and other public health emergencies—in the development and implementation of these strategies to maximize their impact.

Strategies 5.1c and **5.1d** are grounded in an understanding of the importance of multi-sector planning, coordination, and meaningful collaboration. The North Carolina Department of Health and Human Services' 2021–2023 Strategic Plan emphasizes the importance of the direct care workforce in particular, and calls for the development and implementation of a comprehensive plan to strengthen this workforce.[34] This represents an opportunity to leverage shared goals and expertise to develop effective solutions that meet the needs of communities. **Strategy 5.1d** underscores the importance of involving hospitals and health systems, including independent physician practices, as well as emphasizing the needs of the nursing workforce, in the work of the Center to ensure their perspectives are reflected in strategies to address workforce shortages and other needs.

It is also important to note that the North Carolina Institute of Medicine's Task Force on the Future of Local Public Health has developed a recommendation that aims to promote statewide coordination in support of the public health workforce with a number of partners involved, Please see Recommendation 4 and the full final report from the Task Force on the Future of Local Public Health for additional details and information at https://nciom.org/future-of-local-public-health-in-north-carolina/

RECOMMENDATION 5.2

Assess workforce shortages and other needs of frontline essential workers to support continuity-of-operations planning.

Strategy 5.2a: North Carolina county commissioners should conduct a study of the issues facing the frontline essential workforce to understand shortages and requirements for ensuring continuity of operations in North Carolina's cities and counties during public health emergencies. This study should focus on water and wastewater management, solid waste services, emergency medical services, public safety, and other community-specific areas of interest.

Strategy 5.2b: The North Carolina Association of County Commissioners should provide guidance and technical assistance to county commissioners in their efforts to study issues facing the frontline essential workforce described in Strategy 5.2a.

Strategy 5.2c: The Office of Human Resources for the University of North Carolina system, Office of Human Resources for the North Carolina community college system, and North Carolina's independent colleges and universities should conduct a study to ensure adequate staffing levels for essential personnel.

STRATEGY 5.2a–5.2b

Assess frontline essential workforce needs to ensure continuity of operations for critical services.

Strategy 5.2a: North Carolina county commissioners should conduct a study of the issues facing the frontline essential workforce to understand shortages and requirements for ensuring continuity of operations in North Carolina's cities and counties during public health emergencies. This study should focus on water and wastewater management, solid waste services, emergency medical services, public safety, and other community-specific areas of interest.

Strategy 5.2b: The North Carolina Association of County Commissioners should provide guidance and technical assistance to county commissioners in their efforts to study issues facing the frontline essential workforce described in Strategy 5.2a.

DESIRED RESULT

Better understanding of the shortages and needs facing the frontline essential workforce responsible for providing critical services to keep North Carolina's cities and counties functioning before, during, and after public health emergencies, and the use of this information in continuity-of-operations planning and resource allocation decisions.

WHY DOES THE TASK FORCE RECOMMEND THESE STRATEGIES?

Water and wastewater management, solid waste services, emergency medical services, and public safety are among the most critical services in North Carolina's cities and counties. Understanding what is needed to ensure continuity of operations during public health emergencies is vital to preventing disruptions in service for North Carolinians. The frontline essential workforce must also be adequately resourced and supported to promote sustainability and retention over time. Continuity-of-operations planning should consider the funding needed to ensure the level of services required by cities and counties, along with personal protective equipment (PPE) and other supplies to adequately protect these workers from infection and injury.

ADDITIONAL CONTEXT

North Carolina county commissioners and the North Carolina Association of County Commissioners are the responsible entities involved in **Strategies 5.2a** and **5.2b. Strategy 5.2a** will help to ensure that shortages and other challenges encountered by the frontline essential workforce are understood and prioritized by county commissioners and other local leaders. **Strategy 5.2b** aims to build on existing work of the North Carolina Association of County Commissioners to support county commissioners in their decision-making to respond to local needs, including the needs of the frontline essential workforce to ensure continuity of operations in cities and counties during times of crisis. The North Carolina Association of County Commissioners is in the process of expanding its technical assistance function and has ongoing initiatives and training opportunities focused on supporting county commissioners in their emergency preparedness and readiness efforts.[35]

STRATEGY 5.2c

Ensure continuity in services and supports for students.

The Office of Human Resources for the University of North Carolina system, the Office of Human Resources for the North Carolina community college system, and North Carolina's independent colleges and universities should conduct a study to ensure adequate staffing levels for essential personnel.

DESIRED RESULT

An assessment of staffing levels of essential personnel at University of North Carolina system schools, North Carolina community colleges, and independent and private universities and colleges during the COVID-19 pandemic would provide essential information to improve services and supports for students' physical and mental health needs and prevent disruption in services during public health emergencies.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

In 2021, over half a million students were enrolled in University of North Carolina system schools and North Carolina community colleges[36,37] and these institutions generate billions in added state income and economic impact to the state annually.[38] In 2020 and 2021, university and college students had to manage abrupt shifts from in-person instruction to virtual learning and residence hall and dining facility closures.[38] This created significant challenges for all students, but was even more impactful for out-of-state students and students who rely on campus housing. Colleges and universities rely on a variety of essential employees to ensure the safety and well-being of students, including but not limited [37] to those employed in campus health, dining facilities, counseling services, residence halls, facilities services, and campus safety.[39] Given the high rate of attrition and turnover of employees in higher education,[40,41] a study should be conducted to ensure that university and college campuses are adequately staffed to provide services for students' safety and well-being while on campus, as well as for physical and mental health needs that may have been caused or exacerbated by the COVID-19 pandemic. Adequate staffing of these positions is critical to mitigate the spread of COVID-19 and future outbreaks of infectious disease and avoid subsequent disruption to in-person learning .

ADDITIONAL CONTEXT

Several states have passed or initiated legislation to address the impacts of the COVID-19 pandemic on higher education institutions, including:[42]

- Maryland HB 187— This legislation requires higher education institutions to submit an annual outbreak response plan, which must include processes around provision of college and university staff.
- Louisiana SB 481—This legislation requires all postsecondary education management boards to implement policies that address the negative impacts of a public health emergency, including impacts on faculty and other staff.

- Massachusetts HB 4730—This pending legislation would establish an Emergency Fund for Public Higher Education Institutions, which would include grant funding for higher education institutions to recoup revenue loss and other outbreak-associated expenses, including employees' lost wages and increased costs associated with employee sick leave.

RECOMMENDATION 5.3

The development, implementation, and evaluation of evidence-based strategies to address burnout, compassion fatigue, and other mental and behavioral health needs are critical to promoting the health and well-being of the health care and frontline essential workforces and ensuring access to high-quality services and supports for the communities they serve. While protecting the health care and frontline essential workforces against the threats, harassment, and other forms of violence they have endured during the COVID-19 pandemic is similarly critical to promoting their health, safety, and well-being, it is also a moral imperative to prevent these harms.

The Occupational Safety and Health Administration defines workplace violence as "any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior that occurs at the work site. It ranges from threats and verbal abuse to physical assaults and even homicide."[43]

During the pandemic, threats, harassment, and other forms of violence directed at various sectors of the workforce have increased. The U.S. Bureau of Labor Statistics reports that workplace violence had been increasing for health care workers prior to the pandemic; during the COVID-19 pandemic, nurses attributed workplace violence and harassment to COVID-19-related staffing shortages, changes in patient population, and frustration related to restrictions for visitors. Other workers reported experiencing harassment from people worried about infection from health care workers in public.[44,45] The American Hospital Association, on behalf of its members, has urged the U.S. Department of Justice to support legislation intended to enhance protections for health care workers subject to harassment and violence in the workplace.[46] Public health officials have also experienced increased harassment and violence. Many officials report that they have also felt that their expertise has been unappreciated and undermined during the pandemic, and that needed improvements to public health infrastructure and resources have contributed to strain and workforce limitations.[47]

Beyond the health care and public health sector, teachers and school staff have also experienced harassment and violence during the COVID-19 pandemic. According to a survey by a task force of the American Psychological Association in 2022 , approximately one-third of teachers reported that they had experienced at least one threat of violence or incident of verbal harassment from students during the pandemic. Nearly 50% reported that they had a desire or plan to quit their jobs or transfer to a new position.[48]

Other workers, in retail and other public-facing positions, have also experienced harassment and violence related to their role in enforcing COVID-19 mitigation strategies. The CDC recognized this issue early in the pandemic, acknowledging that workers may be targeted by violence by customers as businesses enforce mask requirements, request customers to follow social distancing rules, and limit number of customers, and recommending that workers not attempt to force individual customers—particularly those who appear upset or violent—to follow the prevention and mitigation strategies.[49]

In North Carolina and throughout the United States, high COVID-19 case rates have not only strained workers and health care systems in their capacity to deliver services in a variety of ways, but also caused many of them to feel endangered, unsupported, and demoralized.[50] In fact, nearly 30% of health care workers surveyed during the early 2021 surge in cases reported they were considering leaving the field due to the challenges presented by the COVID-19 pandemic.[51] In response, the task force recommends the following strategies to prioritize the health and well-being of health care and other frontline essential workers:

RECOMMENDATION 5.3

Prioritize the health, well-being, and safety of the health care and frontline essential workforces.

Strategy 5.3a: The following entities should continuously evaluate evidence-based strategies to address burnout, compassion fatigue, and other mental and behavioral health needs—including but not limited to existing peer-to-peer support programs, support lines, and incentives to increase mental and behavioral health services available to workers—and consider opportunities for expansion of these strategies (see Strategy 5.3a for additional information).

Strategy 5.3b: The North Carolina Society for Human Resource Management, North Carolina Office of State Human Resources, and employers should develop and update policies and procedures to: (1) establish clear expectations and channels of communication between employees, managers, and human resources; (2) provide employees with tools and resources to manage stress and conflict; and (3) increase employee awareness of the resources available to help manage stress and conflict.

Strategy 5.3c: The North Carolina General Assembly should amend relevant statutes to include an add-on criminal charge or other penalty for harassment of a health care worker and/or frontline essential worker in relation to action(s) undertaken in furtherance of implementing one or more policies related to a state of emergency declared pursuant to G.S. 166A-19.20.

Strategy 5.3d: The North Carolina Department of Health and Human Services should convene representatives from the North Carolina Healthcare Association, North Carolina Association of Local Health Directors, North Carolina Medical Society, Old North State Medical Society, North Carolina Nursing Association, North Carolina Association of Physician Assistants, North Carolina Health Care Facilities Association, NC Chamber, North Carolina Department of Commerce, North Carolina Department of Public Safety, and the North Carolina Medical Group Managers Association to develop and implement other strategies to protect health care and frontline essential workers from threats, harassment, and other forms of violence before, during, and after public health emergencies.

Strategy 5.3e: The UNC School of Government, North Carolina Institute for Public Health, North Carolina Public Health Association, and North Carolina Association of Local Health Directors should work together to address threats and harassment of the local public health workforce (see Strategy 5.3e for additional information).

STRATEGY 5.3a

Ensure access to evidence-based mental and behavioral health services and supports for workers.

The following entities should continuously evaluate evidence-based strategies to address burnout, compassion fatigue, and other mental and behavioral health needs—including but not limited to existing peer-to-peer support programs, support lines, and incentives to increase mental and behavioral health services available to workers—and consider opportunities for expansion of these strategies:

- The North Carolina Department of Commerce, NC Chamber, North Carolina Association of County Commissioners, North Carolina League of Municipalities
- The North Carolina Department of Public Instruction, North Carolina Association of Educators, North Carolina College Personnel Association, and other professional and advocacy organizations representing education
- The North Carolina Department of Health and Human Services, North Carolina Healthcare Facilities Association, and other professional and advocacy organizations representing health care
- The National Alliance of Mental Illness North Carolina and other professional and advocacy organizations representing mental and behavioral health

DESIRED RESULT

Increased understanding of the strategies to address burnout, compassion fatigue, and other mental and behavioral health needs that have been implemented by employers across the state, and the identification of opportunities to expand these strategies within and outside of these organizations with the goal of increasing access to the services and supports that meaningfully improve the health and well-being of health care and frontline essential workers.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force recognized that burnout, compassion fatigue, and other mental and behavioral health concerns have been caused or exacerbated by the COVID-19 pandemic.[52–57] Over the past few years, workload has increased as the demand for many of the services provided by health care and frontline essential workers has intensified. At the same time, the risk of exposure and infection has also been higher for these workers, many of whom have been unable to work remotely. Health care providers, educators, workers in critical manufacturing, and others have been overwhelmed and overworked, while also burdened by the downstream effects of vaccine hesitancy; unwillingness to adopt other public health mitigation measures, such as masking, among the general public; and heightened threats and harassment. These factors have contributed to burnout and compassion fatigue, which can reduce job satisfaction, contribute to retention challenges and workforce shortages, and compromise the quality of patient care. **Strategy 5.3a** asks organizations representing a number of key sectors and industries to assess evidence-based strategies to address these challenges and consider opportunities to expand those that are found to be most effective.

ADDITIONAL CONTEXT

Strategy 5.3a leverages existing efforts by these organizations to support the health and well-being of health care and frontline essential workers across the state, while also incorporating a focus on the continuous evaluation of evidence-based strategies that have been implemented prior to or during the COVID-19 pandemic.

STRATEGY 5.3b

Promote health and well-being among workers by creating healthy, supportive workplaces.

The North Carolina Society for Human Resource Management, North Carolina Office of State Human Resources, and employers should develop and update policies and procedures to: (1) establish clear expectations and channels of communication between workers, managers, and human resources; (2) provide employees with tools and resources to manage stress and conflict; and (3) increase employee awareness of the resources available to help manage stress and conflict.

DESIRED RESULT

Accessible tools and resources to help workers manage stress and navigate conflict, along with clear channels of communication between workers, managers, and human resources staff to encourage workers to access tools and resources and ensure they have paths to address issues and challenges that may arise in the workplace. Prioritizing health and well-being will promote job satisfaction and retention of the current workforce, increase productivity among workers, and strengthen employer recruitment efforts by fostering workplace environments that are healthy and supportive.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Prior to the COVID-19 pandemic, many workers struggled to find tools, resources, and effective strategies for transitioning to remote working arrangements, managing stress, and navigating conflict in the workplace. The task force emphasized that these challenges were exacerbated during the pandemic. Some workers may not have had access to services and supports that could have helped them manage stress or awareness of available services and supports, while others may not have received an appropriate action or response from their employer when reporting an incident involving violence or conflict. **Strategy 5.3b** would provide workers with visible paths for accessing existing services and supports offered by employers, while also encouraging improved communication between workers, managers, and human resources to help workers feel supported in the workplace.

ADDITIONAL CONTEXT

The North Carolina Society for Human Resource Management, North Carolina Office of State Human Resources, and employers are the responsible entities involved in **Strategy 5.3b**. The COVID-19 pandemic has caused many workers, particularly health care and frontline essential workers, to feel overwhelmed and overworked.[58] Employers have struggled to navigate the many uncertainties of the COVID-19 pandemic itself and other societal and political pressures during the pandemic era.[59] The Great Resignation, heightened awareness of the multi-generational harms caused by structural racism, and the resulting momentum to improve workplace diversity, as well as other state, national, and global challenges over the past few years, have contributed to workplace environments where stress and conflict are more likely.[60] As a result, employers are faced with protecting the health, safety, and well-being of individual workers under added tension, while also promoting teamwork and organizational productivity. **Strategy 5.3b** calls on human resources professionals and employers across the state to work collaboratively to develop tools and resources for workers, ensure awareness of those tools and resources, and promote clear communication to help workers receive support from their employers.

STRATEGY 5.3c–5.4d

Protect health care and frontline essential workers from threats, harassment, and other forms of violence.

Strategy 5.3c: The North Carolina General Assembly should amend relevant statutes to include an add-on criminal charge or other penalty for harassment of a health care worker and/or frontline essential worker in relation to action(s) undertaken in furtherance of implementing one or more policies related to a state of emergency declared pursuant to G.S. 166A-19.20.[a]

Strategy 5.3d: The North Carolina Department of Health and Human Services should convene representatives from the North Carolina Healthcare Association, North Carolina Association of Local Health Directors, North Carolina Medical Society, Old North State Medical Society, North Carolina Nurses Association, North Carolina Association of Physician Assistants, North Carolina Health Care Facilities Association, NC Chamber, North Carolina Department of Commerce, North Carolina Department of Public Safety, and the North Carolina Medical Group Management Association to develop and implement other strategies to protect health care and frontline essential workers from threats, harassment, and other forms of violence before, during, and after public health emergencies.

DESIRED RESULT

Systems and processes that protect health care and frontline essential workers from threats, harassment, and other forms of violence in the workplace and recognize their role in supporting the implementation of public health policies.

WHY DOES THE TASK FORCE RECOMMEND THESE STRATEGIES?

Threats, harassment, and other forms of violence against health care and frontline essential workers have increased during the COVID-19 pandemic, particularly in connection with the implementation of mask mandates, vaccine mandates and "passports," and other public health policies designed to mitigate the spread of SARS-CoV-2.[61–63] The task force stressed the importance of taking meaningful steps to protect health care and frontline essential workers, understanding that these workers are often responsible for ensuring compliance with these and other public health policies during declared emergencies. This may include requiring a face mask or respirator to enter a classroom or health care clinic,[64] asking for proof of vaccination to enter a crowded venue, establishing limits on the number of customers allowed in a retail establishment,[65] or enforcing restrictions for hospital or long-term-care facility visitors.[66] **Strategy 5.2d** reflects the need for concerted efforts to protect health care workers and frontline essential workers more broadly from violence, which had been on the rise for a decade prior to the COVID-19 pandemic.[66]

[a] *North Carolina Emergency Management Act, Chapter 166A https://www.ncleg.gov/EnactedLegislation/Statutes/PDF/ByChapter/Chapter_166A.pdf*

"Workplace violence has severe consequences for the entire health care system. Not only does violence cause physical and psychological injury for health care workers, workplace violence and intimidation make it more difficult for nurses, doctors and other clinical staff to provide quality patient care. Nurses and physicians cannot provide attentive care when they are afraid for their personal safety, distracted by disruptive patients and family members, or traumatized from prior violent interactions. In addition, violent interactions at health care facilities tie up valuable resources and can delay urgently needed care for other patients. Studies show that workplace violence reduces patient satisfaction and employee productivity, and increases the potential for adverse medical events."[62] – American Hospital Association, Fact Sheet: *Workplace Violence and Intimidation, and the Need for a Federal Legislative Response* (2022)

ADDITIONAL CONTEXT

Strategy 5.3c involves modifying existing laws to include an add-on criminal charge or other penalty for harassment of a health care worker and/or frontline essential worker under specific circumstances during a time when a declaration of emergency has been made under NCGS Chapter 166A (Emergency Management Act).[b] This means that harassment directed toward a health care or frontline essential worker because they attempted to enforce a public health policy could lead to an additional charge or other penalty. **Strategy 5.2c** would represent a meaningful action to protect workers on the front lines during times of crisis, which not only increases their risk of exposure and infection or accidental injury, but also their risk of being subjected to threats, harassment, and other forms of violence due to their visibility or perceived level of involvement in the response. As an example of this increased risk, the well-known shortage of personal protective equipment caused people to feel wary of health care workers and their perceived ability to spread COVID-19, contributing to an increase in violence directed toward them.

"On the bus, while wearing a mask, the nurse coughed into the crook of her arm. Immediately, another passenger accused her of trying to infect him. She assured him that wasn't the case and apologized. But as he exited the bus, the man made a fist and punched her in the left eye.…'[I] think the concern is that any health care provider is contagious themselves,' the nurse said."[66] – Howard Larkin, *Journal of the American Medical Association (2021)*

The Task Force on the Future of Local Public Health developed a similar strategy focused on protecting public health workers from threats and harassment:[c]

STRATEGY 4e

The UNC School of Government, North Carolina Institute for Public Health, North Carolina Public Health Association, and North Carolina Association of Local Health Directors should work together to address threats and harassment of the local public health workforce by:

i. Raising local public health worker awareness of current laws to address threats and harassment and appropriate times to bring actions against perpetrators.
ii. Developing support tools for local health directors to understand rights and laws related to threats, harassment, public records requests, and access to health department property.
iii. Developing support tools or technical assistance to local health departments that have been named in lawsuits, have received large public records requests, or need other technical assistance regarding legal matters.

The full text of Strategy 4e and important details and context can be found in the final report from the Task Force on the Future of Local Public health, available here: https://nciom.org/future-of-local-public-health-in-north-carolina/

RECOMMENDATION 5.4

Developing and implementing strategies to strengthen workforce recruitment and retention reflects an investment in workers and their value, while also fostering workplace cultures that are supportive, healthy, and ultimately more productive. Strengthening workforce recruitment and retention also serves to protect organization productivity and North Carolina's economic stability before, during, and after times of crisis. The task force emphasized that access to guidelines, training tools, and other supports to promote the health, safety, and well-being of staff; ensure proper patient care; and encourage innovation are essential to ensuring the ability of hospitals and health care systems to meet the needs of the communities they serve during public health emergencies.[2] To improve the sustainability and capacity of the health care and frontline essential workforces with these goals in mind, the task force recommends:

RECOMMENDATION 5.4

Strengthen workforce recruitment and retention.

Strategies 5.4a–5.4d focus on retention and well-being of North Carolina's workforce across sectors and industries, while **Strategies 5.4e–5.4g** are designed to support recruitment of health care workers and pathways into the health care workforce in particular.

[b] *North Carolina Emergency Management Act, Chapter 166A https://www.ncleg.gov/EnactedLegislation/Statutes/PDF/ByChapter/Chapter_166A.pdf*
[c] *Full report from the NCIOM Task Force on the Future of Local Public Health is available here: https://nciom.org/future-of-local-public-health-in-north-carolina/*

Strategy 5.4a: The North Carolina Department of Commerce, NC Chamber, North Carolina Society for Human Resource Management, the Office of State Human Resources, and Family Forward NC should work together to develop additional tools, resources, and guidance for employers on:

- Managing remote work and employees working remotely;
- Offering flexibility during public health emergencies and other crises, as well as developing strategies to improve employers' ability to offer flexibility to employees as a long-term strategy of promoting recruitment and retention; and
- Creating staff development and training opportunities that are accessible remotely, and strategies to support employers in pivoting to alternative methods of delivering staff development and training opportunities.

Strategy 5.4b: The North Carolina General Assembly should consider statewide approaches to paid sick leave to help workers maintain financial stability during public health emergencies, ensuring that paid sick leave can be used by workers when experiencing illness and when providing care to their loved ones.

Strategy 5.4c: The North Carolina Department of Commerce, NC Chamber, Economic Development Partnership of North Carolina, and other partners should study the potential impact of providing wage supports—such as retention bonuses, hazard pay, and other monetary rewards—to increase retention.

Strategy 5.4d: Hospitals across the state should establish policies and procedures to promote the inclusion of bedside clinicians and practitioners in decision-making processes.

Recruitment and Workforce Pathways

Strategy 5.4e: The North Carolina Department of Health and Human Services, in partnership with historically minority-serving institutions, should consider strategies to increase the accessibility and affordability of educational opportunities with the goal of improving diversity and economic stability across the health care workforce. Strategies should include (1) offering resources and supports for students applying to college who intend on taking health-related courses to advance their career or major in a health-related program, (2) expanding access to tuition assistance and paid internships, and (3) elevating existing opportunities focused on increasing diversity.

Strategy 5.4f: The North Carolina Area Health Education Centers should consider strategies to increase the accessibility and affordability of educational opportunities with the goal of improving diversity and economic stability across the health care workforce. Strategies should include promoting access to mentorship beginning in the middle grades.

Strategy 5.4g: University of North Carolina system schools, North Carolina's community colleges, and independent colleges and universities across the state should apply findings from **Recommendation 5.1** to the development of curricula, recruitment efforts, and other strategies of illuminating workforce pathways into health care.

STRATEGY 5.4a

Develop tools, guidance, and resources for employers to promote adaptability during times of crisis.

The North Carolina Department of Commerce, NC Chamber, North Carolina Society for Human Resource Management, the Office of State Human Resources, and Family Forward NC should work together to develop additional tools, resources, and guidance for employers on:

- Managing remote work and employees working remotely;
- Offering flexibility during public health emergencies and other crises, as well as developing strategies to improve employers' ability to offer flexibility to employees as a long-term strategy of promoting recruitment and retention; and
- Creating staff development and training opportunities that are accessible remotely, and strategies to support employers in pivoting to alternative methods of delivering staff development and training opportunities.

DESIRED RESULT

Workplace environments that provide added flexibility to workers during public health emergencies, while also considering opportunities to provide ongoing flexibility to workers as a strategy for promoting recruitment, retention, and overall health and well-being within the workforce.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Providing workers with the flexibility to work remotely, allowing non-traditional work hours to help manage needs such as child care, or implementing other strategies to support workers in navigating challenges that arise during public health emergencies can lead to safer, healthier workplace environments where the risk of exposure and infection to pathogens such as SARS-CoV-2 is lower. Providing ongoing flexibility beyond times of crisis can improve job satisfaction among workers, fostering healthy, supportive workplace cultures that improve retention and strengthen recruitment efforts. In the context of the COVID-19 pandemic and the "Great Resignation," employers that are able to retain their workforce by providing flexibility, offering support to improve work-life balance, and prioritizing overall health and well-being are better positioned to compete in a challenging market and strengthen North Carolina's economy. **Strategy 5.4a** also recognizes that added flexibility can support professional growth and development within the workforce, understanding that workers can learn in different ways and may need a variety of opportunities, formats, and structures to do so effectively.

ADDITIONAL CONTEXT

The North Carolina Department of Commerce, NC Chamber, North Carolina Society for Human Resource Management, the Office of State Human Resources, and Family Forward NC are the responsible organizations involved in **Strategy 5.4a. Strategy 5.4a** builds on existing work under the North Carolina Department of Commerce's Economic Development Plan for the State

of North Carolina, which includes a strategy for strengthening initiatives that foster high-quality, productive work environments; promote talent development; and enhance business growth,[67] with the goal of growing and attracting a talented workforce to support North Carolina's businesses. The North Carolina Early Childhood Foundation has also added COVID-19 return-to-work policies to the materials and resources available through the Family Forward NC program. Family Forward NC supports and assists businesses in developing and implementing flexible and family-friendly workplace policies that enhance economic, physical, and mental well-being for the workforce.[68]

NC Chamber, the North Carolina Society for Human Resource Management, and the Office of State Human Resources are also essential partners in this work given their efforts to support businesses and employers in managing workplace and workforce-related challenges during the COVID-19 pandemic.

STRATEGY 5.4b

Expand access to paid sick leave to promote the health, well-being, and financial stability of the frontline essential workforce.

The North Carolina General Assembly should consider statewide approaches to paid sick leave to help workers maintain financial stability during public health emergencies, ensuring that paid sick leave can be used by workers when experiencing illness and when providing care to their loved ones.

DESIRED RESULT

Improved access to paid sick leave to ensure that frontline essential workers experiencing illness, or caring for a loved one experiencing illness,[69] have the ability to take needed time off without compromising their financial stability. Paid sick leave would also promote health, safety, and well-being outside of public health emergencies by allowing employees to take time off for important medical needs, such as preventive care screenings and prenatal visits, or to attend to critical safety issues.[70]

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Paid sick leave has been shown to reduce the spread of infectious disease in communities by allowing workers to stay home to care for themselves or a loved one when illness occurs,[71] thereby reducing the risk of exposure and infection for coworkers and other people in the community who workers may come into contact with in the course of their work. Parents with paid sick leave are also less likely to send a child experiencing illness to child care or school, therefore helping to prevent the spread of infectious disease to students, teachers, and other child care and school system staff. By prioritizing health, safety, and well-being, paid sick leave can improve workforce retention and productivity,[72,73] reduce burnout and exhaustion among workers, lower health care costs,[74] and strengthen North Carolina's economy by ensuring that employers offer competitive benefits.

The task force also recognized that people of color and members of historically marginalized communities are disproportionately represented[75,76,77] among the frontline essential workforce, and have also been disproportionately harmed by exposure, infection, and severe outcomes of COVID-19.[72] Statewide approaches that expand access to paid sick leave can support efforts to mitigate these harms,[72] which is especially important in anticipation of future surges of COVID-19 and other public health emergencies.

ADDITIONAL CONTEXT

The United States is the only highly developed nation[71,78] without a federal law that ensures workers receive pay while taking time to care for themselves or a loved one.[79] The Family and Medical Leave Act, signed into law by President Clinton in 1993,[d] requires employers with more than 50 workers to provide protected leave under certain circumstances, but does not require employers to compensate workers during their time away, nor does it address short-term sick leave and preventive care.[79] The Family Medical Leave Modernization Act[e] would have expanded who is permitted to take qualifying family and medical leave and provided additional leave for parents and family caregivers, but it has not been moved forward since it was introduced in April 2021. In North Carolina, the Paid Family Leave Insurance Act (Senate Bill 564) was introduced in April 2021 with similar provisions, but it has not moved forward since it was referred to the Committee on Rules and Operations.[80] The North Carolina Healthy Families & Workplaces/Paid Sick Days Act (Senate Bill 457) was introduced during the same session, but this legislation was not referred to a committee.[81] Despite challenges in achieving legislative change in North Carolina and in many other states,[82] paid sick leave has been extensively studied and widely supported by the general public[83–85] as well as leading organizations such as the American Medical Association[79] and the American Public Health Association.[86]

STRATEGY 5.4c

Consider opportunities to provide wage supports for the frontline essential workforce.

The North Carolina Department of Commerce, NC Chamber, Economic Development Partnership of North Carolina, and other partners should study the potential impact of providing wage supports, such as retention bonuses, hazard pay, and other monetary rewards, to increase retention.

DESIRED RESULT

An assessment of the potential impact of providing wage supports on the financial stability and overall retention of the frontline essential workforce, and the translation of study findings into effective strategies to support the financial stability and retention of frontline essential workers.

[d] *H.R.1 - Family and Medical Leave Act of 1993, https://www.congress.gov/bill/103rd-congress/house-bill/1*

[e] *H.R.2589 - Family Medical Leave Modernization Act, https://www.congress.gov/bill/117th-congress/house-bill/2589/titles*

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Ensuring the financial stability and retention of frontline essential workers is vital to protecting access to critical services and resources for North Carolinians and keeping North Carolina's businesses and economy intact during public health emergencies. Throughout the COVID-19 pandemic, frontline essential workers have been at higher risk of exposure, infection, and severe outcomes as a result of their close contact with the public or other aspects of their work that increase their vulnerability.[87] The heightened risk of exposure, infection, severe outcomes, and of infecting their loved ones in turn, are among the factors that have contributed to lower retention of workers in roles that are critical to ensuring continuity of operations in cities, counties, and across the state.

ADDITIONAL CONTEXT

The North Carolina Department of Commerce, NC Chamber, and the Economic Development Partnership of North Carolina are the organizations and entities involved in **Strategy 5.4c**.

At the beginning of the COVID-19 pandemic, the federal government attempted to create a hazard pay fund for frontline essential workers, which would have been particularly beneficial for low-wage workers without paid sick leave and other economic supports.[87]

STRATEGY 5.4d

Expand professional growth and development opportunities for bedside clinicians.

Hospitals across the state should establish policies and procedures to promote the inclusion of bedside clinicians and practitioners in decision-making processes.

DESIRED RESULT

Increased awareness of the expertise and perspectives of bedside clinicians and practitioners and greater inclusion of these providers in decision-making processes to promote their professional growth and development, improve retention of workers with essential skills and knowledge, and ensure high-quality health care for patients.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Strategy 5.4d focuses on the establishment of policies and procedures to elevate bedside clinicians and practitioners in decision-making processes that are both related and unrelated to patient care. The task force underscored that these workers have invaluable technical and interpersonal skills that enable them to form trusting relationships with patients and their loved ones, which was particularly important in the context of the early stages of the COVID-19 pandemic, during which patients were often unable to receive visitors due to restrictions designed to limit the spread of the virus in communities. Without the ability to oversee the provision of care and services in person, families and friends needed to be able to trust in health care providers. Since bedside providers often spend significant time with patients relative to other hospital staff and see fewer patients overall, they may have a greater understanding of each patient's medical history, health status, and the questions and concerns that have been raised by the patient or their family and friends. Their ability to advocate for patients based on this understanding can promote trust in health care providers and the health care system itself, which can help to increase individual patients' and communities' connections to care before, during, and after public health emergencies.

The inclusion of bedside clinicians and practitioners in decision-making processes also leverages the institutional knowledge that these workers hold, which can ensure systems and policies that are feasible and reflect the provision of care and services to patients by all levels of staff within a hospital or health system. The institutional knowledge, technical expertise, and interpersonal skills that these workers have are not easily found or replaced and should be retained, especially in light of shortages facing the health care workforce. Ensuring the inclusion of bedside clinicians in decision-making processes can strengthen teamwork between these workers, physicians, and other hospital staff involved in patient care, yielding benefits that could reduce strain on hospitals and health systems during times of crisis.

ADDITIONAL CONTEXT

Ensuring the inclusion of bedside clinicians and practitioners as described in **Strategy 5.4d** would also support efforts by the forthcoming Center on Workforce for Health to create new opportunities for professional growth and development and illuminate pathways into health care. These opportunities or pathways may emerge from improved coordination within and across teams that includes cross-training or knowledge-sharing across domains, along with greater exposure to other roles and responsibilities within the health care workforce.

STRATEGY 5.4d

Improve diversity and economic stability across the health care workforce by increasing access to educational opportunities.

Strategy 5.4e: The North Carolina Department of Health and Human Services, in partnership with historically minority-serving institutions across the state, should consider strategies to increase the accessibility and affordability of educational opportunities with the goal of improving diversity and economic stability across the health care workforce. Strategies should include (1) offering resources and supports for applying to college for students who intend on taking health-related courses to advance their career or major in a health-related program, (2) expanding access to tuition assistance and paid internships, and (3) elevating existing opportunities focused on increasing diversity.

Strategy 5.4f: The North Carolina Area Health Education Centers should consider strategies to increase the accessibility and affordability of educational opportunities with the goal of improving diversity and economic stability across the health care workforce. Strategies should include promoting access to mentorship beginning in middle grades.

DESIRED RESULT

Sustainably funded strategies designed to increase access to educational opportunities that lead into the health care workforce, contributing to the development of a workforce that is racially, ethnically, and culturally representative of communities across the state. Improved economic stability of the current and future health care workforce by providing educational opportunities that are fairly compensated.

WHY DOES THE TASK FORCE RECOMMEND THESE STRATEGIES?

The task force identified the need to build and maintain a diverse health care workforce,[88,89] and emphasized that this diversity is critical to building trust within communities served, ensuring the availability of culturally appropriate and tailored services, and increasing the utilization of services and supports to improve health and well-being among North Carolinians. **Strategy 5.4e** aims to strengthen the partnership between the North Carolina Department of Health and Human Services and historically minority-serving institutions across the state to support the development of effective strategies that increase the accessibility and affordability of educational opportunities. Partnering with historically minority-serving institutions will also increase awareness of existing opportunities.

Strategy 5.4f similarly aims to support the development of strategies that increase the accessibility and affordability of educational opportunities, while building on North Carolina Area Health Education Centers' ongoing work to improve pathways into the health care workforce to include an expanded focus on mentorship opportunities for students in middle grades.

ADDITIONAL CONTEXT

The North Carolina Department of Health and Human Services, historically minority-serving institutions, and the North Carolina Area Health Education Centers are the entities involved in **Strategies 5.4e and 5.4f**. Workforce development efforts often center on engaging students and early-career professionals to increase awareness of training and professional development opportunities, with many training opportunities focusing on undergraduates. The North Carolina Institute of Medicine Task Force on the Future of Local Public Health has also developed strategies for improving pathways into the public health workforce:[f]

RECOMMENDATION 5:

BUILD LOCAL PUBLIC HEALTH'S FUTURE CAPACITY TO SERVE THE COMMUNITY BY GROWING A DIVERSE AND SKILLED WORKFORCE

Four strategies are recommended by the Task Force on the Future of Local Public Health to move to a future vision of a strong and representative local public health workforce:

Strategy 5a – DEVELOP A NETWORK OF PUBLIC HEALTH PROGRAMS: The Gillings School of Global Public Health at the University of North Carolina at Chapel Hill should convene a Network for North Carolina Programs of Public Health to: 1) support academic partnerships with local public health agencies; 2) identify opportunities for collaboration with other academic programs that train professionals in emerging fields relevant to local public health; and 3) advocate for tuition payment or loan forgiveness for those who commit to serving in local public health.

Strategy 5b – FUND INTERNSHIP OPPORTUNITIES: North Carolina Public Health philanthropies, the North Carolina Association of Local Health Directors, the North Carolina Department of Health and Human Services, and other relevant stakeholders should work together to support sustainably funded internship opportunities to develop a public health workforce that: 1) is racially and ethnically representative of communities served; 2) serves rural communities; and 2) includes professions that are less represented in local public health (e.g., data science, communications).

Strategy 5c – RAISE AWARENESS OF PUBLIC HEALTH CAREERS: The North Carolina Public Health Association should work with local health departments and community partners to identify opportunities to introduce careers in local public health to students at middle and high school levels to begin developing the workforce pipeline.

Strategy 5d – SUPPORT NEW TO PUBLIC HEALTH TRAINING: The Division of Public Health should support training for new public health professionals to improve understanding of roles, strengths, and challenges of local public health (e.g., New to Public Health Program through University of Wisconsin-Madison) and encourage local health departments to enroll staff new to public health for participation.

[f] *Full text of Recommendation 5, along with important details and context, can be found in the final report from the NCIOM Task Force on the Future of Local Public Health, available here: https://nciom.org/future-of-local-public-health-in-north-carolina/*

STRATEGY 5.4g

Translate study findings into effective strategies to strengthen workforce pathways into health care.

The University of North Carolina system, North Carolina's community colleges, and independent colleges and universities across the state should apply findings from Recommendation 5.1 to the development of curricula, recruitment efforts, and other strategies to illuminate workforce pathways into health care.

DESIRED RESULT

Thoughtfully developed and implemented curricula, recruitment plans, and other strategies to better illuminate pathways into the health care workforce among students in North Carolina's colleges and universities.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Strategy 5.4g recognizes that achieving a sustainable, qualified health care workforce requires educational institutions to help students and workers at all career stages seamlessly transition into the health care workforce. The task force identified the need for curricula, concerted recruitment efforts, and other strategies to facilitate this seamless transition for future health care workers, while also underscoring the forthcoming Center on Workforce for Health as an invaluable opportunity to conduct research and analysis, along with other key functions, that can be applied by educational institutions in the development of strategies to illuminate pathways into the health care workforce.

ADDITIONAL CONTEXT

The University of North Carolina system, North Carolina's community colleges, and independent colleges and universities are the organizations involved in **Strategy 5.4g.**

RECOMMENDATION 5.5

Provide flexibility to health care workers to increase surge capacity during public health emergencies.

Strategy 5.5a: The North Carolina Medical Board, North Carolina Board of Nursing, North Carolina Healthcare Association, North Carolina Medical Society, North Carolina Nurses Association, Old North State Medical Society, North Carolina Medical Group Management Association, Western Medical Group Managers Association, and others should work together to (1) identify potential areas of flexibility for health care providers during declared public health emergencies and (2) consider criteria that must be met before flexibilities can be used by providers during declared public health emergencies.

Strategy 5.5b: The North Carolina General Assembly and/or Executive Order from the Governor should provide immunity from medical malpractice liability[12] and address other vulnerabilities associated with practicing under unusual circumstances to encourage providers who have met the criteria identified as part of **Strategy 5.5a** to exercise their flexibilities with the goal of increasing surge capacity.

DESIRED RESULT

Flexibility for qualified health care providers to increase their capacity to provide surge support during declared public health emergencies, and systems and policies that offer protection when these workers are called upon to provide surge support.

WHY DOES THE TASK FORCE RECOMMEND THESE STRATEGIES?

The task force identified insufficient health care workforce surge capacity as a significant issue during the COVID-19 pandemic, and emphasized that the temporary expansion of scope-of-practice regulations helped health systems to better manage heavy caseloads, reduce the severity of burnout and exhaustion among workers, and promote access to care for North Carolinians in need. **Strategy 5.5a** encourages key organizations to thoughtfully consider the outcomes associated with expanded flexibility—and which aspects were most effective without significantly compromising the quality of care delivered to patients—while also encouraging these organizations to collaboratively identify criteria that can be applied in order to expand flexibility during declared public health emergencies. **Strategy 5.5b** aims to ensure providers that are temporarily operating under expanded scope-of-practice authority are not unduly penalized for providing surge support in situations that may increase the risk of adverse outcomes or medical errors.

ADDITIONAL CONTEXT

During the COVID-19 pandemic, the North Carolina Medical Board amended licensing rules for several health professions, including physicians, physician assistants, anesthesiologists, and perfusionists, for the duration of the public health emergency. The changes allowed a limited emergency license during states of emergency and other disaster situations.[91]

The North Carolina Board of Nursing also issued changes to licensing rules during the pandemic in order to help alleviate staffing shortages and ensure adequate care for patients. Under these changes, nurse practitioners could be reassigned to a new practice area within the same health care facility, "without regard to their academic preparation and national certification and without updating his or her supervisory arrangements, so long as the nurse practitioner is reassigned to perform only those medical duties which the nurse practitioner is competent and qualified to do; and the nurse practitioner has reasonable and immediate access to a physician, either in person or electronically, should medical issues arise." These changes expired on June 30, 2022.[92]

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Developing core capabilities to identify, report, and respond to infectious disease outbreaks and other public health emergencies is central to North Carolina's preparedness.[1] During a crisis, state and local leaders need timely, reliable data to identify the populations and communities at highest risk and potential actions that can be taken to address those risks. Timely, reliable data can also help leaders understand the health challenges and structural barriers faced by communities at baseline, supporting equity-focused policies and strategies that can better protect these communities when a public health emergency occurs. North Carolinians need timely, reliable data to understand their individual risks and guide their day-to-day decisions as well, especially during times of crisis. The translation of data into actions that can or should be undertaken by individuals in communities across the state relies on effective communication by leadership, along with trust in those leaders and the policies they develop.

What is needed for data-driven decision-making?

The COVID-19 pandemic has shown that leaders at all levels are often asked to make decisions under difficult circumstances. Leaders may not have complete or real-time data to help them understand the situation and challenges that are arising on the ground, or the data may be constantly changing as the situation unfolds in unforeseen ways. Leaders are also faced with determining whether or not the uncertainties of a situation can be answered with data, and if so, whether data have been collected and can be accessed. If data are accessible, leaders must consider whether the data are useful in providing context to the decisions that need to be made, and whether the data are trustworthy. During the COVID-19 pandemic, technical experts (e.g., infectious disease specialists and experts on data sources) have provided critical support in determining the important data elements that should be considered in decision-making processes and the limitations of those data elements.[2,3]

In the early months of the COVID-19 pandemic, leaders across the state, country, and world had inadequate information on the specific characteristics of SARS-CoV-2 that allowed it to spread swiftly.[4] Decades of underinvestment in public health infrastructure and data systems limited the ability of decision-makers to assess the scope of the problem.[5] As a result, the United States overall and many state and local governments were insufficiently prepared to manage the initial surge of COVID-19 cases and subsequent surges driven by variants such as Delta and Omicron. In North Carolina, leaders were also forced to use inefficient data systems that lacked interoperability and common infrastructure to monitor quantities of personal protective equipment (PPE) and other health care supplies, hospital capacity, testing, contact tracing, and eventually, vaccine distribution and uptake.[6] In the early stages of the COVID-19 pandemic, our data systems appeared to lack rapid detection and response capabilities during the earliest emergent phase of a new outbreak, a weakness realized again in the initial stages of the monkeypox outbreak in the summer of 2022. The task force discussed the lessons learned from COVID-19 and their implications on other potential threats.

To support leaders across sectors in understanding threats to the health, safety, and well-being of North Carolinians and develop strategies in response, a robust public health infrastructure and modernized data systems must be in place.

> **"Delays in recognizing the threat led to an exponential increase in infections and deaths. This rate of increase profoundly challenged government decision-makers who are legally responsible for protecting their populations. Although national governments grasped the need for action at varying rates, the rapidity of spread and lethality of the virus severely tested their capacity to manage and control the pandemic."[4]**
> **– Comfort, et al., Public Administration Review (2020)**

Communication Challenges During the COVID-19 Pandemic

The ability to make timely, informed decisions and effectively communicate those decisions to the public is essential to building trust and increasing acceptance of policies and strategies to mitigate risk during a public health emergency.[4] The COVID-19 pandemic and the global "infodemic" have demonstrated the costs of diminished or absent trust in government leaders and their decisions. To build trust, timely, reliable data must also be accessible and easily understood by the general public. The task force underscored the particular importance of building and maintaining trust among historically marginalized communities, which have been and continue to be harmed by structural racism and other systemic factors affecting their health, safety, and well-being.

Several barriers to effective communication have emerged and persisted throughout the COVID-19 pandemic, reflecting the enormity of the problem, the rapidly evolving situation and response, and the spread of misinformation in news media and on social media platforms. Unlike other disasters and emergencies that are typically limited in terms of both geographic impact and duration, the COVID-19 pandemic remains a global concern after nearly three years. Numerous variants have emerged since SARS-CoV-2 was first detected, causing waves of cases that have strained hospitals and health systems, health care and frontline essential workers, supply chains, economies, and many other aspects of society. Political concerns have influenced the implementation and uptake of strategies to mitigate the spread of the virus in North Carolina and throughout the United States, and the absence of a coordinated national response has contributed to confusion and disorder.[7] Misinformation has also influenced the implementation and uptake of strategies, as well as individual willingness to receive either evidence-based treatments or therapies deemed by medical authorities to have little or no therapeutic benefit.[8,9]

"The ability to communicate clearly, concisely, and persuasively to the public is both a challenge and a fundamental responsibility of health departments. The rise of the internet and social media have allowed health departments to communicate with the public in ways never before imagined. But these technologies have also profoundly altered how people seek and receive information—and raised expectations about government transparency."[10] – National Association of City and County Health Officials (2015)

Initiatives to Promote Data-Driven Decision-Making and Effective Communications

Several initiatives at the national, state, and local levels have been introduced to promote data-driven decision-making and effective communications to the public during the COVID-19 pandemic. Since the start of the pandemic, ongoing data collection at a federal level was used to determine allocation of federal resources including vaccines, therapeutics, personal protective equipment, and other resources from the strategic national stockpile. On January 21, 2021, newly inaugurated President Biden issued an executive order to ensure a data-driven response to the COVID-19 pandemic in the United States.[11] In this executive order, President Biden emphasized the importance of responding to the pandemic using "the best available science and data," and strengthening public health infrastructure. To accomplish these goals, President Biden called on all executive departments and agencies to facilitate the collection, analysis, reporting, and sharing of data related to COVID-19 in partnership with the national COVID-19 Response Coordinator. This coordination among national leaders involved in the response is designed to better assist state, local, tribal, and territorial (SLTT) and federal authorities in (1) developing and implementing data-driven policies in communities across the country, (2) increasing public understanding of the pandemic and the response, and (3) reducing the spread of misinformation. President Biden also called on specific agencies to enhance data collection and collaboration capabilities for the COVID-19 response and future public health emergencies, assess public health data systems and issue recommendations to address identified areas of improvement, and develop a plan to advance innovation in public health data and analytics in the United States.

In North Carolina, numerous initiatives were implemented to promote data-driven decision-making and shore up health data systems to inform COVID-19 response. Many major health systems identified ways to improve their health care analytics capabilities, and "leveraged internal expertise, utilized novel data sources, and implemented creative approaches to ensure that systems had capacity, staffing, and protective equipment to face a surge of patients."[12] Insights from Vidant Health in Greenville, Duke Health in Durham, and Cone Health in Greensboro pointed to the need for using epidemiological data from other nations and states to model potential impacts on North Carolina; the importance of enhanced communication and collaboration between health systems across the state (and the data infrastructure to support this); and the importance of proactively applying creative approaches to identifying COVID-19 cases. Vidant used information from its call centers to identify upcoming hotspots of cases, and employees focused communication strategies and awareness of Vidant resources to those areas. Cone Health used a similar approach, developing a novel outbreak detection and case connection algorithm that allowed it to connect cases with community demographic analyses and targeted outreach for mobile testing and vaccination.[12]

The recommendations below, which include a number of actionable strategies, are designed to strengthen North Carolina's systems and structures to better support data-driven decision-making and effective communications with the public:

Recommendation 6.1

Advance equitable access to vaccines and therapeutics through data development.

Recommendation 6.2

Strengthen state and local communications infrastructure and capabilities.

Recommendation 6.3

Ensure the inclusion of key perspectives in the development, implementation, and evaluation of communication strategies.

The following organizations and entities are responsible for implementing the strategies described in Recommendations 6.1–6.3:

State and Local Government: North Carolina Department of Health and Human Services, North Carolina General Assembly, county commissioners, local health departments

Health Care: Hospitals and health systems, pharmacies, and other health care providers

Other: Community-based organizations and other community partners

The recommendations provided by the task force in **Chapter 6** focus on data-driven decision-making in relation to the COVID-19 vaccines—understanding that the activities described can be applied to data-driven decision-making in other contexts—and effective communications with the public by elevating the role of key perspectives and experts in communities across the state. It is important to note that **Chapter 7** (Improving Access to Information and Services: Broadband Infrastructure, Telehealth, and Remote Learning) includes strategies to ensure access to information and communications before, during, and after public health emergencies.

RECOMMENDATION 6.1

The COVID-19 pandemic has shown that data and information about population-level risks are critical to the development and implementation of equitable strategies and the allocation of resources to support those strategies.[7] The vaccines developed by Pfizer-BioNTech and Moderna, which remain highly effective at reducing the risk of hospitalization and death from COVID-19, represent a valuable resource in the COVID-19 response. When the COVID-19 vaccines were authorized for emergency use by the U.S. Food and Drug Administration (FDA) in December 2020, demand exceeded vaccine supply, which was limited.[13] In response, the Centers for Disease Control and Prevention asked states to submit an allocation and distribution plan that would focus on distribution of vaccine to individuals at highest risk and incorporate phases of widening eligibility as more vaccine became available.

In late 2020, the North Carolina Department of Health and Human Services released North Carolina's COVID-19 Vaccination Plan. This plan reflected five principles to guide the state in planning and distributing COVID-19 vaccines in North Carolina:

1. **All North Carolinians have equitable access to vaccines.**
2. **Vaccine planning and distribution is inclusive; actively engages state and local government and public and private partners; and draws upon the experience and expertise of leaders from historically marginalized populations.**
3. **Transparent, accurate, and frequent public communications is essential to building trust.**
4. **Data is used to promote equity, track progress, and guide decision-making.**
5. **Appropriate stewardship of resources and continuous evaluation and improvement drive successful implementation.[14]**

To support this plan, the North Carolina Department of Health and Human Services developed data collection, reporting, and performance-tracking systems to understand who administered and received the vaccine and identify barriers to access and uptake. Although the COVID-19 vaccines have been available to all North Carolinians since June 2022, the North Carolina Department of Health and Human Services continues to collect and analyze data on access and uptake to inform strategies that address identified barriers. NCDHHS also focuses on data transparency, publishing data resources to inform communities, and additional response efforts. Resources including dashboards highlighting race/ethnicity of those who have received the vaccine and maps of vaccine uptake by individual census tracts' Social Vulnerability Index provide context and information about the progress and status of vaccinations in the state. Market research and qualitative data have also informed state and local communication strategies and messaging about vaccine safety, efficacy, and access.[15]

Efforts to understand vaccine access and uptake among historically marginalized communities will continue to be necessary as SARS-CoV-2 evolves, particularly as vaccines are updated or developed to address emerging variants. In response, the task force recommends:

RECOMMENDATION 6.1

Advance equitable access to vaccines and therapeutics through data development.

Strategy 6.1a: The North Carolina General Assembly, North Carolina Department of Health and Human Services, local health departments, health systems, pharmacies, other health care providers, and community partners should ensure ongoing investment in data collection on vaccine distribution and uptake, including the collection of data disaggregated by race, ethnicity, age, gender, preferred language, geography (region, county, ZIP code, census tract, etc.), and other demographic characteristics to inform policies, procedures, and outreach strategies that promote equity and minimize disparities.

DESIRED RESULT

Ongoing investment in data collection on the distribution and uptake of vaccines that protect against hospitalization, death, and other severe outcomes of COVID-19 to inform targeted strategies that elevate equity and the needs of vulnerable groups.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The COVID-19 vaccines continue to be an excellent defense against the worst outcomes of SARS-CoV-2. Tracking access and uptake of the vaccines, and addressing barriers to access and uptake, will remain necessary as SARS-CoV-2 evolves. The task force elevated the work of the North Carolina Department of Health and Human Services and its partners in promoting equitable access and distribution among historically marginalized populations, which have been disproportionately harmed throughout the COVID-19 pandemic, and underscored the importance of ensuring ongoing investment in this work in anticipation of future surges. Ongoing investment in protecting the health and safety of historically marginalized populations is also essential to supporting North Carolina's economic stability, particularly as these populations are overrepresented among the state's frontline essential workforce.[16]

ADDITIONAL CONTEXT

The North Carolina General Assembly, North Carolina Department of Health and Human Services, local health departments, health systems, pharmacies, other health care providers, and community partners are the responsible organizations involved in **Strategy 6.1a**.

In July 2021, the North Carolina Department of Health and Human Services (NCDHHS) and NC Counts Coalition, a nonprofit organization focused on cross-sector partnerships that advance systemic solutions to barriers facing historically marginalized communities,[17] launched the Healthier Together initiative. This initiative awarded $500,000 in federal COVID-19 relief funds to community-based organizations to support the state's goal of equitably distributing the COVID-19 vaccine by implementing strategies to increase demand and access among communities of color and other historically marginalized populations.[18] Strategies include community outreach and education, vaccination events in trusted and accessible locations, assisting with scheduling first- and second-dose vaccination appointments, and providing on-site language translation services.[19,20] The initiative also provides support to community-based organizations engaged in this work, helps to match vaccine providers with community partners, and works with the North Carolina Department of Health and Human Services to offer vaccine supply, outreach, and transportation resources to address some of the structural barriers that prevent North Carolinians from receiving the vaccine. Data on COVID-19 vaccine distribution and uptake disaggregated by race, ethnicity, age, gender, and other key variables are used to inform the implementation of these strategies in communities across the state.

In addition, in summer 2022 NCDHHS received federal recognition for its efforts to ensure equitable distribution and uptake of the COVID-19 vaccines. Speaking at a White House Summit on the Future of COVID-19 Vaccines in July 2022, NCDHHS Secretary Kody Kinsley commented, "We closed the gap as far as vaccinating our Hispanic community, our LatinX community and we nearly closed the gap in our Black, African American community," acknowledging the role that data played in addressing inequities.[21]

Understanding Vaccine Access and Uptake in North Carolina

The North Carolina Department of Health and Human Services has created several resources to track access and uptake of the COVID-19 vaccines:

- **The COVID-19 vaccinations dashboard, which is currently updated weekly and includes demographic data, can be found here: https://covid19.ncdhhs.gov/dashboard/vaccinations**
- **A map that shows the highest rates of social vulnerability and the lowest rates of COVID-19 vaccination by census tracts can be found here: https://nc.maps.arcgis.com/apps/webappviewer/index.html?id=31df85b470ad49809445a2d83e80d269**
- **Information on strategies used by the North Carolina Department of Health and Human Services to promote vaccine equity can be found here: https://covid19.ncdhhs.gov/media/2388/open**

Recommendations 6.2 and 6.3 were developed by the Communications, Misinformation, and Public Trust Work Group of the Carolinas Pandemic Preparedness Task Force.

The Communications, Misinformation, and Public Trust Work Group

The Communications, Misinformation, and Public Trust Work Group, which included 17 task force members, community representatives, and experts representing multiple sectors, met three times between February and March 2022 to consider the communication challenges that were caused or exacerbated by the COVID-19 pandemic and develop recommendations and strategies to address these challenges. **Chapter 10** (Strengthening Collaboration and Coordination to Support Pandemic Preparedness, Response, and Recovery) includes additional recommendations developed by the Work Group that are designed to elevate cross-sector collaboration and partnerships with community-based representatives in the development, implementation, and evaluation of public health communication strategies. The following sectors and organizations participated in the Work Group:

State and Local Government: North Carolina Department of Health and Human Services, North Carolina Department of Public Instruction, Davidson County Health Department, Durham County Health Department, Granville-Vance Public Health, Henderson County Department of Public Health

Business: The Biltmore Company; Hanesbrands, Inc.

Health Systems, Associations, and Providers: North Carolina Healthcare Association, Mountain Area Health Education Center, Western North Carolina Health Network

Community Advocates and Representatives: North Carolina Council of Churches, North Carolina Community Engagement Alliance

RECOMMENDATION 6.2

The development and implementation of communication strategies that are responsive to the needs of communities requires a solid communications infrastructure at the state and local levels. The COVID-19 pandemic response has further strained state and local health department officials, many of whom were already working in a variety of roles before SARS-CoV-2 emerged. The length of the response has exhausted the public health workforce, which has been systemically underfunded and understaffed for many years.[5] According to the North Carolina Institute of Medicine's Task Force on the Future of Local Public Health, state funding for public health in North Carolina was $76 per capita in 2021, placing our state 45th in the nation compared to the national average of $116 per capita. County-level per capita spending on public health in North Carolina has dropped 22% between 2010 and 2018 when adjusted for inflation.[a] Public health workers cite the stress and workload during the pandemic, as well as the need for additional staff with specialized skills, as a factor in burnout and a challenge for retention of the workforce.[b]

[a] *North Carolina Institute of Medicine. Task Force on the Future of Local Public Health: Task Force Report (ahead of print).*
[b] *Ibid.*

The response itself has rapidly evolved as new scientific research has emerged, leading to new policies and guidance that require resources and effective communication strategies to support. Variant-driven surges in COVID-19 cases have also contributed to the rapidly evolving response. In order to manage these rapid and often unexpected changes, state and local health departments have needed to be more flexible and agile than government systems are designed to allow, even with special provisions during declared emergencies under the Emergency Management Act (NCGS Chapter 166A).

Other challenges have arisen as willingness to accept public health mitigation measures has waned among North Carolinians and in other communities across the United States, and misinformation has sowed confusion in both traditional and social media. Combatting misinformation about the COVID-19 vaccines, masking, and other public health mitigation measures to reduce the spread of the virus has added complexity to the work of state and local health departments by creating questions, concerns, and barriers among members of the community that need to be addressed to support uptake of these mitigation measures. Public health practitioners found themselves facing mistrust of scientific evidence; politicization and devaluing of standard public health approaches; and higher incidence of threats, harassment, and other forms of violence directed toward public health workers.[22] Contending with public criticism and workplace threats has led many public health workers to feel demoralized, contributing to lower retention rates and causing additional strain as workers with invaluable technical and institutional knowledge leave their roles.[23]

At the same time, the absence of a coordinated national response has often compelled state and local officials to navigate the complexities of the COVID-19 pandemic on their own. State and local officials have frequently not received timely notice when guidance from federal agencies has been provided, limiting their ability to develop communication strategies to help their communities translate this guidance into practice and to respond to media inquiries.[24–26] The Communications, Misinformation, and Public Trust Work Group also underscored that many local health departments do not have a dedicated public information officer or other communications staff, which compounds these and many other long-standing challenges as local health departments are tasked with a broad scope of work to promote health, safety, and well-being in their communities.[27] In response, the Work Group identified two key strategies to strengthen the communications infrastructure and capabilities of state and local health departments:

RECOMMENDATION 6.2

Strengthen state and local communications infrastructure and capabilities.

Strategy 6.2a: The North Carolina General Assembly and county commissioners should provide additional state and local appropriations to ensure that all local health departments have public health information officers and other staff with the majority of their time allocated to internal and external communications.

Strategy 6.2b: The North Carolina General Assembly and county commissioners should provide additional state and local appropriations to support community health workers and other trusted messengers in the community working in partnership with state and local public health to deliver targeted, accessible communications and increase community engagement.

DESIRED RESULT

Sustained funding for communication experts and community representatives to support local health departments in developing effective communications strategies that meet the needs of the communities they serve.

WHY DOES THE TASK FORCE RECOMMEND THESE STRATEGIES?

Dedicated public information officers (PIOs) and other staff with training, skills, and expertise in communications are essential to strengthening the capacity of state and local health departments to respond to the questions, concerns, and information needs of North Carolinians and their communities. It is also important to develop communications that reflect community values and experiences, which requires collaboration and partnership with community health workers and other trusted messengers who can speak to those values and experiences.

The Work Group noted that state and local health departments with staff dedicated to communications are better prepared to respond to community needs before, during, and after public health emergencies, while also having a greater capacity to build and maintain relationships with community-based organizations and partners that are essential in the development of tailored communications. To ensure that state and local health departments have the capacity to focus on communications and building the relationships needed to support effective communications, the Work Group underscored the need for sustained funding for PIOs and other communications staff.

The Work Group also underscored the importance of appropriately compensating community health workers and other trusted messengers in communities across the state for their invaluable contributions to the development, implementation, and evaluation of communication strategies. Trusted messengers are not only essential to developing tailored communications for their communities, they are also essential to the delivery of those communications and engagement with their communities to promote uptake of key messages.

ADDITIONAL CONTEXT

The North Carolina General Assembly and county commissioners across the state are the responsible entities involved in **Strategies 6.2a and 6.2b**. These organizations and entities are responsible for considering funding requests and allocating funds to state and local health departments, including funds to support dedicated communications staff along with community health workers and other trusted messengers. **Strategy 6.2a** is designed to directly strengthen state and local public health communications infrastructure by providing state and local appropriations to support communications staff, while **Strategy 6.2b** would indirectly strengthen this infrastructure by ensuring a robust network of community health workers and other trusted messengers to support state and local public health communications staff.

The NCIOM Task Force on the Future of Local Public Health also identified the absence of staff with primary roles specific to communications in local health departments across the state as a barrier to robust, effective communication strategies. The task force noted that resource constraints often lead health departments to use staff with varied amounts of training and skills in public health communications in the development and implementation of communication strategies related to COVID-19 and other crisis situations, along with ongoing health promotion needs. In addition, the primary roles of these staff are frequently unrelated to communications. Cultivating relationships with trusted community messengers was identified as another challenge by the task force, which emphasized the importance of these trusted messengers in conveying information about health behaviors, risk factors, and other public health messages in ways that reflect understanding and experience with the community-specific drivers impacting health. To develop and implement effective communication strategies, the task force highlighted the importance of ensuring that local health departments have the capacity to develop and maintain relationships with trusted community messengers and prioritize the inclusion of community members. For additional details and information, please see **Chapter 6** (Strengthening Local Public Health Communication) of the final report from the Task Force on the Future of Local Public Health.

RECOMMENDATION 6.3

To promote the health, safety, and well-being of communities across the state, the Communications, Misinformation, and Public Trust Work Group highlighted the need for effective communication strategies that are responsive to community-level needs. The Work Group also emphasized that all public health communication strategies should center equity, understanding that historically marginalized populations are disproportionately impacted by systems and policies before, during, and after public health emergencies.

The Centers for Disease Control and Prevention provides a framework for improving public health communications in a way that emphasizes equity, community needs, and inclusivity. This framework includes the following key principles:

- Using a health equity lens when framing information about health disparities.
- Considering the key principles, such as using person-first language and avoiding unintentional blaming.
- Using preferred terms for select population groups while recognizing that there isn't always agreement on these terms.
- Considering how communications are developed and looking for ways to develop more inclusive health communications products.
- Exploring other resources and references related to health equity communications.[28]

In addition, the CDC framework also encourages state and local public health professionals, when developing communication strategies, to:

- Build a diverse workforce across their organizations, including considering the benefits of hiring people from the communities served.
- Identify priorities and strategies for communications in partnership with community representatives.
- Use easily understood language and avoid jargon.
- Develop information that is "culturally responsive, accessible, and available," and that represents community members for whom the information is intended.
- Develop information in appropriate and accessible formats (for example, audio, video, braille or large print formats, visual/graphic imagery).[28]

In support of Recommendation 6.3, the Work Group identified two strategies designed to elevate community voices and other key perspectives in developing, implementing, and evaluating public health communication strategies:

RECOMMENDATION 6.3

Ensure the inclusion of key perspectives in the development, implementation, and evaluation of communication strategies.

Strategy 6.3a: The North Carolina Department of Health and Human Services and local health departments should continue to (1) engage and include community representatives and representatives from business, traditional, and social media and public relations; K–12 and higher education; and other key perspectives from targeted audiences in the development, implementation, and evaluation of communication strategies, and (2) conduct community listening sessions and message-testing sessions to inform communication strategies as part of their shared work.

Strategy 6.3b: The North Carolina Department of Health and Human Services should establish a statewide consortium with regional representatives from business, media and public relations, public health, health care systems, faith-based leaders, education, trusted community-level messengers, and other partners to (1) establish or strengthen trusting relationships, (2) strategize opportunities to promote consistent, collaborative messaging, and (3) develop recommendations around communicating data and scientific information.

STRATEGY 6.3a

Develop, implement, and evaluate communication strategies in partnership with community members and people with lived experience.

The North Carolina Department of Health and Human Services and local health departments should (1) engage and include community representatives and representatives from business, media and public relations, K–12 and higher education, and other key perspectives from targeted audiences in the development, implementation, and evaluation of communication strategies, and (2) conduct community listening sessions and message-testing sessions to inform communication strategies as part of their shared work.

DESIRED RESULT

Ongoing and sustainable multi-sector collaboration, along with the meaningful inclusion of community-based organizations and partners, in the development, implementation, and evaluation of public health communication strategies.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

An effective communication strategy needs to be tailored to the needs of the target audience, which can be done by sharing messages through commonly used channels, ensuring that messages are well-timed to maximize both reach and engagement, and partnering with trusted messengers who can answer questions and concerns that may arise from within their community. **Strategy 6.3a** highlights the importance of forming bidirectional relationships in which community partners, people with lived experience, and others with key perspectives are meaningfully included in the development and implementation of tailored communication strategies.

Strategy 6.3a also underscores that listening to the perspectives and experiences of a wide range of community representatives provides invaluable insight into community values and needs. The Work Group noted that community listening sessions and message-testing sessions are two opportunities to ensure that community voices are heard and reflected in communication strategies.

ADDITIONAL CONTEXT

Strategy 6.3a builds on the work described in **Recommendation 6.2 (Strategy 6.2b)** by asking the North Carolina Department of Health and Human Services to continue to engage community-based organizations and trusted messengers as well as representatives across multiple sectors in the development, implementation, and evaluation of communication strategies. The North Carolina Department of Health and Human Services has partnered with community voices in the work of the Healthier Together initiative, which focuses on vaccine distribution and uptake among historically marginalized populations, while also partnering with the North Carolina Department of Public Instruction (NCDPI) on communication strategies designed to support K–12 schools across the state. The Communications, Misinformation, and Public Trust Work Group identified the need to strengthen partnerships and engagement with the business community in particular, while also recognizing the work NCDHHS has done throughout the COVID-19 pandemic to support businesses in navigating pandemic-related uncertainties and challenges.[29]

STRATEGY 6.3b

Develop an action plan to promote consistent, collaborative messaging in partnership with community members, people with lived experience, and key perspectives and other experts across sectors.

The North Carolina Department of Health and Human Services should establish a statewide consortium with local and regional representatives from business, media and public relations, public health, health care systems, faith-based leaders, education, trusted community-level messengers, and other partners to (1) establish or strengthen trusting relationships, (2) strategize opportunities to promote consistent, collaborative messaging, and (3) develop recommendations around communicating data and scientific information.

DESIRED RESULT

The development of an action plan that includes strategies for strengthening communications to North Carolinians and their communities, along with the establishment of trusting relationships between partners to promote ongoing collaboration and coordination before, during, and after public health emergencies.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The Work Group recognized that establishing a statewide consortium to convene local and regional representatives across a wide range of sectors and organizations would provide an opportunity to strengthen coordination and alignment, while also encouraging strategic planning around the development of consistent, collaborative messages. As part of this shared work, **Strategy 6.3b** also asks the consortium to develop recommendations that support the translation of data and scientific information into effective communication strategies for a variety of sectors and audiences. The Work Group emphasized that these recommendations, along with the other work of the consortium, should lead to the creation of an action plan to guide agencies and organizations in their implementation efforts.

ADDITIONAL CONTEXT

In September 2020, the North Carolina Institute of Medicine began convening a diverse group of more than 50 stakeholders across the state to provide expert guidance, perspectives, and feedback to the North Carolina Department of Health and Human Services as the department worked to develop a vaccine allocation and prioritization plan, along with communication strategies to support the implementation of this plan. **Strategy 6.3b** leverages a similar model of diverse representation across sectors used in the development and implementation of the state's plan to promote the equitable distribution of the COVID-19 vaccines with a focus on strengthening communication strategies before, during, and after public health emergencies.

The following recommendations were developed by the North Carolina Institute of Medicine Task Force on the Future of Local Public Health and supported by the Carolinas Pandemic Preparedness Task Force. Please see the final report from the Task Force on the Future of Local Public Health for additional details and information (www.nciom.org/publications).

Public health data collection, access, and use are in need of modernization to improve many aspects of the work of local public health—from what information is collected (e.g., health issues and assets in a community, disease rates, and differences in health outcomes among populations) to how it is collected, analyzed, interpreted, and shared. In partnership with the North Carolina Association of Local Health Directors (NCALHD),[c] the NCIOM Task Force on the Future of Local Public Health convened a work group to discuss topics related to data in local public health and to identify opportunities for improvement to help assure that local health departments and their partners have the data they need—when and how they need it—to drive improvement and support community-wide well-being. The work group engaged in four conversations to address these topics:

1. Community and population data (e.g., health factors and status for whole populations)
2. Epidemiological, preparedness, and surveillance data systems (e.g., pandemic surveillance)
3. Local public health service system (e.g., services, staffing, funding)
4. Agency and program performance data (e.g., quality and outcomes of public health programs)

Within and interconnected with these topics are issues related to workforce capacity and competencies, using data to make decisions and talk about the issues affecting the health of communities, sharing data with communities, cross-agency data connectivity and partnerships, and developing necessary technology and tools for collecting and sharing data. The biggest challenge is not that the technology and methodologies to address these issues aren't available. The challenges we are facing in North Carolina are primarily related to the need for enhanced capacity (funding and workforce) and connectivity (between data systems and across partners).

"This nation has failed to invest in the core capabilities of public health data, data analytics, predictive data analysis. We really need to make that investment." - Robert Redfield, former CDC Director (2018–2021)

A Conversation with Robert Redfield. Council on Foreign Affairs. https://www.cfr.org/event/conversation-robert-redfield

The Future of Local Public Health task force recommends the following:

RECOMMENDATION 2:

TRANSFORM LOCAL PUBLIC HEALTH'S CAPACITY TO COLLECT, SHARE, USE, INTEGRATE, AND COMMUNICATE DATA TO DRIVE CONTINUOUS IMPROVEMENT IN PROGRAMS, AGENCIES, AND WHOLE COMMUNITIES

Four strategies are recommended by the Task Force on the Future of Local Public Health to move to a future vision of effective data collection, sharing, use, integration, and communication:

Strategy 2a. DRIVE IMPROVEMENT AND STRENGTHEN CONNECTIVITY - The North Carolina Department of Health and Human Services Division of Public Health should strengthen the public health data ecosystem in North Carolina by supporting and investing in the creation of a strong statewide structure to prioritize, advance, and create collective accountability for improvement opportunities, with a shared set of values, across public health and other relevant data partners.

[c] *NCALHD work associated with this task force is also supported by funding from the Kate B. Reynolds Charitable Trust.*

Strategy 2b. IDENTIFY FUNDING NEEDS FOR DATA MODERNIZATION - The statewide structure recommended in Strategy 2a should identify funding needs and potential funding sources and a plan to secure resources for continued public health data use and system modernization that are outside of the capacity of the Division of Public Health to support.

Strategy 2c. EVOLVE HEALTH DEPARTMENT DATA CAPABILITIES - Local health departments should evolve internal and external capabilities in data collection, sharing, and use by pursuing trainings for staff, developing capabilities around data sharing with community partners, creating a culture of learning, and adopting a shared set of values around intentional data development, use, sharing, and communication.

Strategy 2d. SUPPORT FOR DATA CAPACITY AND MODERNIZATION - North Carolina public health philanthropies and nonprofit organizations, as well as partners in academia, health care, and the private sector, should support developing work in local public health data capabilities by collectively investing in or collaborating on prioritized improvements and innovations related to workforce capacity, skill development, technical assistance, system improvement, and filling gaps in available data.

The Task Force on the Future of Local Public Health identified three key areas of communication for local public health:

1. Communication with community members about ongoing specific health issues or concerns, such as risk and protective factors for chronic diseases and corresponding health behaviors
2. Communication with community members about emergency/urgent health issues (such as information about emerging infectious diseases and other crises)
3. General communication about the role of public health in ensuring a community's health and well-being

To maintain the capacity for effectively addressing these communication responsibilities, the task force highlighted the need for community collaboration and trust when developing strategies to improve public health communications, as well as the need:

RECOMMENDATION 3:

Strengthen capabilities and build trust to communicate effectively with diverse community members, media, and policymakers

Three strategies are recommended by the Task Force on the Future of Local Public Health to move to a future vision of effective communication:

Strategy 3a – BUILD A COMMUNITY OF PRACTICE: Through the North Carolina Public Health Workforce Regional Hubs, the North Carolina Division of Public Health should work to build a Public Health Communication Community of Practice (COP) with representatives of local and Tribal health departments.

Strategy 3b – CREATE A PUBLIC HEALTH COMMUNICATION CERTIFICATE PROGRAM: The North Carolina Public Health Association, Division of Public Health, and academic programs at the university and community college levels should collaborate to create a training certificate program in governmental public health communications to build communication capabilities at the regional and/or local level and to promote best practices in communications across the state.

Strategy 3c –RAISE AWARENESS AND KNOWLEDGE OF PUBLIC HEALTH ISSUES, SERVICES, AND STRATEGIES: North Carolina health- and public-health-related philanthropies should invest in the development of a robust strategic communications framework that clearly identifies messengers, messages, and strategies for increasing public and legislative knowledge of public health's roles, and opportunities to champion development in local public health.

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In recent decades, the internet and other technological advancements have transformed our world and the ways in which we share, receive, and access information and services. When SARS-CoV-2 emerged in late 2019, however, North Carolinians suddenly and unexpectedly needed to be able to access information and services while remaining at home in accordance with policies intended to reduce the transmission of the virus. Robust broadband infrastructure, affordable high-speed internet connectivity, access to computers and other internet-enabled devices, and digital literacy became key components of ensuring access to health care services, remote instruction, and other essential services and supports for North Carolinians at home. Many North Carolinians, particularly in rural, low socioeconomic status, and historically marginalized communities,[1] were unable or struggled to access these essential services and supports. During the pandemic, these inequities were also reflected in higher rates of learning loss and widened educational gaps, which may impact individual income and family economic stability for many years beyond the pandemic period. While many people initially shifted to remote/virtual school, work, and health care access with the assumption that operations would return to normal after the pandemic, many of these temporary adaptations have become lasting changes. These permanent shifts open up new opportunities, but also heighten the risks of being disconnected from technology-dependent services and supports.

"The pandemic has shown that high-speed internet is no longer a luxury, it is an indispensable utility required for functioning as a citizen of the 21st century. Health care changed during the pandemic, raising concerns about digital equity and inclusion and access to care, as well as social determinants of health like education and participation in the economy. In the context of life-or-death situations in medicine, lack of access to broadband should be viewed as life-threatening."[2] – Tracy Doaks, President and CEO, MCNC, Member of Carolinas Pandemic Preparedness Task Force, "Digital Equity and High-Speed Health Born From the COVID-19 Crisis." *North Carolina Medical Journal* July 2021, 82 (4) 266-270.

The North Carolina Department of Information Technology (NCDIT) estimates that at least 1.1 million households across the state are impacted by inadequate access to internet and other related services. This disparity is often referred to as the "digital divide." In a recent report outlining digital equity strategy post-pandemic, NCDIT estimates that of these households, approximately 430,000 are without a home laptop or desktop computer, 180,000 are without a smartphone, and at least 260,000 households lack access to a high-speed internet connection.[3] Affordability of high-speed internet represents another challenge to closing the digital divide. Nearly 1.3 million households across the state only have access to high-speed internet service that costs upwards of 2% of household monthly income on average when priced at $60 per month. Of the total number of individuals or households without internet access in North Carolina, 37% earn less than $20,000 per year and 16% earn between $20,000 and $74,999 per year.[4] Many of these North Carolinians also have low digital literacy, defined by NCDIT as "the ability to use information and communication technologies to find, evaluate, create and communicate information," which also requires cognitive and technical skills.[5] As a result, these North Carolinians may be unable to find and receive telehealth services, participate in remote instruction and other educational or training opportunities, find employment by searching for opportunities online, or work in positions that require remote accessibility.[5]

The ability to participate in educational and training opportunities, find employment online, and otherwise participate in an increasingly technological world is important in the context of North Carolina's economic stability. Prior to the COVID-19 pandemic, North Carolina had the 12th lowest median household income in the country, with 14% of households earning incomes below the poverty line and more than 30% of the state's population living in households within 200% of the federal poverty level.[1] Out of 100 counties across the state, 11 have been categorized as *persistent poverty counties*, defined by the U.S. Congressional Research Service as counties that maintained poverty rates of 20% or more for the past 30 years based on census data.[6] The COVID-19 pandemic has further strained households across the state, leaving many North Carolinians struggling to pay bills, find housing, and adequately care for themselves and their loved ones, while also widening gaps among rural communities and communities of color.[1]

"Individuals also need the resources and wherewithal to comply with public health laws. It is easy to issue a stay-at-home order. It is considerably harder to enable people to sustain themselves and their families during a stay-at-home order or to ensure that small businesses survive shutdowns. For this reason, many of the most crucial laws during this or any pandemic are not those that empower officials but those that support individuals and small businesses, especially those in vulnerable communities. Sick leave, expanded access to health insurance, access to broadband internet, and protections against evictions and utility shutoffs are only some of the critical measures that need to be implemented if our public health laws are to succeed and the U.S. response is to be even remotely equitable."[7]

Source: COVID-19: The Promise and Failure of Law in an Inequitable Nation, *Am J Public Health*. 2021;111(1):47-49.

Chapter 8 (Ensuring the Availability of Health Care Services) and **Chapter 9** (Addressing Disparities to Promote Whole-Person Health and Economic Stability) also include strategies from the task force to improve economic stability and promote access to health care and other essential services and supports. **Chapter 5** (Strengthening the Health Care and Frontline Essential Workforces) includes strategies to support workers and employers.

State-Level Initiatives to Close the Digital Divide

Closing the digital divide and achieving digital equity are critical to promoting the health, safety, and well-being of North Carolinians by ensuring ongoing access to health care services, remote instruction, and other services and supports before, during, and after future COVID-19 surges and other public health emergencies. Closing the digital divide is also critical to supporting small businesses in unserved or underserved areas of the state without access to affordable high-speed internet in efforts to modernize their practices, which can strengthen the stability and resilience of North Carolina's economy.

The state has implemented several strategies to close the digital divide, achieve digital equity, and support other efforts to address the challenges caused or exacerbated by the COVID-19 pandemic. In July 2021, Governor Cooper unveiled a five-year strategic plan to achieve digital equity by addressing broadband infrastructure and access, the affordability of high-speed internet services, and digital literacy in North Carolina. To implement this strategic plan, the state has invested nearly $1 billion in funds from the American Rescue Plan Act in combination with $30 million in state appropriations, which must be spent by December 31, 2024.[8] Of these funds, $971 million will be used to build critical broadband infrastructure in unserved areas, while $50 million will be used to address digital literacy. The strategic plan also calls for significant private sector investment to provide affordable high-speed internet services and expand broadband infrastructure.[9]

The Division of Broadband and Digital Equity, housed within NCDIT and established with the goal of supporting the implementation of Governor Cooper's strategic plan, is assessing progress made toward closing the digital divide and achieving digital equity by tracking several key performance measures over time: (1) households with broadband access; (2) households with broadband internet subscriptions; (3) households with children with broadband internet subscriptions; and (4) rates of high-speed internet adoption by race and ethnicity.[9]

Spotlight: *Strategic Economic Development Plan for the State of North Carolina*

In this plan, the North Carolina Department of Commerce (NC Commerce) outlines a number of goals, strategies, and tactics that reflect an evolving economic landscape in North Carolina. The plan's goals align with ongoing efforts by NCDIT to close the digital divide with a specific focus on supporting North Carolina's workforce and businesses. Included in the NC Commerce plan:

- **Prepare communities across North Carolina to be more competitive in growing and attracting a talented workforce and businesses.**
- **Maximize the benefits of improved broadband access by advancing high-speed internet adoption and digital skills of North Carolina's businesses and workforce.**
  - **Support efforts to expand access and lower costs of at least 100:20 Mbps for more than 98%of North Carolina households.**
  - **Improve awareness and enable North Carolinians to realize the benefits of high-speed internet through digital literacy and upskilling aimed at accessing the digital economy.**
  - **Assist small businesses with managerial, workforce, and technical barriers to adopting internet-based technologies to enhance their operations.[10]**

The task force's recommendations in **Chapter 7** include actions that can be undertaken across the state to improve access to information and services before, during, and after public health emergencies. These recommendations focus on increasing access to affordable high-speed internet in unserved and underserved communities, ensuring internet-enabled devices for students, and supporting partnerships to close the digital divide. **Chapter 7** also focuses on telehealth services, understanding that closing the digital divide is a key aspect of promoting ongoing access to health care services and supports in a remote setting. Together, the recommendations below will build the capacity of communities across the state to receive information and effective communications from state and local entities, which is covered in **Chapter 6** (Data-Driven Decision-Making and Effective Communications to the Public).

Recommendation 7.1
Strengthen broadband infrastructure and improve digital equity.

Recommendation 7.2
Support ongoing access to clinically appropriate telehealth services and medications.

Recommendation 7.3
Improve the transition to remote learning for school systems, teachers, students, and their families during public health emergencies.

The following organizations are responsible for implementing Recommendations 7.1 – 7.3:

- North Carolina Department of Information Technology
- North Carolina Department of Health and Human Services, NC Medicaid
- Commercial insurers and Centers for Medicaid and Medicare Services (CMS)
- North Carolina Department of Public Instruction
- MCNC
- Faith-based and other community-based organizations
- Foundations and other private funders

RECOMMENDATION 7.1

In the early weeks and months of the COVID-19 pandemic, North Carolinians were encouraged to avoid unnecessary travel outside of their homes to reduce the spread of SARS-CoV-2. Without high-speed internet access, North Carolinians in need may have been unable to obtain essential health care services as providers shifted to telehealth to deliver care. Inadequate access to high-speed internet also created a number of challenges for students, teachers, and school systems, contributing to learning loss and widened educational gaps. Throughout the COVID-19 pandemic, rural and historically marginalized communities have been disproportionately harmed by inadequate access to health care and tools to support remote learning, as well as other services and supports. In response, the task force recommends the following to ensure access to these services and supports, while also improving North Carolina's ability to rapidly transition to remote delivery before, during, and after public health emergencies:

RECOMMENDATION 7.1

Strengthen broadband infrastructure and improve digital equity.

Strategy 7.1a: The North Carolina Department of Information Technology should continue to work with private and public sector partners to strengthen broadband infrastructure, improve digital equity, and close the digital divide by:

1. Establishing and tracking performance measures to assess digital equity, support strategic planning to promote digital equity, and examine opportunities to use current performance measures more effectively.
2. Mapping initiatives and partnerships to promote coordination around efforts to assess and address gaps and needs across the state.
3. Partnering with NC Medicaid and commercial insurers to assess the effects of digital equity initiatives on utilization of telehealth services and resulting health outcomes.

DESIRED RESULT

Ongoing partnerships and investments in building and maintaining broadband infrastructure to ensure that all North Carolinians can access telehealth services, learn remotely, and obtain other needed services and supports before, during, and after public health emergencies, along with concerted efforts to help our most vulnerable communities navigate an increasingly technological world.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Strategy 7.1a acknowledges the significant progress made by the North Carolina Department of Information Technology (NCDIT) in recent years to close the digital divide and encourages continuing collaboration with private and public sector partners to address ongoing needs for high-speed internet and other resources, particularly among rural, historically marginalized, and other vulnerable communities across the state. **Strategy 7.1a.1** builds on this work by asking NCDIT and its private and public sector partners to support data-driven decision-making by establishing and tracking performance measures to assess the state's progress toward achieving digital equity and ensuring the effective use of current performance metrics. The task force also identified the need for a map that reflects current and potential partnerships to better assess gaps and strengthen coordination around closing the digital divide, recognizing that ongoing collaboration between NCDIT and its partners has been a valuable asset (**Strategy 7.1a.2**).

Vulnerable communities often rely on Medicaid coverage to access essential health care services. High-speed internet access is important to ensuring that these communities are able to utilize telehealth services during times of crisis and beyond, leading the task force to recommend a partnership between NC Medicaid—a division within the North Carolina Department of Health and Human Services—and NCDIT. The task force underscored the importance of this partnership to better understand the impact of improved digital equity (including such components as access to and affordability of high-speed internet, as well as improved digital literacy) across the state on the utilization of telehealth services and resulting health outcomes among Medicaid beneficiaries. **Strategy 7.1a.3** also builds on a 2019 partnership between NCDIT's Broadband Infrastructure Office and another agency within NCDHHS—the Office of Rural Health—to study broadband and telehealth assets and opportunities, as well as broadband gaps and health disparities, in 20 counties in the western part of the state.[11,12]

ADDITIONAL CONTEXT

NCDIT is the responsible organization involved in **Strategy 7.1a**. The Division of Broadband and Digital Equity, housed within NCDIT, was established in 2021 to support the implementation of strategies to close the digital divide in alignment with Governor Cooper's strategic plan.[3,13] This strategic plan focuses

on broadband infrastructure and access, digital literacy, and the affordability of high-speed internet services for North Carolinians in need. The state has invested nearly $1 billion in funds from the American Rescue Plan Act and $30 million in state appropriations to implement strategies outlined within this plan over a five-year period. Of these funds, $971 million will be used to build critical broadband infrastructure in unserved areas, while $50 million will be used to address digital literacy. Significant private sector investment is another key component of the plan for strategies involving the provision of affordable high-speed internet services and the expansion of broadband infrastructure.

In July 2021, Governor Cooper also announced the establishment of the Office of Digital Equity and Literacy, which serves as a statewide resource for broadband access, digital inclusion, and digital literacy in partnership with the Broadband Infrastructure Office.[14] The Office of Digital Equity and Literacy and the Broadband Infrastructure Office are both housed within the Division of Broadband and Digital Equity.

More recently, Governor Cooper announced that North Carolina would participate in the Broadband, Equity, Access, and Deployment (BEAD) program, representing a new partnership with the U.S. Department of Commerce to close the digital divide in North Carolina by bringing additional funding to provide high-speed internet access to unserved households and businesses. Governor Cooper has requested $5 million in initial planning funds for the state, which will amplify ongoing efforts by the Division of Broadband and Digital Equity.[15]

RECOMMENDATION 7.2

The COVID-19 pandemic resulted in rapid changes to the landscape of health care service delivery in North Carolina.[2,16] When SARS-CoV-2 emerged in late 2019, NC Medicaid had very few policies and provisions in place to enable the delivery of health care services remotely. Within six weeks of the first known COVID-19 case in North Carolina, however, NC Medicaid had mobilized nearly 400 policies, payment codes, and other modifications to help beneficiaries receive health care services without visiting a provider in person.[17] NC Medicaid's planned expansion of telehealth access, which started in December 2019, had previously been estimated to take three years.[18] By September 2020, NC Medicaid had processed more than 1.1 million claims for telehealth services and more than 350,000 telephonic visits.[19]

What is telehealth?

The North Carolina Department of Health and Human Services (NCDHHS) defines telehealth as "the use of electronic information and telecommunication technologies to support distance clinical health care, patient and professional health-related education, public health, and health administration."[20] Telemedicine is the use of two-way, real-time, interactive audio and video to provide and support health care when participants are in different physical locations.

- **Telepsychiatry is the use of two-way, real-time, interactive audio and video to provide and support psychiatric/behavioral health care when participants are in different physical locations.**
- **Teletherapy is the use of two-way, real-time, interactive audio and video to provide and support specialized outpatient therapy care when participants are in different locations.[21]**

Although expanded telehealth access helped to bridge the gap for primary care, behavioral health, and certain other services, the total number of services provided among NC Medicaid enrollees declined significantly in the early months of the COVID-19 pandemic. During the first year of the COVID-19 pandemic, telehealth access and utilization varied by race, geography, and health status, with higher telehealth rates among White, urban, and chronically ill North Carolinians compared to other groups.[18] This can be attributed, in part, to the digital divide, which can impact both patients and health care providers. Inadequate access to affordable high-speed internet and low digital literacy are among the factors that contribute to the digital divide, disproportionately impacting North Carolinians in rural and historically marginalized communities, including communities of color. However, since NC Medicaid did not have a robust telehealth history, many providers themselves had not invested in the technology infrastructure to offer this new service immediately.[a]

Despite these challenges, telehealth access was an important strategy for promoting access to health care at a time when face masks and other personal protective equipment (PPE) were in limited supply, vaccines to reduce the risk of severe COVID-19 and death were not yet available, and reducing SARS-CoV-2 transmission across the state was critical to protecting the capacity of the health care system to respond to the pandemic. Since telehealth involves the delivery of health care services remotely, it also has the potential to reduce structural barriers such as transportation, child care, and inadequate access to paid leave by allowing patients to receive care without traveling to visit a health care provider in person.[22] In response, the task force recommends the following to promote access to health care services before, during, and after public health emergencies for North Carolinians in need:

[a] *Dowler, Shannon. NC Medicaid Chief Medical Officer, NCDHHS. Written (email) communication. September 13, 2022.*

RECOMMENDATION 7.2

Support ongoing access to clinically appropriate telehealth services and medications.

Strategy 7.2a: NC Medicaid should continue to track evidence-based service delivery offerings to expand clinically appropriate health care services for Medicaid beneficiaries.

Strategy 7.2b: NC Medicaid and private insurers should explore opportunities to build the capacity of health care providers to deliver telehealth services by improving digital literacy, offering additional administrative and technical support, and considering potential incentives for health care providers to expand access to telehealth services for beneficiaries.

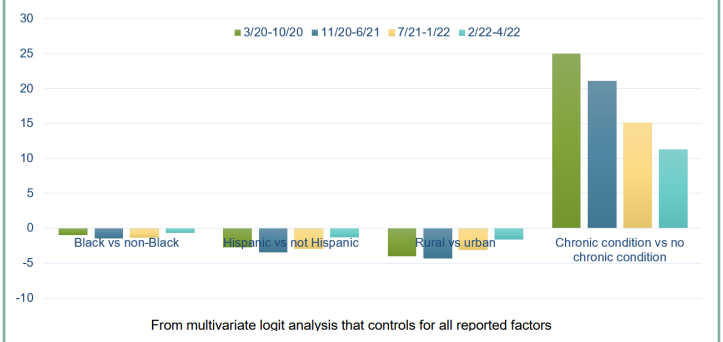
DESIRED RESULT

Improved access to health care services for all North Carolinians, especially those in vulnerable communities, by strengthening the systems and processes that support and encourage health care providers to deliver telehealth services.

WHY DOES THE TASK FORCE RECOMMEND THESE STRATEGIES?

The task force identified telehealth as an opportunity to more efficiently and effectively deliver health care services to North Carolinians in need before, during, and after future public health emergencies. Ongoing access to telehealth services also holds the potential to reduce health care costs in the long term by addressing structural barriers to receiving care, such as transportation and child care, helping patients to access health care services that were previously inaccessible without an in-person visit to a health care provider. **Strategy 7.2a** asks NC Medicaid to continue to understand the learnings from the pandemic as new services were made available virtually with a focus on changing evidence-based guidelines to stay abreast of the advances achieved during the pandemic.[23] **Strategy 7.2a** also reflects the task force's focus on equity and elevating the needs of historically marginalized and other vulnerable populations, understanding that many Medicaid beneficiaries are among the most vulnerable to severe health outcomes related to COVID-19 and other health conditions. While access has continually improved, including improvement in gaps by race and ethnicity, concerted efforts must remain a top priority to achieve health equity

Figure 1: Relative Probability of Telehealth Use by Adults Over Time from March 2022 to April 2022



Source: North Carolina Medicaid, September 2022.Reprinted with permission from NC Medicaid.

Strategy 7.2b is designed to promote access to telehealth services for all publicly and privately insured North Carolinians, which includes approximately 90% of the total population of the state,[24,25] by encouraging the development and implementation of strategies to support health care providers in delivering services remotely. The task force identified the need for administrative and technical support to build the capacity of health care providers to deliver telehealth services, as well as other resources and tools to encourage their participation.

ADDITIONAL CONTEXT

NC Medicaid, a division within NCDHHS, is the responsible organization involved in **Strategy 7.2a.** Since Medicaid transformation started on July 1, 2021,[26] NC Medicaid provides oversight to North Carolina's Medicaid and NC Health Choice programs, which includes working with contracted prepaid health plans (PHPs) in their implementation of managed care for Medicaid beneficiaries enrolled in standard plans. As a result, NC Medicaid has been well positioned and has been assessing the impact of telehealth services on access to health care for this population and implementing strategies to ensure ongoing access for the health care services that can be effectively delivered in remote settings under **Strategy 7.2a.** NC Medicaid will also be well positioned to assess the impact of telehealth on Medicaid beneficiaries who will be enrolled in tailored plans once these plans are launched in December 2022.[27] Throughout the COVID-19 pandemic, these beneficiaries have continued to receive services through NC Medicaid Direct, the state's fee-for-service program, pending the launch of the tailored plans.[28]

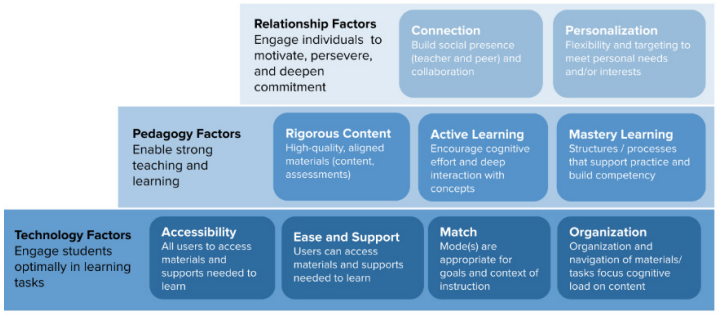
NC Medicaid and private insurers are the responsible entities involved in **Strategy 7.2b**. NC Medicaid provides oversight to the PHPs to ensure robust networks of health care providers for Medicaid beneficiaries, along with quality of care and other outcomes, allowing for information and insight into what health care providers need to promote access to telehealth services for Medicaid beneficiaries.[29] Similarly, private insurers are able to assess health care provider needs within their networks with the goal of promoting access to telehealth services for privately insured North Carolinians. It is important to note that **Chapter 8** (Ensuring the Availability of Health Care Services) includes strategies to address the coverage gap with the goal of improving the health of uninsured North Carolinians.

RECOMMENDATION 7.3

In the spring of 2020, many school districts became responsible for delivering instruction remotely for the first time. Remote learning is defined as "learning that takes place outside of the traditional school setting using various media and formats, such as but not limited to: video conference, telephone conference, print material, online material, or learning management systems."[30] Students from economically disadvantaged families were disproportionately impacted by remote instruction, in large part due to limited access to internet connectivity and devices.[31,32]

NCDIT has made significant investments and progress to close the digital divide. As of June 2022, 81% of North Carolina households with children have high-speed internet subscriptions, and the state's goal is 100% by 2025.[33] Families without broadband access are disproportionately families of color,[33] and these families are also less likely to own a computer or tablet that would enable students to log on to receive interactive remote instruction.[34] Many students from economically disadvantaged families who were able to access broadband internet utilized their parents' smartphones for remote instruction in 2020; in addition, many students' and families' internet access was not of sufficient quality or reliability to be adequate for remote instruction.[35,36] To better determine gaps in access, Session Law 2021-180 (Senate Bill 105) requires the State Board of Education to establish and maintain a publicly available digital learning dashboard that displays disaggregated data on student access to digital devices both in school and out of school, the types of devices students are able to access, and their access to out-of-school internet connectivity.[b] Many school districts and states are exploring one-to-one (1:1) computing initiatives, which guarantee every student has access to a tablet or computer.[37] However, effective remote instruction requires much more than internet connectivity and devices—it requires student engagement, strong teaching, and technological skills.[38]

Figure 2: Effective Remote Instruction[38]



Source: The Learning Accelerator. What are the design factors that drive quality in K-12 remote learning? https://practices.learningaccelerator.org/problem-of-practice/what-are-the-design-factors-that-drive-quality-in-k-12-remote-learning Accessed July 8, 2022.

When students lack internet connectivity and/or are unable to access a device, schools often provide remote instruction using paper packets, which are less effective than interactive, online remote instruction.[31] In a statewide survey, the majority of North Carolina's teachers indicated that less than half of their students were engaged in remote learning in the spring of 2020, and fewer than 75% of their students were engaged in fall 2020.[39] Student engagement in remote learning often depends on families or guardians serving as "proxy educators," leading to heightened levels of stress as parents and guardians balance their children's educational needs with employment and household responsibilities, a task made especially difficult for those families without flexibility or resources to provide additional instruction for their children.[40] Ensuring access to high-quality remote instruction for North Carolina's students must incorporate the necessary internet and device access, as well as training and support for parents and guardians to improve student engagement. In response, the task force recommends the following:

RECOMMENDATION 7.3

Improve the transition to remote learning for school systems, teachers, students, and their families during public health emergencies.

Strategy 7.3a: The North Carolina Department of Public Instruction should evaluate existing one-to-one (1:1) computing initiatives to (1) assess their effectiveness and impact on student learning and (2) consider whether the 1:1 model should be pursued statewide based on the results of this evaluation.

Strategy 7.3b: The Digital Teaching and Learning Division within the North Carolina Department of Public Instruction should partner with public and charter schools, also known as Public School Units (PSU), faith-based organizations, and other community-based organizations to provide digital literacy training and technical assistance to parents and guardians. These organizations should share learnings from these trainings with MCNC (a technology nonprofit based in North Carolina) to inform MCNC's ongoing provision of direct technologies (connectivity, cybersecurity, and consulting) to PSUs.

STRATEGY 7.3a

Assess opportunities to provide internet-enabled devices to all K–12 students across the state.

The North Carolina Department of Public Instruction should evaluate existing one-to-one (1:1) computing initiatives to (1) assess their effectiveness and impact on student learning and (2) consider whether the 1:1 model should be pursued statewide based on the results of this evaluation.

DESIRED RESULT

Strategy 7.3a would enable the North Carolina Department of Public Instruction (NCDPI) to determine if pursuing a 1:1 model for all North Carolina PSU students would create a more equitable and effective approach to remote instruction during public health emergencies.

[b] *Session Law 2021-180 (SB105) https://www.ncleg.gov/enactedlegislation/sessionlaws/html/2021-2022/sl2021-180.html*

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Access to an internet-capable laptop or tablet for every student within a household varies across the state. Avery and Onslow counties have had 1:1 device initiatives since 2011 and 2015, respectively.[41,42] Durham Public Schools used CARES Act funding in 2020 to guarantee every student from kindergarten to 12th grade has access to a laptop.[43] These initiatives have comprehensive approaches to digital learning, including extensive policies around appropriate use and training for students, staff, and families.[41-43] **Strategy 7.3a** builds on these approaches by asking NCDPI to survey districts with existing 1:1 initiatives and share best practices, while also determining if the state should pursue funding to provide for one device per PSU student.

ADDITIONAL CONTEXT

Although there is conflicting research on whether 1:1 initiatives impact student achievement, research indicates that 1:1 initiatives promote student-centered, individualized teaching instruction.[44] In public health emergencies, when students may be unable to be physically present with their teachers, 1:1 initiatives can ensure all students have access to an internet-capable device to participate in live instruction, not only students whose families can afford the device. Student access to a laptop or tablet enables teachers to communicate with their students, ensure students' learning needs are met, and deliver higher-quality instruction.[31,45]

During the COVID-19 pandemic, Hoke County Schools and other districts partnered with local businesses and community-based organizations to reduce barriers to remote instruction associated with internet connectivity by providing Wi-Fi hotspots. Implementation of a statewide 1:1 device initiative would also amplify ongoing efforts by NCDIT and its private and public sector partnerships to expand broadband infrastructure across the state under **Recommendation 7.1**, limiting the need for students to visit a Wi-Fi hotspot outside of their home during public health emergencies and other times of need.

STRATEGY 7.3b

Improve digital literacy to support remote learning.

The Digital Teaching and Learning Division within the North Carolina Department of Public Instruction should partner with public and charter schools, also known as Public School Units (PSU), faith-based organizations, and other community-based organizations to provide digital literacy training and technical assistance to parents and guardians. These organizations should share learnings from these trainings with MCNC (a technology nonprofit based in North Carolina) to inform MCNC's ongoing provision of direct technologies (connectivity, cybersecurity, and consulting) to PSUs.

DESIRED RESULT

Partnerships between faith-based organizations, community-based organizations, and the Digital Teaching and Learning Division in NCDPI would increase the availability of training for families and would help identify and share best practices for disseminating technological content to diverse populations of families and direct connectivity services to PSUs.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force noted communities' concerns that many families were unable to help their children with remote instruction because they had not received guidance on how to utilize the software their children had to navigate for their coursework. Findings from North Carolina-focused research[30,40] reflect those concerns and the need for families to have consistent communication around requirements and expectations of remote learning.[30] In 2020, faith-based community organizations and churches played an important role in disseminating information to families in Bladen County and others.[30] Faith-based and community organizations have existing relationships with families in their communities that would help them promote the training, ensure the training is culturally responsive, and provide a physical location for training. MCNC, a technology nonprofit based in North Carolina, has an existing relationship with NCDPI and with community-based organizations[46] that could serve as an important foundation for applying learning from trainings to inform delivery of connectivity services to the PSUs. Training families would not only help families better support their children's learning in public health emergencies, it would also enable them to be more involved in their children's education, improve collaborations between families and school officials, and better protect their children's internet safety and privacy.[47]

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Access to comprehensive, quality health care services is critical to achieve and maintain health, prevent and manage disease, and achieve health equity. Throughout the task force process, task force members identified the need for comprehensive access to health care services as a critical component of pandemic preparedness. Individuals need to be able to receive affordable and high-quality health care services, including care for emerging infectious diseases as well as preventive care, acute care, and behavioral health and substance use services. In addition, as policymakers address learnings from the pandemic, it is important to prioritize a thorough understanding of the drivers and impacts of forgone care during pandemic closures or due to other circumstances.

Recommendation 8.1
Ensure access to high-quality, low-barrier health care before, during, and after public health emergencies.

Recommendation 8.2
Ensure comprehensive and equitable access to diagnostic testing services.

Recommendation 8.3
Ensure access to evidence-based substance use treatment and harm reduction services before, during, and after public health emergencies.

Recommendation 8.4
Examine the impact of the COVID-19 pandemic on access to and utilization of health care services.

The following organizations are responsible for implementing Recommendations 8.1 – 8.4:

- North Carolina General Assembly
- North Carolina Department of Health and Human Services' Division of Health Benefits (NC Medicaid)
- Private health insurers
- Local health departments
- Federally qualified health centers
- Health systems
- Laboratory partners
- Higher education institutions
- Public School Units (PSU)
- Community-based organizations
- Employers

RECOMMENDATION 8.1

The task force recognized the importance of comprehensive and affordable health insurance, as well as adequate access to safety net health care services, in order to improve health outcomes before, during, and following a pandemic. In 2020, 10.0% of all North Carolinians, including 16% of non-elderly adults (age 19-64) did not have health insurance.[1,2] While this reflects a decrease in the rate of uninsurance in the state, and national data is showing overall gains in coverage between 2020 and 2020,[3] there remain opportunities to provide coverage to those still currently uninsured.

As of August 2022, North Carolina is 1 of 12 states that have not expanded Medicaid eligibility, a provision under the 2010 Patient Protection and Affordable Care Act that provides states with funding incentives to expand Medicaid to cover individuals with incomes up to 138% of the federal poverty level. If North Carolina were to expand Medicaid eligibility, an estimated additional 500,000 to 600,000 residents would become eligible for Medicaid coverage.[4]

In 2021, the Biden Administration introduced additional financial incentives for states that have not yet done so to expand Medicaid,[5] including increasing the share of the costs that the federal government pays for the non-expansion population.

In addition to continuing the provision of the 2010 Affordable Care Act that guarantees federal payment of the large majority of Medicaid expenses for Medicaid expansion populations, the federal 2021 American Rescue Plan Act incentivizes states to expand Medicaid eligibility by increasing the Federal Medical Assistance Percentage (FMAP) by five percentage points for two years. The increased FMAP for traditional Medicaid populations could lead to an additional $1.7 billion in federal funds for North Carolina across the two years of the increase.[5] The estimated new state cost for expanding Medicaid eligibility across the same two years is $490 million.

In North Carolina, Governor Cooper and the North Carolina General Assembly are actively engaged in discussions to ensure the availability of health care services for North Carolinians. While expansion was not included in the fiscal year 2023 budget, leaders of both the Senate and the House committed to further negotiations with a goal of expansion.[6] As recently as August 2022, North Carolina lawmakers across the House, Senate, and Executive Branch remained publicly committed to reaching an agreement to expand Medicaid in the state.

A non-standing Joint Legislative Oversight Committee was established in early 2022 to gather data and learn from state and national experts in health care access and Medicaid expansion. The Committee on Access to Healthcare and Medicaid Expansion convened six times from February to April 2022 and aimed to identify several key topic areas to inform the 2022 legislative session and the development of Medicaid expansion legislation. Key to this study

were lessons learned from other states,[7] 39 of which (including Washington, DC) have expanded Medicaid. Nationally, more than 18 million individuals have received health insurance coverage through Medicaid expansion.[8] The uninsured rate for non-expansion states was 13.8% in 2019, while the uninsured rate was 8.5% in states that have expanded Medicaid[9].

On June 2, 2022, the North Carolina General Assembly passed House Bill 149 (An Act Expanding Access to Healthcare in North Carolina) through the Senate, in a 44–1 vote, providing a path for North Carolina to expand Medicaid coverage in the state.[a] Under House Bill 149, the expanded Medicaid program would be called "NC Health Works," and would provide Medicaid health insurance coverage for North Carolinians up to 138% of the federal poverty level. The state's portion of the cost for expanding Medicaid would be paid for partially through increased assessments of hospitals. The bill also specifies that some Medicaid-eligible individuals will be subject to work requirements as a provision of their eligibility, although similar provisions in other states have been struck down by federal judges.[10]

On June 23, 2022, the North Carolina House Committee on Health heard Senate Bill 408 (Rural Healthcare Access & Savings Plan Act), which also addresses Medicaid expansion. Senate Bill 408 would require the North Carolina Department of Health and Human Services (NCDHHS) to develop a Medicaid expansion plan (called a Medicaid Modernization Plan in the bill) that meets various criteria, including a stipulation for the department to negotiate a work requirement with the federal Centers for Medicare and Medicaid Services for Medicaid beneficiaries if NCDHHS believes that work requirements would receive federal approval. Senate Bill 408 also would create a new Joint Legislative Committee on Medicaid Rate Modernization and Savings. This committee would meet through the summer and fall of 2022 to decide if the Medicaid expansion plan created by NCDHHS meets the required criteria and can be voted on in December.[11,b] This bill passed the North Carolina House on June 28, 2022.

Development of the Medicaid Modernization Plan

Other criteria for the Medicaid Modernization Plan to be developed under SB 408 include:[11]

- **Expand Medicaid coverage for adults aged 18–64 with incomes up to 133% of the federal poverty level.**
- **Fund additional Medicaid coverage through an increase in hospital assessments.**
- **Develop legislation for increased hospital assessments to pay the non-federal share of an increase to Medicaid hospital reimbursements through the Hospital Access and Stabilization Program (HASP).**
- **Include an investment of $1 billion to address the substance use and mental health crisis, which would be paid for through savings incurred from the additional federal Medicaid match available under the American Rescue Plan Act (ARPA).**
- **Include specific proposals for improving access to health care in rural areas of North Carolina.[b]**

The bill would also direct the North Carolina Secretary of Commerce to create a collaborative plan for a statewide workforce development program.

At the federal level, recent legislation has included additional strategies to provide affordable health insurance coverage for individuals and families. The Inflation Reduction Act, signed by President Biden on August 16, 2022, will extend the health insurance premium subsidies originally included in the American Rescue Plan Act (ARPA). These subsidies apply to health insurance plans purchased in the Affordable Care Act (ACA) marketplaces, and after their enactment through ARPA, marketplace enrollment rose to historic highs. The provisions in the Inflation Reduction Act will extend these subsidies for an additional three years, and are projected to keep approximately 2 million people from losing health insurance coverage across the United States.[12] State and federal policies that aim to provide health insurance coverage through Medicaid and the ACA marketplaces may prevent individuals and families who lost employer-sponsored coverage from remaining uninsured, as well as alleviating the ongoing burden on businesses that may struggle to provide coverage for their employees.

In addition to strategies to improve health insurance coverage in the state, there is also opportunity to improve access to care through more robust safety net services, including services through federally qualified health centers (FQHCs). FQHCs are public or private nonprofit organizations that receive federal funding for providing comprehensive primary and preventive health care services in medically underserved areas or for medically underserved populations, regardless of individuals' ability to pay[13] or their insurance status. Other safety net services include local health departments, free clinics, rural clinics, and school-based clinics, all of which provide much-needed services to those who are uninsured, underinsured, and/or those who may lack access to other types of providers.[13]

Policies to Improve Access to Prescription Medications

The task force also identified the need to ensure access to critical prescription medications during a public health emergency.

Individuals who require medication or procedures to treat or manage health conditions often encounter rules and policies required for approval of coverage of these medications and procedures by their health insurers. These policies, known as prior authorization, require physicians and other prescribers to provide documentation to the payer/insurer before the medication or procedure can be paid for and provided.[14] While prior authorization policies can add both time and administrative burden to the provision of health care services, providers and payers have implemented many strategies aimed at improving the process, such as use of electronic prior authorization systems and increased measuring of administrative burden to fully understand the impact on quality and outcomes of care.[14,15] During the COVID-19 pandemic, many states amended Medicaid rules requiring prior authorization of prescription medications. Suspension of these

[a] *House Bill 149 – Expanding Access to Healthcare, https://www.ncleg.gov/BillLookUp/2021/h149*

[b] *Senate Bill 408 – Rural Healthcare Access & Savings Plan Act, https://www.ncleg.gov/BillLookUp/2021/S408*

rules aimed to prevent further delays in receiving necessary prescriptions during the public health emergency, as well as to alleviate administrative burden for providers already facing daunting challenges in patient care and provision of services.[16] Many private insurers were also required to change prior authorization requirements for part of the pandemic.[17]

In March 2020, North Carolina Medicaid requested federal waivers that would allow the state to temporarily suspend Medicaid fee-for-service prior authorization requirements. The federal Centers for Medicare and Medicaid Services (CMS) allowed a waiver for North Carolina Medicaid that allowed NCDHHS to amend prior authorization processes required under North Carolina Medicaid.[18]

In the fall of 2021, the U.S. Office of the Inspector General released the results of a national audit designed to identify the ways in which states adjusted Medicaid prescribing and ensured that Medicaid beneficiaries continued to receive access to prescription medications during the COVID-19 pandemic. This audit consisted of a questionnaire given to 24 states asking them to identify changes they made to Medicaid policies pertaining to prior authorizations, early refills, prescription quantity limits, signature requirements, and prescriptions obtained via telehealth. States were also asked how they provided updated guidance to ensure Medicaid beneficiary access to prescription medications during the pandemic.[19]

Nearly all states involved in the audit (20 of 24) by the Office of the Inspector General made changes to prior authorization during the pandemic to improve access to medications. Examples include: Virginia extended current prior authorizations for any prescriptions that were set to expire before a certain date; the District of Columbia and New Mexico extended existing prior authorizations through the termination of the emergency declaration; New York extended approved prior authorizations for many maintenance drugs; and Colorado deferred prior authorization requirements on all drugs with an existing 12-month prior authorization approval in place.[19]

Many private insurers were also required to change prior authorization requirements for part of the pandemic.[17] In California, for example, insurers were required to adjust or eliminate processes for requesting prior authorization, including requests for exceptions to requirements that patients use less expensive medications or obtain off-formulary medications when drugs are unavailable due to supply chain interruptions.[17,20]

When health care is inaccessible or unaffordable, individuals may suffer poor health outcomes. Uninsured North Carolinians may not receive important preventive care services, may avoid treatment for acute illness and injury, and may also have poorly managed chronic health conditions.[21] Access to necessary medications may be impacted during a public health emergency, resulting in poor health outcomes, especially for individuals experiencing other difficult circumstances. Though data is still emerging about the overall impact of these policy changes on access to necessary prescription drugs during the pandemic, the task force recognized the importance of flexibility on requirements in order to ensure continuity in access. While health care services are clearly of dire importance during a pandemic or other infectious disease outbreak, regular and affordable preventive care, acute care, and chronic condition management are critical at all times. In response, the task force recommends:

RECOMMENDATION 8.1

Ensure access to high-quality, low-barrier health care before, during, and after public health emergencies.

Strategy 8.1a: The North Carolina General Assembly should increase access to and utilization of health care services for uninsured residents.

Strategy 8.1b: NC Medicaid and private insurers should explore opportunities to relieve prior authorization requirements for prescription medications.

STRATEGY 8.1a

Reduce the health insurance coverage gap.

The North Carolina General Assembly should increase access to and utilization of health care services for uninsured residents.

DESIRED RESULT

Accessible, affordable, and continuous health care that allows all North Carolinians the opportunity to be healthy and well.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force recognized the many ways that access to timely, affordable, and high-quality health care was imperative during the pandemic. In addition, the task force recognized the ways that poor health outcomes and high rates of chronic conditions may contribute to the overall impact of the COVID-19 pandemic in our state. Research in other states, including research commissioned by the North Carolina General Assembly in the 2022 legislative session, provides insight into the role of Medicaid expansion and support of safety net services in improving health outcomes and reducing health care costs.

ADDITIONAL CONTEXT

During the declared federal public health emergency (PHE) ((declared on January 31, 2020, and extended as of this writing to October 13, 2022),[c] North Carolina Medicaid was required to continue health insurance coverage for all beneficiaries who were in the program at the start of the PHE, regardless of changes to their eligibility. At the expiration of the PHE, Medicaid beneficiaries whose benefits have expired must reapply to determine their continued eligibility.[22,23]

[c] *Administration for Strategic Preparedness and Response. "Renewal of Determination that a Public Health Emergency Exists." July 15, 2022. https://aspr.hhs.gov/legal/PHE/Pages/covid19-15jul2022.aspx Accessed September 14, 2022.*

While the North Carolina General Assembly has been debating Medicaid expansion for several years, in the meantime, as part of the 2021 Appropriations Act, the North Carolina General Assembly extended Medicaid benefits for low-income mothers for one year after a child is born from the six weeks postpartum that had previously been guaranteed. The state budget appropriated $62.8 million through 2023 for this effort, paid from additional hospital assessment receipts. As the current NCIOM Task Force on Maternal Health notes, expansion of postpartum Medicaid from six weeks to one year will contribute to improved maternal health outcomes and increased rates of breastfeeding, and help address the continuing rise in maternal mortality and morbidity by expanding access to care during the critical postpartum period, particularly for Black women in North Carolina.[24] While this expansion is both time-limited and limited in scope to people who give birth while covered by Medicaid, there is increasing recognition of the ways in which access to affordable health insurance coverage can improve health outcomes for North Carolinians.

In addition to strategies to improve health insurance coverage in the state, there is also opportunity to improve access to care through additional investments in more robust safety-net services, including services through federally qualified health centers (FQHCs).

STRATEGY 8.1b

Reduce administrative and logistical barriers to necessary prescription medications.

NC Medicaid and private insurers should explore opportunities to relieve prior authorization requirements for prescription medications.

DESIRED RESULT

Reduced administrative and logistical burdens to ensure continuous access to necessary prescription medications.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Research has shown that during the early weeks and months of the pandemic, individuals encountered barriers in maintaining access to necessary prescription medications. Compared to 2019 baseline levels, overall volume of filled prescriptions fell by as much as 12%. In addition, new prescriptions fell by 37%, suggesting persistent barriers to accessing necessary medications during the pandemic.[25]

Even prior to the pandemic, health care providers recognized the ways in which prior authorization requirements may impact patient care. The American Medical Association states that insurers should "minimize disruptions in needed treatment," including "minimizing repetitive prior authorization requirements," noting that 88% of physicians report that prior authorization can interfere with continuity of care.[26] Other research shows that prior authorization may lower prescription drug costs, while at the same time providers report that prior authorization procedures impact provision of care, potentially leading to delays in care and administrative burden for both providers and patients.[27–30]

The task force recognized the need for improved and continuous access to prescription medications during a public health emergency as well as during non-emergency periods.

ADDITIONAL CONTEXT

To alleviate barriers to accessing needed medications during the COVID-19 pandemic, many states amended Medicaid rules requiring prior authorization of prescription medications. Prior authorizations are "approvals that may be required before a beneficiary may have a prescription filled for a drug that is covered by Medicaid."

In March of 2020, NC Medicaid requested federal waivers that would allow the state to temporarily suspend Medicaid fee-for-service prior authorization requirements. The federal Center for Medicare and Medicaid Services (CMS) allowed a waiver for NC Medicaid that allowed the department to amend prior authorization processes.[18] Many private insurers were also required to change prior authorization requirements for part of the pandemic.[17]

In addition, NC Medicaid reports that the provision of 90-day supplies of generic and brand name prescription drugs to Medicaid beneficiaries, as well as delivery of prescription drugs by mail, have been made permanent Medicaid policy.[d]

RECOMMENDATION 8.2

Since 2020, the importance of timely, accessible, accurate, and equitable diagnostic testing for COVID-19 has become increasingly clear. While at the beginning of the pandemic testing was critical for understanding the epidemiological patterns of the disease and informing mitigation measures, such as contact tracing, testing has also become a way for individuals and communities to understand overall community risk levels and to inform individuals' behaviors and choices, reducing risk of infection.

Early in the pandemic, North Carolina stakeholders began to understand the ways in which the disease was disproportionately impacting historically marginalized populations. Increased exposure through employment as frontline essential workers—including in low-wage food service, factory, and agriculture jobs—and greater rates of preexisting conditions, such as diabetes and obesity, were risk factors for higher disease severity and death.[31] State and local public health departments, as well as health systems and community-based organizations, identified several key strategies to ensure adequate access to diagnostic testing services, often relying on existing relationships and trusted partners to quickly implement accessible services.

[d] *Shannon Dowler, NC Medicaid Chief Medical Officer, NC Department of Health and Human Services. Written (email) communication. August 15, 2022.*

State stakeholders have reported that during the early months of the pandemic there was limited capacity for adequate laboratory services to meet the rising demand for testing. Some of this was due, in part, to a limited number of Emergency Use Authorization-approved tests, and the acute nature of the needed services hindered the development of long-term testing strategies. Labs needed to develop and provide different types of testing services, as well as flexible approaches that would allow them to adapt when faced with low or no supplies of necessary equipment and materials.[32]

As the North Carolina Department of Health and Human Services (NCDHHS) has noted in its *COVID-19 Response Interim Review*, the state initially had limited access to testing materials, and all test samples were sent to the Centers for Disease Control and Prevention (CDC) labs in Atlanta, GA. Once testing could be done by public and private labs in North Carolina, the number of tests available to the state quickly grew, but capacity for processing the tests was not yet sufficient to meet the needs; turnaround time was up to 14 days for COVID-19 test results in the early months of the pandemic. Capacity and turnaround times have varied during the pandemic based on demand, and NCDHHS reports improvements in processes and reductions in delays through intentional investment in supplies and personnel, and through ongoing coordination between laboratories.[33]

The NCDHHS interim review also outlines priorities in its initial testing capacity plan, including access to polymerase chain reaction (PCR) testing, engagement with laboratories across the state to share data and supply allocations, and use of federal funding to purchase additional lab equipment and allocate it in a way that would maintain overall lab capacity across the state.[33] Between March 2020 and present, numbers of daily tests have varied considerably, with a maximum of approximately 86,000 daily tests (note: does not include at-home testing).

Despite these efforts toward increasing testing capacity and ensuring testing availability, many challenges remained. Primary among these challenges was disparate access to testing. A study by North Carolina researchers examined testing distribution in the state during the first three months of the pandemic (March to June 2022) and found large disparities in testing (and cases) by race and by geographic location (urban versus rural) in this time period. The study used demographic and residential data to identify patterns in testing metrics, including tests per capita, positive tests per capita, and test positivity rate, which is an indicator of sufficient testing. Test positivity rate was highest among people of Latinx ethnicity, followed by non-Latinx Black individuals and American Indian individuals, and was higher among people living in rural areas across all ethnic groups. The researchers concluded that these results suggested uneven distribution of access to testing, which further exacerbated existing health inequities and disparate risk factors.[34] In addition, research has shown that historically marginalized communities are less likely to participate at mass testing sites, due to "poverty, access issues, inadequate information, logistics, and issues surrounding fear, stigma, and trust."[35]

Fortunately, state and local health departments, higher education, health systems, community-based organizations, and other partners quickly recognized the need for improved access to testing, particularly among historically marginalized populations and in rural areas. Starting in August 2020, North Carolina Central University's Advanced Center for COVID-19 Related Disparities (ACCORD) launched COVID-19 testing sites at 56 sites across 11 counties, providing testing as well as conducting survey research on attitudes and impact of the pandemic to inform testing and outreach strategies. ACCORD attributes the success of these initiatives to assistance from and collaboration with community partners, including churches and local nonprofit organizations.[36]

In response to emerging data on stark disparities in COVID-19 case rates, fatalities, and test-positivity rates among North Carolina's American Indian population, ACCORD also partnered with the Lumbee Tribe of North Carolina, the University of North Carolina at Pembroke, and community organizations to establish a partnership named Building Resistance and Vital Equity (BRAVE). The BRAVE partnership performed COVID-19 testing for Native Indians in the Lumbee tribal territory in Cumberland, Hoke, Robeson, and Scotland counties. Survey research conducted at these testing sites continued to inform testing response efforts, and work with trusted community organizations also allowed ACCORD and BRAVE to continue survey research to inform vaccination distribution policies and communication strategies later in the pandemic.[35]

RECOMMENDATION 8.2

Ensure comprehensive and equitable access to diagnostic testing services.

Strategy 8.2a: State and local health departments should enhance coordination with and support for laboratory infrastructure to ensure efficient testing services and procurement of necessary materials.

Strategy 8.2b: Stakeholders should develop standards of care and ongoing implementation strategies that incorporate best practices from innovative approaches implemented during the COVID-19 pandemic. Health systems, state and local health departments, laboratory partners, employers, schools, higher education institutions, and community-based organizations should identify the most successful strategies that prioritized continued access to diagnostic testing services, particularly among historically marginalized populations and/or those most heavily impacted. Strategies may include use of community health workers, mobile testing units, school- and employer-based services, faith-based organizations, and other approaches.

The North Carolina Department of Health and Human Services, local public health departments, federally qualified health centers (FQHCs), higher education institutions, and other partners should continue and expand the convening of cross-sector work groups to identify, share, and plan implementation of best practices in improving access to testing services. Work groups should have an intentional and consistent focus on addressing and alleviating disparities and inequities in access to testing services. Participants should include health systems, community-based organizations, local public health leaders, and other community representatives.

STRATEGY 8.2a

Ensure the existence of laboratory infrastructure and supplies for testing services.

State and local health departments should enhance coordination with and support for laboratory infrastructure to ensure efficient testing services and procurement of necessary materials.

DESIRED RESULT

Timely and adequate provision of testing services and necessary materials during public health emergencies.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

In the early months of the pandemic, laboratory services had limited capacity to meet the rising demand for testing. Some of this was due, in part, to a limited number of Emergency Use Authorization-approved tests, and the acute nature of the needed services hindered the development of long-term testing strategies. Labs needed to develop and provide different types of testing services, as well as flexible approaches that would allow them to adapt when faced with low or no supplies of necessary equipment and materials.[32] It also took time for processing capacity for tests to become sufficient to meet state testing needs. Capacity and turnaround times have varied during the pandemic based on demand, and NCDHHS reports improvements in processes and reductions in delays through intentional investment in supplies and personnel, and through ongoing coordination between laboratories.[33] The task force recognized the need for ongoing coordination and partnership maintenance in order to ensure that the state, counties, and health systems have the capacity for necessary testing services and materials.

ADDITIONAL CONTEXT

Starting shortly after the beginning of the pandemic, in April 2020, NCDHHS began convening a Testing Surge Workgroup. This group was charged with developing an action plan to: "increase testing throughput and capacity (including serology); expand testing sites and diversity of testing options; address risks around testing supplies and PPE availability; and increase transparency around current testing capabilities of laboratory, clinical, and retail partners." The Testing Surge Workgroup was co-chaired by leaders across Duke Medical Center laboratories, the NC State Laboratory of Public Health (NCDHHS, Division of Public Health), and Old North State Medical Society, and comprised of policymakers and practitioners in academic and commercial labs, pharmacy, epidemiology, licensure, community groups, and local and state public health. The group aimed to develop best practices for improving testing capacity and access and implement successful strategies across the state.[37,38] The ongoing collaboration and partnership laid the groundwork for successful expansion of community-based testing; the task force recognized the need for additional and sustainable resources to ensure these sorts of groups are able to be quickly and effectively convened in times of public health emergency.

STRATEGY 8.2b

Prioritize historically marginalized populations and others at risk of disproportionate harm in strategies to ensure continued access to diagnostic testing services.

Health systems, state and local health departments, laboratory partners, employers, schools, higher education institutions, philanthropy, and community-based organizations should strategize opportunities to ensure continued access to diagnostic testing services, particularly among historically marginalized populations and/or those at risk of disproportionate harm. Strategies should utilize community health workers, mobile testing units, school- and employer-based services, faith-based organizations, and other approaches.

The North Carolina Department of Health and Human Services, local public health departments, federally qualified health centers (FQHCs), higher education institutions, and other partners should continue and expand the convening of cross-sector work groups to identify, share, and plan implementation of best practices in improving access to testing services. Work groups should have an intentional and consistent focus on addressing and alleviating disparities and inequities in access to testing services. Participants should include health systems, community-based organizations, local public health leaders, and other community representatives.

DESIRED RESULT

Equitably distributed and easily accessible diagnostic testing services for SARS-CoV-2 and other infectious diseases, with priority attention to historically marginalized populations and vulnerable groups, as well as intentional and meaningful inclusion of community voices in the development of strategies to ensure access to diagnostic testing services.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Research in North Carolina has shown uneven distribution of access to testing in the early days of the pandemic, which further exacerbated existing health inequities and disparate risk factors.[34] In addition, research has shown that historically marginalized communities are less likely to participate at mass testing sites due to "poverty, access issues, inadequate information, logistics, and issues surrounding fear, stigma, and trust."[35]

State and local health departments, higher education, health systems, community-based organizations, and other partners quickly recognized the need for improved access to testing, particularly among historically marginalized populations and in rural areas. The task force recognized the successes of these efforts and the need for ongoing support and resources to maintain them.

ADDITIONAL CONTEXT

Throughout the pandemic, state leaders learned a tremendous amount about best practices and strategies to avoid when determining how best to increase access to testing. Programs such as the Community Testing High Priority and Marginalized Populations (CHAMP) initiative, which ran during July and August

2020, focused on identifying priority communities for improving access to testing. CHAMP identified nearly 200 priority communities, most of which had a high share of Black, Latinx, and American Indian residents and/or high rates of chronic disease or high-risk worksites, for improved testing. Working with contractors to provide additional testing in these communities, CHAMP provided 17,000 tests with 72-hour turnaround for results and used "secret shopper"-type evaluation to measure success of community outreach and adjust testing logistics to meet high volume.[38]

Innovative strategies, such as those discussed above, show enormous progress and ongoing dedication to improving access to accurate and timely testing. This innovation continues in current programs: In August 2022, NCDHHS announced a new program, funded in partnership with the Rockefeller Foundation, that will provide five free at-home COVID-19 tests to individuals within certain ZIP codes. The program will use the Social Vulnerability Index, a CDC-developed tool that incorporates 15 census variables to identify geographic areas most at risk during disasters and public health emergencies, to determine eligibility by ZIP code.[39]

In addition, the task force recognized the ways in which work groups and other partnerships that prioritized the perspectives, experiences, and expertise of community stakeholders in addressing inequitable access were successful in expanding testing and informing later processes, including vaccine distribution. Work groups including the Historically Marginalized Populations Work Group, convened by NCDHHS in March 2020 in order to provide feedback and guidance on NCDHHS' outreach and communications to historically marginalized groups in the state and develop a toolkit for ongoing communications, aimed to bring together diverse stakeholders and center community input in the development of strategies to address disparities in testing and other areas.[38] Private sector groups worked to build community collaborations focused on health equity and improving access to testing, vaccines, and address drivers of health such as economic opportunity and education. The Latinx Advocacy Team & Interdisciplinary Network for COVID-19 (LATIN-19) was created by clinicians at Duke University early in the pandemic to address health disparities within the Latinx community resulting from COVID-19. This multi-sector group quickly grew to over 700 members across academia, health care, local public health, community-based organizations, faith communities, education, and others .[40] LATIN-19 has been recognized across the state and nationally for its work in prioritizing community voice to build strategies that address disparities.[41]

Strategy 8.2b builds upon these lessons and ongoing innovations and aims to ensure a sustainable infrastructure to continue their application going forward.

RECOMMENDATION 8.3

The COVID-19 pandemic has caused or exacerbated challenges related to social isolation, unemployment, financial instability, and long-standing systemic and structural barriers to health care services and supports in communities across the state. These challenges have contributed to higher rates of anxiety, depression, and suicidal ideation, along with increased substance use and rising fatal and non-fatal overdose rates.[42] In North Carolina, an average of nine people died each day as a result of an overdose in 2020, representing an increase of 40% compared to 2019.[43] Based on provisional data from the North Carolina Department of Health and Human Services (NCDHHS), overdose deaths continued to rise in 2021 and during the early months of 2022.[44]

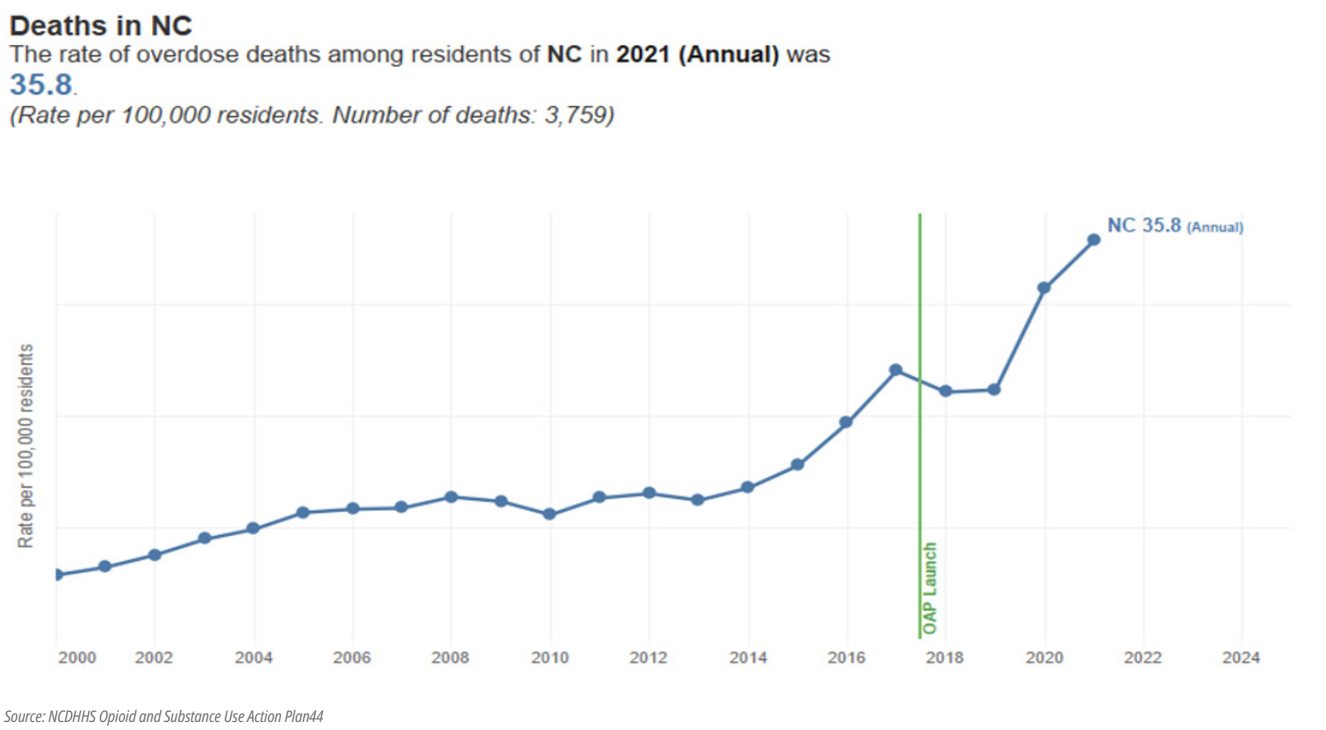
Throughout the COVID-19 pandemic, people of color and other historically marginalized populations [45] have been disproportionately impacted by overdose compared to other groups (**Table 1**). People who use drugs are also at higher risk of hospitalization, death, and other severe outcomes related to SARS-CoV-2 infection compared to other populations, due to higher rates of underlying health conditions, housing insecurity, incarceration and other forms of justice system involvement, and barriers to essential medications and other services.[46–49] People of color who use drugs are at particularly high risk of both overdose and severe COVID-19 outcomes, reflecting the intersectional inequalities faced by people with multiple marginalized identities.[47]

Table 1:[43] Overdose Death Rates by Year and Race (Non-Hispanic). Rate per 100,000 residents.

	2019 RATE	2018 RATE	% INCREASE
AMERICAN INDIAN/INDIGENOUS	43.3	83.6	93%
BLACK/AFRICAN AMERICAN	16.1	26.7	66%
WHITE	27.4	36.1	32%

Source: NCDHHS. North Carolina Reports 40% Increase in Overdose Deaths in 2020 Compared to 2019; NCDHHS Continues Fight Against Overdose Epidemic. Published March 21, 2022. Accessed August 23, 2022. https://www.ncdhhs.gov/news/press-releases/2022/03/21/north-carolina-reports-40-increase-overdose-deaths-2020-compared-2019-ncdhhs-continues-fight-against

Figure 1. Unintentional Overdose Deaths in North Carolina, 2000–2021



Source: NCDHHS Opioid and Substance Use Action Plan44

"A single life lost to an overdose is a life we should have saved. Stress, loss of housing and loss of employment for those in recovery caused by the COVID-19 pandemic has led to a backslide in our fight against substance use disorders. Improving behavioral health and resilience is a top priority for NCDHHS, and we will rally our community partners and our team to meet these new challenges as we focus on saving lives, prevention and the lasting supports needed for long-term recovery, including increasing the number of people with health insurance." – NC Secretary of Health and Human Services Kody H. Kinsley[43]

Initiatives to Address the Overdose Crisis During the COVID-19 Pandemic

At the federal level, the Substance Abuse and Mental Health Services Administration (SAMHSA) and the Drug Enforcement Agency (DEA) issued guidance that allowed for expanded access to buprenorphine and methadone through take-home dosing, relaxed guidelines for initiation of treatment, and made other temporary changes to reduce the risk of overdose among people who use drugs in the early months of the COVID-19 pandemic.[50–52] In April 2021, the U.S. Secretary of Health and Human Services issued an exemption for certain statutory certification requirements related to training, counseling, and other services with the goal of expanding access to buprenorphine for patients under the care of providers licensed and registered to prescribe controlled substances by the DEA.[51] SAMHSA also preemptively authorized federally approved opioid treatment programs (OTPs) to continue providing take-home doses of methadone to patients in late 2021 in anticipation of an eventual expiration of the national declaration of emergency for the COVID-19 pandemic.[53] Despite these efforts, however, adoption of relaxed federal guidelines among providers and clinics in North Carolina has varied significantly, leading to inconsistent access to methadone in particular across the state.[53]

Expanded Access to Methadone During the COVID-19 Pandemic

"On March 16, 2020, SAMHSA issued an exemption to OTPs whereby a state could request 'a blanket exception for all stable patients in an OTP to receive 28 days of Take-Home doses of the patient's medication for opioid use disorder.' States could also 'request up to 14 days of take-home medication for those patients who are less stable but who the OTP believes can safely handle this level of take-home medication.' Almost two years since this exemption was granted, states, OTPs, and other stakeholders report that it has resulted in increased treatment engagement, improved patient satisfaction with care, and few incidents of misuse or medication diversion." – SAMHSA's Methadone Take-Home Flexibilities Extension Guidance[54]

Federal funding has also been used to address rising overdose rates across the country during the pandemic. Congress passed a bill in December 2020 that authorized $4.25 billion in mental health and substance use emergency funds,[55] followed by $3.5 billion in block grant funding through the American Rescue Plan Act, which was signed into law by President Biden on March 11, 2021.[56] The Biden Administration also authorized an additional $2.5 billion in block grant funding to support states and territories in their efforts to address behavioral health challenges caused or exacerbated by the COVID-19 pandemic.[57]

In North Carolina, NCDHHS updated its Opioid and Substance Use Action Plan, which originally launched in 2017. The updated plan, known as Opioid and Substance Use Action Plan 3.0, launched in 2021, and includes an increased focus on equity and lived experiences of people who use drugs. The Action Plan includes efforts to measure and track progress in the state, and prioritizes four main goals:

- "Center equity and lived experiences by acknowledging systems that have disproportionately harmed historically marginalized people (HMP), implementing programs that reorient those systems, and increasing access to comprehensive, culturally competent, and linguistically appropriate drug user health services for HMPs.
- Prevent future addiction and address trauma by supporting children and families.
- Reduce harm by moving beyond just opioids to address polysubstance use.
- Connect to care by increasing treatment access for justice-involved people and expanding access to housing and employment supports to recover from the pandemic together."[58]

Expanded Access to Methadone During the COVID-19 Pandemic

"Succinctly, harm reduction is the celebration of any positive change, regardless of how small, as defined by the individual. It allows us to connect with people who use drugs and 'meet them where they are.' It creates better listeners and provides a framework for individualized care. Harm reduction philosophies appeal to people broadly. For some, the emphasis on personal responsibility, bodily autonomy, deregulation, and freedom of choice is powerful. For others, alleviating structural inequities, fostering social justice, and building community are motivating. And for still others, harm reduction is a calling, a spiritual sense of duty to show compassion to neighbors. What unites across the spectrum is a genuine desire to improve the health of our state by reducing the substantial negative health and social consequences of drug use."[59] – Dr. Nabarun Dasgupta, *North Carolina Medical Journal*

In response to the challenges presented by the COVID-19 pandemic, and in the context of an enduring epidemic of fatal and non-fatal overdoses, the task force recommends:

RECOMMENDATION 8.3

Ensure comprehensive and equitable access to diagnostic testing services.

Strategy 8.3a: The North Carolina General Assembly, North Carolina county commissioners, the North Carolina Association of County Commissioners, and the UNC School of Government should provide ongoing financial and technical assistance support to sustain existing harm reduction programs, including syringe services programs and naloxone distribution, before, during, and after public health emergencies to reduce the risk of fatal and non-fatal overdose and infectious disease transmission.

Strategy 8.3b: NC Medicaid and private payers should explore opportunities to increase support for, and provide incentives to, providers offering low-barrier access to evidence-based treatment with buprenorphine and methadone to reduce the risk of overdose and improve outcomes for people who use drugs.

Strategy 8.3c: NC Medicaid and private insurers, the UNC Injury Prevention Research Center, community-based harm reduction programs, and other partners should strategize opportunities to increase access to evidence-based treatment with buprenorphine and methadone in alignment with federal guidance during public health emergencies.

For each of the above strategies, *support* should include financial resources to modify spaces, adjust staffing, or take other necessary actions to reduce exposure to infectious airborne aerosols while providing services.

STRATEGY 8.3a

Provide funding to support and sustain harm reduction programs before, during, and after public health emergencies.

Strategy 8.3a: The North Carolina General Assembly, North Carolina county commissioners, the North Carolina Association of County Commissioners, and the UNC School of Government should provide ongoing financial and technical assistance support to sustain existing harm reduction programs, including syringe services programs and naloxone distribution, before, during, and after public health emergencies to reduce the risk of fatal and non-fatal overdose and infectious disease transmission.

DESIRED RESULT

Ongoing funding to support and sustain evidence-based harm reduction programs such as syringe services programs (SSPs) and naloxone distribution programs before, during, and after public health emergencies, understanding that these programs are essential to reducing the risk of fatal and non-fatal overdose and infectious disease transmission in communities across the state.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force underscored that harm reduction programs are critical to reducing the risk of overdose and infectious disease transmission in North Carolina's communities as they distribute unused syringes, naloxone, and other supplies, while also providing guidance, support, and resources to people who use drugs. SSPs and naloxone distribution programs have been extensively supported in academic research[59] and by NCDHHS,[43] along with other state and national health care associations, including the American Medical Association (AMA).[60,61]

ADDITIONAL CONTEXT

The North Carolina General Assembly and North Carolina county commissioners, which determine funding priorities and allocate funds at the state and local levels, are the entities involved in **Strategy 8.3a**.

In July 2021, North Carolina Attorney General Josh Stein announced a historic $26 billion national settlement with three drug distributers and one manufacturer.[62] Approximately $750 million is available to address the opioid epidemic in North Carolina, 85% of which will be directly allocated to counties for implementation of prevention and treatment strategies.[63] As counties decide on the most appropriate strategies for opioid settlement fund allocations, it is important that local leaders receive not only adequate financial resources, but also information on evidence-based harm reduction strategies most appropriate for implementation within their communities.[64]

STRATEGY 8.3b

Consider opportunities to increase access to low-barrier, evidence-based treatment.

Strategy 8.3b: NC Medicaid and private payers should explore opportunities to increase support for, and provide incentives to, providers offering low-barrier access to evidence-based treatment with buprenorphine and methadone to reduce the risk of overdose and improve outcomes for people who use drugs.

DESIRED RESULT

Increased access to low-barrier treatment with buprenorphine and methadone to reduce the risk of overdose death and improve outcomes for people who use drugs before, during, and after public health emergencies.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Ensuring access to evidence-based treatment with buprenorphine and methadone is critical to reducing the risk of overdose among people who use drugs. **Strategy 8.3b** is designed to specifically increase access to low-barrier treatment, which prioritizes the reduction of drug-related harms over abstinence from drug use by supporting flexible attendance, reducing or eliminating urine drug screening requirements, and allowing patients engaged in ongoing drug use to continue their treatment.[65] Low-barrier treatment programs are tailored to patients who may have complex needs, helping to maintain continuity of care, supporting rapid treatment access,[66,67] and reducing stigma surrounding drug use by reflecting a harm reduction-oriented approach. As a result, low-barrier treatment programs can better serve individuals who have been unable to stay in treatment programs with strict requirements around abstinence from drugs, frequent appointments, and participation in counseling and urine drug screening.[66]

ADDITIONAL CONTEXT

NC Medicaid, a program within the Division of Health Benefits in the North Carolina Department of Health and Human Services, and private insurers are the entities involved in **Strategy 8.3b**.

STRATEGY 8.3c

Explore opportunities to increase access to buprenorphine and methadone in alignment with guidance from federal agencies.

Strategy 8.3c: Representatives from NC Medicaid and private insurers, the UNC Injury Prevention Research Center, community-based harm reduction programs, and other partners should strategize opportunities to increase access to evidence-based treatment with buprenorphine and methadone in alignment with federal guidance.

DESIRED RESULT

Increased access to buprenorphine and methadone for North Carolinians who use drugs through widespread adoption of federal policies developed with this goal in mind.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force recognized the need to develop strategies to encourage providers and clinics across the state to adopt federal guidance designed to increase access to evidence-based treatment with buprenorphine and methadone. The COVID-19 pandemic caused significant disruptions in access to treatment services for North Carolinians with opioid use disorder, as many were unable to obtain take-home doses of their medication or initiate treatment due to COVID-19 mitigation measures or inaccessible telehealth services.[68–70] Studies have shown that take-home dosing, when available, promotes retention in treatment and is not associated with medication diversion or negative health outcomes.[68,71,72]

Strategy 8.3c is designed to bring representatives from NC Medicaid, private insurers, the UNC Injury Prevention Research Center, community-based harm reduction programs, and other partners together to develop and implement strategies that increase access to these essential medications in alignment with relaxed or modified federal guidelines. **Strategy 8.3c** also encourages these groups to work collaboratively to leverage their existing efforts to increase access to buprenorphine and methadone for North Carolinians in need.

ADDITIONAL CONTEXT

As described earlier in this section, the pandemic resulted in federal guidance to improve access to buprenorphine and methadone through take-home dosing, relaxed guidelines for initiation of treatment, as well as exemptions for some certification requirements for training, counseling, and other services related to access to these medications. However, access remains inconsistent across the state.

There are several state initiatives that work to improve collaboration and develop cross-sector learning and strategies to improve access to medication-assisted treatment. UNC ECHO for MAT, supported by the North Carolina Department of Health and Human Services (NCDHHS)/Substance Abuse and Mental Health Services Administration (SAMHSA) and the Agency for Healthcare Research and Quality's (AHRQ), focuses on bringing health care providers and community partners together to evaluate barriers to medication-assisted treatment, develop needed resources for providers, and identify strategies to expand access. Currently working in all 100 counties of North Carolina, UNC ECHO for MAT is an example of a beneficial collaborative partnership to address issues pertaining to access to medication-assisted treatment.[73]

Telehealth also provides an opportunity for improved access to medication-assisted treatment, especially for related medical and counseling services, as is currently included in Medicaid telehealth coverage.[74] Partners named in **Strategy 8.3c** should include telehealth policy in opportunities considered for improving access. Please see **Recommendation 8.4** in this chapter for additional information about telehealth during the pandemic.

RECOMMENDATION 8.4

In the early weeks and months of the COVID-19 pandemic, there was a dramatic decline in the utilization of health care for emergent needs, elective procedures, and preventive care, such as well visits and vaccinations. Beyond the direct impact of COVID-19 on individuals affected with the virus, health care providers and researchers began to examine the broader population health and financial impacts of forgone care during this pandemic. The Carolinas Pandemic Preparedness Task Force recognized the need, in coming years, for additional and thorough study of the impacts of this missed and delayed care on health outcomes, financial burden to individuals and to the health system, and health equity.

"The clinical impacts of forgone care started long before COVID-19. COVID-19 just placed a spotlight on the health disparities and the health inequities that we have seen and continue to see. The longer we permit the current systems, policies, and institutions to remain and implicit biases to play a role, the more lasting these trends will become, only exacerbating the divide we see in our communities." ***– The late Ophelia Garmon-Brown, MD, Chief Community Wellness and Health Equity Executive, Novant Health, North Carolina Institute of Medicine Annual Meeting, December 2020***

Telehealth Policy Revisions to Address Access to Care

During the first few months of the COVID-19 pandemic, health care providers and policymakers recognized the urgent need for policy solutions to address forgone care. In response to the COVID-19 pandemic, Session Law 2020-4 (House Bill 1043)[e] and Session Law 2020-3 (Senate Bill 704)[f] were passed by the North Carolina House and Senate on May 2, 2020, and signed into law by Governor Cooper on May 4. Included in the almost $1.6 trillion in federal funds from the federal CARES Act to provide financial relief related to the pandemic were several provisions intended to address additional need for telehealth services during the COVID-19 pandemic. These provisions allocated funding for entities including the North Carolina Department of Health and Human Services for enhanced telehealth services and other health-related needs in rural communities and for local health departments.[e,d,75] Other provisions that could be used to provide expanded telehealth services and improve access to care included the COVID-19 Rural Hospitals Relief Fund, the COVID-19 Teaching Hospitals Relief Fund, and the COVID-19 General Hospitals Relief Fund.[e, f, 75, 76]

There have also been federal, state, and private payment reforms related to improving access to telehealth services. In March 2020, the Trump Administration announced expanded Medicare coverage for telehealth clinical visits so older Americans could access health care services from home, reducing the risk of exposure to COVID-19 for both patients and health care providers.[77] Prior to this announcement, Medicare coverage for telehealth was narrower and only paid clinicians for routine visits for patients living in rural areas. Under the new policy, telehealth services were reimbursed at the same amount as in-person services. Private payers also increased their coverage of telehealth services; in North Carolina, the largest private insurer, Blue Cross and Blue Shield of North Carolina, covered telehealth services at the same payment rate as in-person visits and also eliminated cost-sharing for telehealth services.[78]

In April 2020, North Carolina Medicaid also received a temporary waiver from the federal Centers for Medicare and Medicaid Services to increase flexibility around enhanced telehealth services during the COVID-19 pandemic.[79] The policy changes included removal of restrictions on technologies that can be used to deliver services. In addition, the pool of eligible telehealth providers was expanded to include clinical pharmacists, licensed clinical social workers (LCSWs), licensed clinical mental health counselors (LCMHCs), licensed marriage and family therapists (LMFTs), licensed clinical addiction specialists (LCASs), and licensed psychological associates (LPAs). Under this policy change, no prior authorizations or approvals were required for receipt of telemedicine services through NC Medicaid.[80]

[e] *Session Law 2020-4, https://www.ncleg.gov/Sessions/2019/Bills/House/PDF/H1043v7.pdf*
[f] *Session Law 2020-3, https://www.ncleg.gov/Sessions/2019/Bills/Senate/PDF/S704v6.pdf*

Temporary closures of medical facilities, cancellations or delays of elective medical procedures, and shifts to telehealth services impacted individuals' access to and ability to receive care. In addition, many people were impacted by layoffs or other changes in employment, potentially affecting their ability to afford care. Of the 79% of respondents who reported in the Johns Hopkins COVID-19 Civic Life and Public Health Survey, fielded in July 2020, that they needed medical care between March and May of 2020, more than half (52%) reported missing or delaying this care. Reasons included fear of being infected with SARS-Cov-2 (29% of those who missed or delayed care) and financial concerns (7%).[81] Respondents who were unemployed were more likely to report missing needed medical care than employed respondents, and those who were uninsured were more likely to attribute missed or delayed care due to financial concerns than respondents with public or private health insurance coverage. Additional survey findings included: 29% of respondents reported missing a preventive care appointment; 26% reporting missing an outpatient general medical visit; 8% reported missing an outpatient mental health appointment; and 6% reported missing an elective surgery.[81]

Top of mind for public health practitioners, health care providers, and policymakers were concerns about the disparate impact of missed and delayed care on vulnerable populations. During the first year of the pandemic, data have shown an increase in excess deaths from conditions including diabetes, dementia, hypertension, heart disease, and stroke .[82] Overdose deaths have also increased since the start of the pandemic. While these data unequivocally underscore the tremendous importance of ensuring that individuals receive the care they need for chronic and acute conditions during a public health emergency,[83] they must also be considered in light of persistent inequities in rates of many of these conditions. In North Carolina, mortality rates for nearly all the top causes of death are persistently higher for Black North Carolinians than for White North Carolinians.[84] In addition, Black and especially Hispanic North Carolinians are more likely to be uninsured, at rates of 13% and 31%, respectively, compared to White residents (10 %).[84] Black and Hispanic North Carolinians are also more likely to have incomes lower than 200% of the federal poverty level, at rates of 51.1% and 63.6%, respectively, compared to White North Carolinians at 30.7%. These disparities suggest that missing or delaying needed preventive care and management for chronic conditions, as well as the reasons for this missed or delayed care—such as financial concerns or unemployment—may also have a disparate impact across race and ethnicity.[85]

An Urban Institute analysis found that Black adults were more likely than either White or Hispanic adults to report missed or delayed care (39.7% versus 34.3% and 35.5%, respectively). Black adults were also more likely to report missing or delaying multiple types of care. The analysis also found that reasons for missing or delaying care also varied by race and ethnicity: Black adults and those with lower incomes were more likely to report missing or delaying care due to worry about exposure and infection by the virus.[83] Of all respondents who reported missed or delayed care, more than three-quarters had one or more chronic condition, such as hypertension, diabetes, respiratory illness, heart disease, cancer, kidney disease, and mental health disorders. Notably, respondents also reported that missing or delaying care had a significant impact on their ability to work or perform daily activities, or that the missed care worsened existing health conditions.

While it remains too early to understand the full impact of missed and delayed care during the pandemic, the task force recognized the need for additional robust study of the overall impact on morbidity, mortality, and health inequities. Recent data from California have shown a decline in life expectancy during the pandemic, from 81.4 years in 2019 to 79.20 years in 2020 and 78.37 years in 2021. In addition, the differences in life expectancy between highest- and lowest-income census tracts increased from 11.5 years in 2019 to 14.67 years in 2020 and 15.51 years in 2021.[86] Such findings are alarming and bear many lessons for health care providers and policymakers regarding how to address inequitable access to needed care during a public health emergency.

The task force also recognized the need for understanding different types of financial impacts of missed and delayed care, for both individuals and for the overall health care ecosystem. In North Carolina, the pandemic quickly began to have a detrimental impact on the fiscal viability and financial security of rural hospitals, small private providers, and long-term care providers, many of which were in a financial crisis before the pandemic. The financial viability of rural hospitals, which is often precarious, depends on sufficient volume of services, such as elective surgeries, that are reimbursed at higher rates. When hospitals had to cancel or delay procedures, they lost this critical source of revenue. In addition, rural hospitals often had fewer ICU beds, staff, and other necessary resources to cope with the virus than hospitals in metropolitan areas, leading to financial and resource strain. At the beginning of the pandemic, state and federal governments allocated resources to offset the impact of COVID-19 on rural areas and hospitals. In May 2020, the roughly 50 rural hospitals in North Carolina were appropriated $65 million dollars from the federal CARES Act by the North Carolina General Assembly. The funds allocated to rural North Carolina hospitals could be used to cover some of the lost revenue from forgone elective procedures, among other purposes.[87] Since the start of the pandemic, care and claims have rebounded to pre-pandemic levels.

Researchers have also begun to examine the impact of missed and delayed care on provision of low-value care. Low-value care, generally defined as "services that provide insufficient clinical benefit and increase health care costs," is estimated to waste more than $1 billion annually, and to also present potential physical and mental harm to patients. The large drop in elective procedures and outpatient visits at the beginning of the pandemic, including types of screenings considered to be low-value care, offers an opportunity for researchers and health care professionals to align findings about costs and overall morbidity and mortality with revisions to preventive care recommendations, treatments, and payment policies that better reflect improved quality of care and lower costs.[88]

RECOMMENDATION 8.4

Examine the impact of the COVID-19 pandemic on access to and utilization of health care services.

Strategy 8.4a: Academic research centers, including (but not limited to) the UNC Gillings School of Global Public Health, Sheps Center for Health Services Research, Wake Forest University Maya Angelou Center on Health Equity, Duke-Margolis Center for Health Policy, and others, should examine the impact and burden of missed or delayed health care during the COVID-19 pandemic. Subjects of study should include drivers of missed care, data on resumption of care, impact on health care costs, health outcomes, and projected disease burden. Policymakers should use study results to inform ongoing policies to improve access to preventive and acute care during a public health emergency.

DESIRED RESULT

Comprehensive understanding of the impacts of missed and delayed care on population health and financial stability of individuals and the health care system.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

TThe task force recognized the need for understanding the varied impacts of missed or delayed care due to the COVID-19 pandemic. As described above, many factors, including closed medical facilities, cancelled or delayed elective procedures, and other changes in the delivery of health care services impacted whether and how care was received. Financial strain and fear of infection with COVID-19 were also factors in some individuals' decisions to miss care.[81]

The task force recognized data from the first year of the pandemic that showed increase in excess deaths from conditions including diabetes, dementia, hypertension, heart disease, and stroke, as well as the potential impact of inequities in these conditions. As noted earlier in this chapter, more than three-quarters of all respondents who reported missed or delayed care also had one or more chronic condition, such as hypertension, diabetes, respiratory illness, heart disease, cancer, kidney disease, and mental health disorders. Other differences were also reflected in some individuals' decisions about receiving care: Black adults and those with lower-incomes were more likely to report missing or delaying care due to worry about exposure and infection by the virus.[89]

In addition to the need for greater understanding of the reasons for and the health impacts of missed or delayed care during the pandemic, the task force also recognized the need for ongoing research into the financial impacts, for both individuals and for the overall health care ecosystem. A greater understanding of the ways in which missed and delayed care may have impacted the short- and long-term financial viability of health care providers, especially rural hospitals and small private providers, is crucial for policymakers and administrators.

ADDITIONAL CONTEXT

Providers across North Carolina report varying reasons for and potential impacts of missed or delayed care, including potential impacts on future rates and/or severity of serious illnesses such as cancer. At the 2020 North Carolina Institute of Medicine Annual Meeting, Dr. Emmanuel Zervos, surgical oncologist at Vidant Health, discussed the clinical impacts of missed care: A 71-year-old African American woman was diagnosed with breast cancer just before the pandemic began. Her care team initiated chemotherapy and planned a curative surgery to remove a large tumor. But a month after the pandemic began, the patient started to experience obstacles to receiving her care. She was afraid of contracting COVID-19 at the hospital and was unable to bring her support person with her to appointments. Zervos remembered, "This has played out over and over again in our service line. We won't know the impact for quite some time, but we know there will be a detrimental effect on outcomes for what is considered routine cancer care."

Dr. Zervos also reported an abrupt decrease in cancer screenings at Vidant in April 2020, and while screening returned to normal levels, nearly 4,500 patients missed being checked for cancer at Vidant in the meantime.[89]

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The Carolinas Pandemic Preparedness Task Force prioritized the discussion of long-standing societal and structural factors—such as employment and income, housing, food security, access to child care and human services, and overall financial and economic stability—that contributed to the impact of the COVID-19 virus and the effectiveness of the state pandemic response. These factors will deeply influence the state's ability to withstand future pandemics and public health emergencies.

While the task force recognized that recommendations broadly aimed at improving food security, employment rates, and economic stability were out of its scope of work, members developed several specific recommendations aimed at understanding and addressing the broad and long-lasting impact of the pandemic and mitigation strategies on economic stability, child care, and education.

This chapter includes an overview of data on demographic characteristics and key drivers of health in North Carolina, including household income/poverty, unemployment, food insecurity, housing, and health insurance coverage. Following this overview, the chapter includes full text and background context of the task force's recommendations.

Demographics and Disparities in Health Outcomes

Policymakers and researchers have recognized the many ways in which social, economic, and environmental factors influence individuals' and populations' health and well-being. According to *Healthy North Carolina 2030: A Path Toward Health*, "Health begins in families and communities, and is largely determined by the social and economic contexts (responsible for 40% of the variation in health outcomes) in which we grow up, live, work, and age; the healthy behaviors (30%) that those contexts make easier or harder; and our physical environments (10%). These factors are called drivers of health (also known as social determinants of health) and they directly affect health outcomes like development of disease and life expectancy."[6] *Healthy North Carolina 2030* defines health equity as "the opportunity for all people to attain the highest level of personal health regardless of demographic characteristics." While these dynamics are reflected in decades of health data across a wide range of issues (such as life expectancy, diabetes, and cancer), heightened attention to the disparate impact of COVID-19 on different population groups increased awareness of the interactions between demographic characteristics, drivers of health, and North Carolinians' experiences with the pandemic.

Healthy North Carolina 2030

In 2020, the North Carolina Institute of Medicine, in partnership with the North Carolina Department of Health and Human Services, released *Healthy North Carolina 2030: A Path Toward Health*, which outlined a series of health, economic, and social indicators prioritized as integral to improving health outcomes in the state.[6] In addition, *Healthy North Carolina 2030* identified structural racism as a key factor across these indicators, and the reduction of disparities as a primary goal for the state. The Healthy North Carolina 2030 Task Force identified improvement across the following indicators as key to promoting health in the state:

- **Individuals below 200% federal poverty level**
- **Unemployment**
- **Short-term suspensions (per 10 students)**
- **Incarceration rate (per 100,000 population)**
- **Adverse childhood experiences**
- **Third grade reading proficiency**
- **Access to exercise opportunities**
- **Limited access to healthy food**
- **Severe housing problems**
- **Drug overdose deaths (per 100,000 population)**
- **Tobacco use**
- **Excessive drinking**
- **Sugar-sweetened beverage consumption**
- **HIV diagnosis (per 100,000 population)**
- **Teen birth rate (per 1,000 population)**
- **Uninsured**
- **Primary care clinicians (counties at or below 1:1,500 providers to population)**
- **Early prenatal care**
- **Suicide rate (per 100,000 population)**
- **Infant mortality (per 1,000 births)**
- **Life expectancy (years)**

Source: North Carolina Institute of Medicine. Healthy North Carolina 2030: A Path Toward Health. Morrisville, NC: North Carolina Institute of Medicine; 2020. https://nciom.org/healthy-north-carolina-2030-a-path-toward-health/

North Carolina Demographics Prior to the COVID-19 Pandemic

Poverty and Economic Precarity: The federal poverty level (FPL) is an estimate calculated annually by the U.S. Department of Health and Human Services. This estimate depends on family size, is the same in each of the contiguous 48 states, and is used to determine eligibility for means-tested benefit programs, such as the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) and some parts of Medicaid and Medicare.[1] In 2019, an individual earning under $12,490 annually (100% FPL) was considered to be living in poverty. While the meaning and relevance of 100% FPL is often debated, earning 200% FPL or less is roughly understood to indicate that an individual experiences some degree of economic insecurity and faces difficulties in affording basic needs, such as housing, utilities, food, and health coverage.[2,3] In North Carolina, the five-year average of individuals earning below 200% FPL ($24,980 in 2019) in 2013–2017 was higher than the national average: 37% compared to approximately 33% of families nationwide. In our state and nationally, people of color are disproportionately more likely to live in poverty. In North Carolina, 52% of American Indians, 51%

of African Americans, and 64% of Hispanic individuals have incomes below 200% FPL, compared to 31% of Whites. Nationally, children are the most likely of any age group to live in poverty; in North Carolina, 44.0% of people under the age of 18 live under 200% FPL.[4] Racial and ethnic disparities also persist among families living in poverty in North Carolina: in 2018, 61% of African American and 68% of Hispanic households with children lived under 200% FPL, compared to 28% of White households with children.[5]

UNEMPLOYMENT: In 2018, North Carolina's unemployment rate was 3.9%, representing an all-time low for the state. However, North Carolina continues to face significant disparities in access to economic opportunity. Unemployment rates ranged across counties from 3.5% to 13.4%, with rural North Carolinians facing higher levels of unemployment and poverty and earning less than urban residents. North Carolina also experiences racial and ethnic disparities in unemployment, with rates for African Americans and American Indians nearly twice that of White populations (11.7%, 10.3%, and 5.7%, respectively, 2013–2017 average) and Hispanic populations also facing higher rates of unemployment (7.1%) as compared to the non-Hispanic White population. In economically distressed rural areas, African Americans are also disproportionately represented: in 2018, unemployment in rural areas of the state was 11.4% for African Americans and 5.9% for Whites.[6]

FOOD INSECURITY: In North Carolina, more than half a million residents live in areas designated as "food deserts," defined as areas with limited access to healthy foods. Low-income neighborhoods and neighborhoods with higher minority populations are more likely to be designated food deserts and individuals in these neighborhoods have less access to supermarkets or other grocery stores. Available retailers in these areas often have more limited healthy options and may have higher prices than stores in wealthier areas. In North Carolina, there are 15 counties where 10% or more of residents have limited access to healthy foods; county estimates range from 0% to 35% of residents with limited access to healthy foods.[7]

HOUSING: Studies have increasingly shown a direct link between housing quality and physical and mental health.[8] One in six households in North Carolina report experiencing severe housing problems, defined as the presence of at least one of the following problems: overcrowding, very high housing costs, or lack of kitchen and/or plumbing facilities. According to *Healthy North Carolina 2030*, approximately 14,000 North Carolina households are overcrowded, 18,000 households lack complete plumbing, 24,000 households lack sufficient kitchen facilities, and half a million households face severe cost burden. Overcrowding, in particular, can lead to exacerbation of respiratory health issues, such as asthma, and in the case of an infectious respiratory illness like SARS-CoV-2 overcrowding can be a key risk factor for infection. Severe housing problems do not affect the population uniformly, and the experience of severe housing problems is correlated with high rates of poverty and historic segregation in under-resourced residential areas.[9]

HEALTH INSURANCE COVERAGE: In 2019, 11.3% of North Carolinians did not have health insurance.[10] North Carolina sees racial and geographic disparities in health insurance coverage, with Hispanic North Carolinians uninsured at higher rates (31%) than their non-Hispanic White (10%) and African American (13%) counterparts, as members of that community may be more likely to lack access to employer-sponsored health coverage. Hispanic North Carolinians may also face citizenship and immigration status documentation barriers to qualifying for public insurance programs such as Medicaid and Medicare. Non-Hispanic White North Carolinians account for almost half of residents in the state without health insurance.

Residents of rural areas are also more likely to be uninsured.[11] Because health insurance coverage in the United States is so closely tied to employment for historic reasons, there is also considerable variation in coverage based on employment sector.[12] Some workers may be less likely to have health insurance, including those who are engaged in seasonal, part-time, temporary, or caregiving work. In North Carolina, people working in the agriculture, forestry, mining, construction, hospitality, and service industries are most likely to lack health insurance. Individuals who are self-employed or small business owners may not receive employer-sponsored insurance, while at the same time they may be ineligible for public benefits or tax credits and subsidies to purchase coverage on the Affordable Care Act marketplace. As the COVID-19 pandemic emerged, workers across several of these industries were often at increased risk for both infection and for financial difficulties when it came to paying for needed care. In addition, due to business closures and job losses, an estimated 238,000 workers in North Carolina lost health insurance between February and May 2020.[13]

As of June 2022, North Carolina is one of 12 states that have not expanded Medicaid eligibility to 138% of the federal poverty level for all residents. If North Carolina were to expand Medicaid eligibility, an estimated additional 500,000 to 600,000 residents would become eligible for Medicaid coverage.[14] (See **Chapter 8** for additional information about access to health insurance.)

Impacts of COVID-19 on Incarcerated Populations and People Who Use Drugs

INCARCERATED POPULATIONS: In 2017, North Carolina's rate of incarceration was 341 in 100,000 people in the state, with high levels of disparities across race. The *Healthy North Carolina 2030* report states,

> "Application of law enforcement and sentencing has led to disproportionate incarceration rates, with African Americans making up 52% of the total incarcerated population, but only 22% of the state population. For example, although drug use is lower among African Americans and rates of trafficking are not different based on race/ethnicity, African Americans are 6.5 times more likely to be incarcerated for drug-related offenses. Numerous studies have shown systematic differences exist in outcomes for people of color from arrest, case processing, sentencing, and parole, all of which increase their likelihood of serving time in jail or prison and their likelihood of serving time in jail or prison."[6]

Families with incarcerated members are more likely to face economic hardships, and children in such families are more likely to experience traumatic effects, increasing their risk of depression, anxiety, substance use, and difficulties in school. In addition, incarcerated individuals are more likely to develop chronic health conditions, experience poor diets, and are more at risk of contracting infectious diseases.[15]

During the COVID-19 pandemic, incarcerated individuals were at high risk of contracting the virus due to congregate living conditions and the associated difficulties in implementing social distancing, isolation, and limiting exposure to prison staff who may have been exposed in their communities. To date, the North Carolina Department of Public Safety reports deaths of 58 incarcerated individuals from COVID-19, with over 14,000 cases.[16]

People who use drugs: In recent years, drug overdose deaths have dramatically increased in North Carolina. In 2019, 2,352 individuals died from unintentional overdoses in North Carolina, an increase of nearly 75% since 2014.[17] From 2019 to 2020, unintentional drug overdose deaths increased by 40%.[17,18] Although the overdose epidemic was initially driven by prescription opioids in the early- to mid-2000s, illicitly manufactured opioids such as fentanyl and heroin are now involved in over 70% of the state's opioid-related overdose deaths.[15]

Throughout the COVID-19 pandemic, people of color and other historically marginalized populations have been disproportionately impacted by overdose compared to other groups as a result of systemic and structural barriers that limit access to treatment and other services and supports. People who use drugs are also at higher risk for hospitalization, death, and other severe outcomes related to SARS-CoV-2 infection compared to other populations due to higher rates of underlying health conditions, financial or economic instability, incarceration and other forms of justice system involvement, and inaccessible health care services and supports.[19–22] People of color who use drugs are particularly at risk of both overdose and severe COVID-19 outcomes, reflecting the intersectional inequalities faced by people with multiple marginalized identities.[19]

Economic Well-Being and Stability

At the beginning of the pandemic, agency leaders and elected officials faced difficult decisions about the best ways to reduce infection while also minimizing economic damage to individuals, families, and businesses. The task force discussed the many ways that these decisions' impacts were felt in the state.

Economic well-being is inextricably linked to health outcomes. Without the necessary savings to cushion against sudden unemployment, the lost source of income can push people into economic precarity. Loss of income poses clear financial barriers to accessing resources that protect and improve physical and mental health, such as routine medications, nutritious food, and healthy recreational activities. In March 2020, many businesses closed in order to comply with Executive Orders designed to decrease large gatherings of people and to promote social distancing. In the last two weeks of March 2020, Governor Cooper signed four Executive Orders related to the pandemic:

- March 14 – Executive Order 117 – closure of public schools statewide; ban on mass gatherings of over 100 people[a]
- March 17 – Executive Order 118 – closure of restaurants and bars for dine-in services as of 5:00p.m. on March 17; increased access to unemployment benefits[b]
- March 21 – Executive Order 119 – waiver for restrictions on child care and older adult care facilities; flexibilities for the Division of Motor Vehicles[c]
- March 23 – Executive Order 120 – closure of public schools statewide through May 15; ban on mass gatherings of over 50 people; closure of some businesses as of 5:00p.m. on May 25 (e.g., gyms, movie theaters, hair and nail salons)[d]

Partly as a result of these closures, between March 16 and March 26, 2020, there were 200,000 new unemployment claims in North Carolina; this is close to the number of claims typically filed in one year.[23] Executive Order 118 waived the one-week waiting period for receiving unemployment benefits, as well as the requirement that applicants actively seek work to receive benefits. Between March 2020 and February 2021, the number of people filing for unemployment reached over 1.4 million in North Carolina, accounting for nearly one in every three workers. Sixty-seven percent of people who applied for unemployment benefits were approved, with over $9.6 billion in payments as of January 29, 2021, including federal supplements.[24,25] Counties across the state experienced a variation in peak unemployment rates—from 8.1% in Bertie County to 24.5% in Dare County.

In addition, research points to racial disparities in the experience of unemployment during the pandemic, as well as disparities in age, gender, and education. Non-Whites were more likely to report loss of their jobs, loss of income, and severe financial problems during the pandemic.[26] Data from the U.S. Census Household Pulse Survey also shows that, nationally, Black and Hispanic workers were more likely than non-Hispanic Whites to not receive unemployment benefits after losing their jobs.[27] Unemployment rates in the early months of the pandemic were lowest among workers with higher levels of education. Younger workers, due to higher likelihood of having service

[a] *Governor Cooper, Executive Order 117, https://files.nc.gov/governor/documents/files/EO117-COVID-19-Prohibiting-Mass-Gathering-and-K12-School-Closure.pdf*
[b] *Governor Cooper, Executive Order 118, https://files.nc.gov/governor/documents/files/EO118.pdf*
[c] *Governor Cooper, Executive Order 119, https://files.nc.gov/governor/documents/files/EO119.pdf*
[d] *Governor Cooper, Executive Order 120, https://files.nc.gov/governor/documents/files/EO120.pdf*

jobs impacted by retail and hospitality closures, were more likely than older workers to lose jobs.[26] Women were also more likely than men to leave the workforce between February 2020 and February 2021, often due to needing to take care of children at home, with Black and Hispanic women comprising 46% of this group despite representing less than one-third of the female workforce nationwide. These disparities were also attributed to higher numbers of women workers in service jobs impacted by the pandemic.[28]

As people lost employment, many also lost insurance coverage associated with those jobs. An analysis by Families USA estimated that approximately 238,000 workers in North Carolina had lost health insurance as of May 2020, the fifth largest number in the nation.[13] Data are not available on the number of dependents who lost coverage due to a family member's unemployment, but estimates show that up to 14.3% of North Carolina adults lacked health insurance in 2020, compared to 11.3% in 2019.[28,29]

In addition to the impact on individuals' employment, the risk mitigation strategies implemented to address the pandemic also impacted business across the state. The closure of small businesses, in particular, was noted to have significant effects in North Carolina. A survey of North Carolina small businesses conducted in late 2020 by the NC Main Street and Rural Planning Center (an initiative of the Rural Economic Development Division of the NC Department of Commerce) found that 96% of small businesses reported that they continued (or had resumed) operating by the end of 2020; 80% reported that they were conducting business differently (such as introducing online sales) than they had prior to the pandemic. Small business owners reported a need for assistance in establishing online sales, including accessing adequate and reliable broadband service. Two-thirds of small businesses reported that they had lost revenue since the start of the pandemic, and 60% of small businesses reported that they had received financial assistance through a combination of federal and state grant and loan programs.[30]

NC Chamber defines small businesses as those with fewer than 100 employees. Approximately 9 out of 10 small businesses in North Carolina have fewer than 20 employees. Nationally, small businesses make up approximately 45% of total economic activity, and 47% of total employment.

Source: NC Department of Commerce, North Carolina Small Business Survey Final Report. Accessed August 15, 2022. https://files.nc.gov/nccommerce/documents/Rural-Development-Division/Main-Street/NC-Small-Business-Survey-Final-Report-with-Appendix-December-2020.pdf

Federal Action to Address Unemployment and Small Business Hardship

The first piece of federal legislation in response to COVID-19, the Coronavirus Preparedness and Response Supplemental Appropriations Act, was signed into law on March 6, 2020. This legislation provided $20 million to the Small Business Administration (SBA) to assist in its disaster loans program, which administered loan subsidies for small businesses that were severely financially impacted by the coronavirus.[31] Also included in this Act was the initial Paycheck Protection Program (PPP), which provided $349 billion in assistance. The initial PPP lasted only 13 days before being depleted and had to be replenished in April 2020 with $310 billion authorized through the CARES Act.

The Coronavirus Aid, Relief, and Economic Security (CARES) Act signed into law by President Trump on March 27, 2020, included a supplement to unemployment benefits provided by states. Under this legislation, individuals were eligible for a $600-per-week supplement to state benefits for four months, bringing the weekly maximum to $950.00.[32] Individuals who qualified for this benefit included those laid off, furloughed, or with reduced hours due to COVID-19; individuals still receiving benefits from their employer, but no salary; gig economy workers and freelancers; and individuals who were not laid off or furloughed, but were unable to work for various reasons (including individuals diagnosed with COVID-19 or with diagnosed family members, and those who were unable to begin a new job due to workplace closure).[33,34]

The CARES Act also provided assistance for small businesses. An estimated 226,766 businesses, with 2.98 million employees, were eligible for this assistance in North Carolina.[35] These provisions, for companies with fewer than 500 employees, included:

- Up to eight weeks of cash-flow assistance to maintain payroll;
- If payroll maintained, any funds used for payroll costs, interest on mortgage, rent, or utilities will be forgiven;
- Maximum loan amount based on formula (average monthly payroll x 2.5); maximum loan size $10 million;
- Economic Injury Disaster Loans with $10,000 advance.[35]

Additional federal action targeted economic hardship due to unemployment. Congress passed the American Rescue Plan Act (ARPA) in March 2021. The legislation provided $1.9 trillion in spending to support families, stimulate the economy, and fund a variety of efforts to combat the COVID-19 pandemic and its effects, including additional direct stimulus payments and tax credits. ARPA also extended the Pandemic Unemployment Assistance program through September 6, 2021, maintaining the federal benefit amount of $300 per week while increasing the total number of weeks benefits available to individuals not able to return to work from 50 to 79 weeks. Along with extending benefits, the first $10,200 in 2020 unemployment benefit distributions were made exempt from federal income tax for households with incomes below $150,000

per year.[e,36] ARPA also included additional provisions for assistance to small business. This assistance included:

- $15 billion for targeted Economic Injury Disaster Loans (EIDL);
- $28.6 billion for restaurants, bars, and other eligible providers of food and drink;
- $1.25 billion for shuttered venue operators;
- $157 million to create a "community navigator" pilot program to increase awareness of and participation in COVID-19 relief programs for business owners lacking access, with priority for businesses owned by socially and economically disadvantaged individuals, women, and veterans.[36,37]

Into 2021 and 2022, the impacts of both the pandemic and the policy strategies to address its economic effects were becoming clearer. Researchers at North Carolina State University called 2021 "a good year" for the state's economy, citing an increase in gross domestic product of 4.5%, a better rate than pre-pandemic, and an economy 3% larger than its pre-pandemic level.[38] North Carolina also added 143,500 net new jobs in 2021, with the most gains in leisure/hospitality, professional services, manufacturing, and construction. Many North Carolina cities, including Raleigh-Cary, Wilmington, and Greenville, reported full recoveries from pandemic job losses, while Asheville and Greensboro-High Point were still below pre-pandemic job levels. Statewide job numbers also remained below pre-pandemic levels, and while the unemployment rate was near the pre-pandemic rate, workforce participation remained challenging, with the percentage of working age people who are either employed or looking for work smaller than in 2019.[38]

While many of the worst economic impacts of the pandemic have improved, the full impacts of loss of income and insurance, as well as the impacts of federal and state assistance, require ongoing study and analysis.[39] The task force recognized the importance of understanding the impact of the public health emergency, as well as mitigation strategies, on employment and small business.

Access to Early Care and Education

The COVID-19 pandemic underscored the critical role of early care and education in the state's economy. At the beginning of the pandemic, many child care facilities closed in order to reduce exposure and infection rates; 43% of child care facilities had closed by mid-April 2020. However, Executive Orders did not require child care facilities to close, recognizing the need for this essential service, especially for health care workers and frontline essential workers. These workers and many others who were unable to work from home also faced a shortage of trusted, reliable, affordable, and safe care for their children. Parents and caregivers whose jobs shifted to remote work faced the daunting challenge of caring for their children at home while working or finding at-home alternatives. When more child care facilities reopened, they often did so with reduced staffing ratios and limited operating hours in order to meet new standards for disinfection and social distancing. Fewer children receiving care contributed to a loss of revenue for many facilities, as well as ongoing child care challenges for working families.[40]

In December 2020, the North Carolina Early Childhood Foundation released results of a survey of more than 800 working parents of young children, designed to assess their experiences with child care during the pandemic. Survey results found that in the months between March and October 2020, more than half of surveyed households experienced job loss, furlough, or reduced pay/hours due to COVID-19. The availability of formal child care had fallen by half since the start of the pandemic, with more than 70% of respondents saying they had difficulty finding a satisfactory child care arrangement, for both preschool-aged and school-aged children. While 44% of rural families were accessing formal child care prior to the pandemic, at the time of the survey that number had fallen to 15%. The survey also highlighted inequities across child care experiences: women of color more frequently reported that their child care provider was closed, they were unable to find an alternative, and they could not afford child care because of reduced income.[41]

Child Care in North Carolina: Pre-Pandemic Context:

- **44% of families in North Carolina live in areas that have less than one child care slot for every three children aged 0–5**
- **Fewer than half of North Carolina employers offered child care supports for families (including paid leave, on-site child care, and/or flexible schedules)**
- **Women of color had lower access to employer supports for child care**

Source: https://buildthefoundation.org/wp-content/uploads/2020/12/Early-Education-in-the-Time-of-COVID-19_Final-1.pdf

In addition to the impact on working families, child care closures and reductions in number of children able to attend also impacted child care facilities' financial positions, as well as child care workers' wages and job stability. In a survey of 322 child care facilities in North Carolina conducted by the National Association for the Education of Young Children in March 2020, nearly one-third of North Carolina child care facilities said they would not survive closing for more than two weeks "without significant public investment and support that would allow them to compensate and retain staff, pay rent, and cover other fixed costs." More than 1 in 10 facilities (12%) reported that they would not survive a closure of any length of time without supports for these costs. Many facilities also reported that enrolled parents were unable to pay fees (43%), and 30% of facilities had lost income because of families' inability to pay.[42]

Actions were taken at both the state and federal level to alleviate the financial challenges faced by child care facilities. In 2020, the CARES Act provided $118 million in federal funding for child care relief to North Carolina, and the North Carolina General Assembly provided an additional $20 million. This funding allowed the North Carolina Department of Health and Human Services' (NCDHHS) Division of Child Development and Early Education to implement

e United States House of Representatives. H.R.1319 - 117th Congress (2021- 2022): American Rescue Plan Act of 2021.; 2021. https://www.congress.gov/ bill/117th-congress/house-bill/1319/text. Accessed March 25, 2021.

several temporary programs to support the child care industry, including emergency child care subsidies, teacher and staff bonuses, operational grants, cleaning/hygiene supplies, and urgently needed personal protective equipment for staff. This funding also provided for additional technical assistance to child care facilities and parent subsidy co-payments.[43]

In 2021, the American Rescue Plan Act (ARPA) provided an additional $805 million in federal aid to be distributed through the North Carolina Child Care Stabilization Grants. Child care facilities were invited to apply for grants ranging from $6,000 to $60,000. These quarterly grants are administered by the Division of Child Development and Early Education in NCDHHS.[44] As of April 2022, NCDHHS had distributed over $340 million to more than 4,000 child care centers across 99 counties. Since the start of the stabilization grants, nearly 90% of eligible child care programs have applied for and received these grants. More than 90% of the programs have used the grant funding for compensation and wage support for their staff.[45]

To address the long-standing societal and structural factors that have contributed to the many impacts of the COVID-19 pandemic, while also strengthening North Carolina's ability to withstand future public health emergencies, the task force recommends:

Recommendation 9.1
Assess pandemic-driven impacts on economic stability to mitigate the impact of closures intended to promote public health.

Recommendation 9.2
Ensure access to high-quality early childhood education.

Recommendation 9.3
Ensure access to social, emotional, and physical health resources in K–12 Public School Units (PSU).

Recommendation 9.4
Address student learning loss caused or exacerbated by school closures and remote learning.

The following entities are responsible for implementing Recommendations 9.1–9.3:

- North Carolina Department of Commerce
- NC Chamber
- Local chambers of commerce
- Economic Development Partnership of North Carolina
- Public and private employers
- North Carolina General Assembly
- North Carolina county commissioners
- The North Carolina Early Education Coalition
- North Carolina Early Childhood Foundation
- Child Care Services Association
- North Carolina Department of Health and Human Services' Division of Child Development and Early Education
- North Carolina Department of Public Instruction
- State agencies
- Community-based organizations
- Philanthropic organizations

RECOMMENDATION 9.1

RECOMMENDATION 9.1

Assess pandemic-driven impacts on economic stability to mitigate the impact of closures intended to promote public health.

Strategy 9.1a: The North Carolina Department of Commerce, NC Chamber, local chambers of commerce, the Economic Development Partnership of North Carolina, and other work groups created during the course of the pandemic should conduct assessments of the impact of county and state closure policies on small businesses, including short- and long-term financial stability, staffing needs, and ongoing business viability. State and local policymakers should use study results and ongoing input from the business sector to inform revisions of emergency response plans.

Strategy 9.1b: The North Carolina General Assembly, state agencies, community-based organizations, and philanthropic organizations should assess the impact of pandemic-driven closures on families and children, along with historically marginalized and vulnerable populations, such as persons involved in the justice system, individuals facing housing insecurity, and people who use drugs.

Strategy 9.1c: The North Carolina General Assembly, state agencies, community-based organizations, and philanthropic organizations should develop and implement policies to provide additional support and relief to alleviate ongoing impacts based on the results of the assessment described in Strategy 9.1b.

STRATEGY 9.1a

Assess the impact of county and state closure policies on small businesses.

The North Carolina Department of Commerce, NC Chamber, local chambers of commerce, the Economic Development Partnership of North Carolina, and other work groups created during the course of the pandemic should conduct assessments of the impact of county and state closure policies on small businesses, including short-and long-term financial stability, staffing needs, and ongoing business viability. State and local policymakers should use study results and ongoing input from the business sector to inform revisions of emergency response plans.

DESIRED RESULT

Comprehensive understanding of the small business impacts of closures as risk mitigation strategy during a public health emergency, in order to inform subsequent efforts.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force recognized the many elements that policymakers were balancing when making decisions about implementation of risk mitigation strategies. Primary to these considerations were the economic impacts of various strategies and the different impacts that strategies might have

on individual families, small businesses, and others. While the task force recognized the initial and ongoing collaborations and partnerships with business leaders, chambers of commerce, and others, it also recognized the need for continued research and analysis to gain understanding of longer-term impacts, particularly on small business.

ADDITIONAL CONTEXT

The agencies and organizations outlined in **Strategy 9.1a** continue to assess and analyze the ongoing impacts of the pandemic. As noted above, research from the North Carolina Department of Commerce has shown that, while 96% of small businesses reported that they continued (or had resumed) operating by the end of 2020, 80% reported conducting business differently than they had prior to the pandemic. Business owners identified a need for assistance in establishing online sales, including assistance with adequate and reliable broadband technology. Two-thirds of small businesses reported that they had lost revenue since the start of the pandemic, with 60% of small businesses reporting that they had received financial assistance through a combination of federal and state grant and loan programs.[30]

In 2021, the Department of Commerce released *First in Talent: Strategic Economic Development Plan for the State of North Carolina*. This report outlined four goals for the state in building back a strong economy, and several strategies included in the plan focus on strengthening small businesses. These strategies emphasize the development of small businesses in rural and disadvantaged communities, as well as increasing the number and promoting the success of women- and minority-owned businesses, as key to overall economic strength.[46]

STRATEGY 9.1b–9.1c

Assess the impact of state and county closures on vulnerable populations and provide additional support to alleviate ongoing impacts.

Strategy 9.1b: The North Carolina General Assembly, state agencies, community-based organizations, and philanthropic organizations should assess the impact of pandemic-driven closures on families and children, along with historically marginalized and vulnerable populations, such as justice system-involved persons, individuals facing housing insecurity, and people who use drugs.

Strategy 9.1c: The North Carolina General Assembly, state agencies, community-based organizations, and philanthropic organizations should develop and implement policies to provide additional support and relief to alleviate ongoing impacts based on the results of the assessment described in Strategy 9.1b.

DESIRED RESULT

Targeted state, local, and philanthropic spending aimed at alleviating ongoing financial and other impacts of the pandemic, and improving future stability.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

As outlined in *Healthy North Carolina 2030*, social and economic factors play an outsized role in whether individuals and families are able to be healthy and well. The task force discussed the many ways that this is especially true during a public health emergency like the COVID-19 pandemic. Closures of business, schools, medical facilities, and many other services were implemented in order to reduce the risk of infection, and these policies had differing impacts across populations. To address this, the task force recognized the need for ongoing study of the disparate impacts, as well as targeted policies designed to specifically address various needs. The task force recommended that assessments and policies include those addressing pandemic impacts on financial stability, as well as on mental health, employment, food security, and interpersonal violence.

ADDITIONAL CONTEXT

The North Carolina General Assembly, state agencies, community-based organizations, and philanthropic organizations are the entities involved in **Strategies 9.1b and 9.1c**. and are well-positioned to implement sustained and targeted approaches to address impacts of pandemic closures.

At the start of the pandemic, and as it continued, it was quickly apparent that closures of schools, businesses, retail establishments, and other public spaces would have significant impact on individuals, and this impact would be experienced in many different ways. Researchers and policymakers began the difficult work of understanding these impacts and developing strategies that would address the worst of the financial, educational, and mental health impacts of closures.

Legislation including the Coronavirus Preparedness and Response Supplemental Appropriations Act, the Coronavirus Aid, Relief, and Economic Security (CARES) Act, and the American Rescue Plan Act (ARPA), as described earlier in this chapter, sought to provide assistance to businesses and individuals that would alleviate the financial impacts of closures. Understanding that school closures would mean children would not receive food service provided at school, North Carolina participated in the federally funded Pandemic Electronic Benefit Transfer (P-EBT) program, which provided families with food assistance in the absence of school programs. Through July 2021, NCDHHS and the North Carolina Department of Public Instruction (NCDPI) provided more than $1.7 billion in food assistance to more than 1.3 million children.[47] School closures have also impacted educational outcomes and well-being for many children; while the full extent of learning loss and other outcomes remains to be seen, researchers have begun to examine the impacts of school closures on overall learning, on future income, and on several drivers of physical and mental health, including food insecurity, access to care, and physical activity.[48]

Because pandemic closures also had a disparate impact on vulnerable populations, affecting access to physical and mental health care services, substance use treatment, housing support, and other human services, it is also important to continue research to understand the acute and ongoing impacts of closures, and identify sustainable resources to address them.[49, 50]

RECOMMENDATION 9.2

RECOMMENDATION 9.2

Ensure access to high-quality early childhood education.

Strategy 9.2a: The North Carolina Early Education Coalition, in partnership with the North Carolina Early Childhood Foundation, the Child Care Services Association, and the North Carolina Department of Health and Human Services Division of Child Development and Early Education should assess the impact of federal and state action to alleviate financial and staffing impacts of the COVID-19 pandemic on the early care and education industry and provide recommendations for ongoing support, including provisions and planning for emergency child care services.

Strategy 9.2b: Public and private employers should consider policies, such as wage support, additional paid leave, and on-site child care, that support families in obtaining high-quality and affordable child care.

STRATEGY 9.2a

Assess the impact of federal and state action to alleviate financial and staffing impacts of the COVID-19 pandemic on the early care and education industry and provide recommendations for ongoing support.

Strategy 9.2a: The North Carolina Early Education Coalition, in partnership with the North Carolina Early Childhood Foundation, the Child Care Services Association, and the NCDHHS Division of Child Development and Early Education, should assess the impact of federal and state action to alleviate financial and impacts of the COVID-19 pandemic on the early care and education industry and provide recommendations for ongoing support.

DESIRED RESULT

A financially sustainable early care and education sector that promotes high-quality care and recruitment and retention of workforce.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force recognized the many ways that the challenges faced by the early care and education sector prior to the pandemic worsened in the face of facility closures, unemployment, and wage competition. At the same time, the task force discussed the importance of available, high-quality, and affordable child care in ensuring financial stability for families and economic stability and development for communities. Policies implemented during the pandemic, such as federal and state grants for wage support, emergency subsidies, and payments for personal protective equipment and cleaning supplies, continue to improve the availability of child care for families and contribute to the sustainability of the sector. The task force recognized the need for ongoing action to continue this support.

ADDITIONAL CONTEXT

Various professional associations and child and family advocates across the state have addressed the needs of the early care and education sector, both prior to the pandemic and as an urgent and ongoing challenge since the pandemic began. In order to strengthen the early care and education sector following the pandemic, the North Carolina Early Education Coalition recommends bonus pay/hazard pay for child care teachers and staff during declared emergencies; emergency child care subsidy assistance for families; additional operating grants to support child care facilities that remain open during public health emergencies and afterward; and an increase in child care subsidy market rates to improve access to child care. According to the Coalition, these priorities provide the needed stabilization of the early care and education industry and "ensure that every county has the capacity to support young children's healthy development and the child care needs of working parents." **Strategy 9.2a** builds on the work of the Coalition and other state advocates to identify policy change and stabilize and strengthen the early care and education sector and workforce, providing a much-needed service for families and children.[51]

STRATEGY 9.2b

Consider policies that support families in obtaining high-quality and affordable early care and education.

Strategy 9.2b: Public and private employers should consider policies, such as wage support, additional paid leave, and on-site child care, that support families in obtaining high-quality and affordable early care and education.

DESIRED RESULT

Improved access to high-quality, affordable early care and education for working families in North Carolina and reduced disparities in income and educational attainment

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force discussed the impact on children and families of temporary closures followed by reduced availability of high-quality child care. Availability of child care was an essential component of families' ability to work throughout the pandemic, and families' economic security and mental health were impacted by this factor. The task force recognized that employer-based policies aimed at improving families' access to early care and education would contribute to economic stability and family well-being.

ADDITIONAL CONTEXT

According to a survey by the U.S. Census Bureau in January 2022, one in four parents and caregivers of young children reported having to cut work hours, take unpaid leave, leave a job, or hold off a job search because of difficulty finding child care.[52] Additional research shows that nearly 70% of North Carolina families have had difficulty finding satisfactory child care arrangements during the pandemic.[53]

In summer 2020, the North Carolina Early Childhood Foundation's Family Forward NC initiative released the results of a survey designed to assess workplace benefits in the midst of the COVID-19 pandemic. The survey, conducted in July 2020 with responses from 359 employers representing a variety of industries across the state, assessed changes—including anticipated or potential changes—to family-friendly workplace policies. The survey found that two-thirds of employers reported proactively improving workplace benefits, including 30% who implemented additional paid sick leave or a new paid family leave policy. Eighteen percent of responding employers enhanced medical coverage for their employees, and more than 50% were currently offering or considering offering flexible work hours. However, only 3% of employers reported that they have increased or were planning to increase child care benefits in response to COVID-19, emphasizing the need for family-friendly workplace policies that include child care support.[54,55]

In addition to the ways in which accessible care impacts families' overall financial stability, high-quality early care and education is instrumental in ensuring strong child development and improved readiness for kindergarten. Children enrolled in high-quality child care and preschool programs are shown to have stronger language and pre-math skills, more advanced social skills, fewer behavioral challenges, and easier adjustment to kindergarten. Children in low-income families and those at risk for academic difficulties receive the largest gains from high-quality early care and education programs.[56] Studies looking at long-term impacts of high-quality early education show a reduction in disparities between lower- and higher-income children's educational attainment and wages at age 26. Disparities in rates of college graduation were reduced when low-income children spent more months in early education programs, and reductions in disparities in wages were associated with sustained high-quality early care and education for low-income children.[57]

RECOMMENDATION 9.3

Mental Health Resources for K–12 Public and Charter School Students

Public and charter schools, also known as Public School Units (PSU), play a critical role in providing services that support students' social, emotional, and physical health. When there are school closures or students are excluded from school settings for quarantine, students are isolated from their routines, peers, and in-person support from teachers, counselors, psychologists, social workers, and other school staff, with increasingly apparent impacts on mental health. In 2020, when many schools across the United States were closed due to stay-at-home orders, mental-health-related emergency department visits for children aged 5–11 and 12–17 increased by 24% and 31%, respectively, compared to 2019.[58]

By April 2021, over $61 million in COVID-19-relief funding was allocated to the North Carolina Department of Public Instruction (NCDPI) for mental health support for students and families.[59] Despite this increase in one-time funding, in 2022 North Carolina was ranked 42nd in the nation by Mental Health America in a composite ranking of youth mental health indicators, including measures of depressive episodes, substance use disorders, and mental health treatment, which indicates a higher prevalence of mental illness and lower rates of access to mental health care for youth in our state.[60] Supporting students' mental health does not just require treatment for mental or behavioral health needs; it requires a whole-person approach and is critical to students' engagement of learning and retention of academic content.[61] NCDPI utilizes *Whole School, Whole Community, Whole Child*, an evidence-based framework from the Centers for Disease Control and Prevention (CDC) with a whole-person approach. Much of the implementation of this approach across the state is supported by limited-term grants and one-time funding; for decades, North Carolina schools have lacked stable and sufficient funding for coordinated school health services.[62,63] Increasing access to social, emotional, and behavioral health services; positive and supportive school climates; family engagement; and nutrition services through sustained funding would play a critical role in addressing mental health needs that existed prior to, and have been exacerbated by, the COVID-19 pandemic.

Learning Loss and Future Economic Consequences

Results from a 2022 NCDPI report examining the overall impacts of the COVID-19 pandemic on schools in North Carolina indicated that there was a negative learning impact for all students in all grades in nearly every academic subject due to COVID-19-related closures and remote learning.[64] Students of all races/ethnicities were negatively impacted by the gaps in instructional time and remote learning, but pre-existing disparities have increased. Gaps also widened for economically disadvantaged students,[64] who are less likely to receive tutoring outside of school due to cost.

The current gaps in learning could have significant future economic consequences for individuals and the state. A recent (2021) report from the Urban Institute utilized longitudinal data and predicted that there will be a widening gap in earnings between low-income students and their higher-income peers.[65] One study suggests that a student impacted by COVID-19 learning loss may earn $49,000 to $61,000 less over their lifetime.[66] Providing increased instructional support to address this learning loss will be critical to mitigate these potential economic effects of learning loss. Frequent,

high-quality tutoring and consistent summer remediation are evidence-based approaches[67,68] that the task force highlighted as potential ways to address learning loss.

RECOMMENDATION 9.3

Ensure access to social, emotional, and physical health resources in K–12 Public School Units (PSU).

Strategy 9.3a: To provide access to mental and behavioral health support services, the North Carolina General Assembly should provide funding to improve ratios of Specialized Instructional Support Personnel (SISP)—including nurses, counselors, psychologists, and social workers—to students.

Strategy 9.3b: The North Carolina General Assembly should provide funding for a statewide coordinator for the Child and Family Support Team (CFST) initiative for technical assistance and data collection for existing CFST programs and to help expand the CFST across the state.

Strategy 9.3c: North Carolina philanthropic and community-based organizations should provide ongoing funding and technical assistance for training and practices that can be incorporated into PSU Improvement Plans for Social Emotional Learning and School Mental Health.

STRATEGY 9.3a

Provide funding to ensure adequate mental and behavioral health support services for students.

To provide access to mental and behavioral health support services, the North Carolina General Assembly should provide funding to improve ratios of Specialized Instructional Support Personnel (SISP)—including nurses, counselors, psychologists, and social workers—to students.

DESIRED RESULT

Strategy 9.3a aims to expand access to physical, social, emotional, and mental health prevention, intervention, and transition[69] for K–12 students enrolled in Public School Units (PSU), which include local education agencies and charter schools.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force identified sustained funding for PSU to hire SISP (nurses, counselors, psychologists, and social workers) to achieve a ratio more closely aligned with national recommendations as an important strategy for addressing the mental, behavioral, and physical health needs of students. SISP provide critical services in schools, including 1) supporting physical and mental health; 2) contributing to a positive school climate; 3) working with instructional staff to ensure students have the academic support and accommodations they need; and 4) helping students explore careers and extracurricular interests.[70] When there is an adequate ratio of SISP in schools, SISP are able to provide support and a team-based approach to the needs of individual students and their families.[70] North Carolina has lagged behind national standards for SISP-to-student ratios for decades.[71–73] Although ratios have improved, SISP are often shared between multiple schools and/or responsible for providing services to thousands of students.[71]

Table 1. Specialized Instructional Support Personnel (SISP) Ratios[74]

SISP ROLE	CURRENT RATIO IN NORTH CAROLINA PSU (SISP role to students)	NATIONALLY RECOMMENDED RATIO (SISP role to students)
SCHOOL COUNSELORS	1 : 335	1 : 250
SCHOOL NURSES	1 : 890	1 per school
SCHOOL SOCIAL WORKERS	1 : 1,025	1 : 250
SCHOOL PSYCHOLOGISTS	1 : 1,815	1 : 500

Source: Nichols A, Essick E. Specialized Instructional Support. In: Child Fatality Task Force. ; 2022. https://www.ncleg.gov/DocumentSites/Committees/NCCFTF/Presentations/2021-2022/Combined slides full CFTF 2-7-22.pdf.

ADDITIONAL CONTEXT

The rise of school shootings during the COVID-19 pandemic and over the past two decades[75,76] has highlighted the need to provide students with a positive school climate, address gaps in mental health services, and decrease isolation for students.[77] SISP are uniquely qualified to identify students in crisis and provide and connect them to mental health services. Teachers and other instructional staff often refer students to SISP for urgent and necessary support services, and if SISP have their time divided between two or more schools, it may be difficult to create the trust and relationships needed with students and between school professionals.[78]

Forty million dollars in Governor's Emergency Education Relief (GEER) funding was appropriated to all PSU to hire up to 500 additional nurses, counselors, social workers, and psychologists (SISP) as a means to provide students with increased physical, mental health, and academic support.[79] However, the $40 million allotted is non-recurrent funding, which may lead to the elimination of the increased SISP positions once those funds are expended.[80] Sustained, recurrent funding is needed to increase the amount of SISP in schools.

STRATEGY 9.3b

Support the Child and Family Support Team in providing technical assistance and data collection in PSU.

The North Carolina General Assembly should provide funding for a statewide coordinator for the Child and Family Support Team (CFST) initiative for technical assistance and data collection for existing CFST programs and to help expand the CFST across the state.

DESIRED RESULT

Funding a statewide coordinator position for the CFST would provide oversight for the over $13 million currently allocated to CFST,[81] collect data for evaluation of the programs across the state to determine and share best practices, and provide technical assistance to expand the CFST in additional PSU.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force identified the need for schools to provide greater support for families, especially given the hardship that remote learning and the pandemic itself placed on students and families.[82] CFST is a school-based program that has existed since 2006 and places nurse-social worker teams in schools in local education agencies (LEAs) in counties across the state. The teams are charged with identifying and supporting students who are at risk for academic failure or out-of-home placement.[83]

The CFST is an important addition to other SISP in schools; the nurses and social workers employed under the CFST program are dedicated to those teams and are not meant to be assigned to any additional responsibilities, and funding for this purpose is not meant to supplant other funding.[81] The CFST is grounded in system-of-care principles and is designed to collaborate with community partners, including the Department of Social Services, Local Management Entities, the Department of Juvenile Justice and Delinquency Prevention, local district courts, and local health departments.[84] This team-based model puts the family at the center of planning, delivery, and monitoring of services. While team membership varies, each team is required to include the family and the student, if age and developmentally appropriate.[83]

ADDITIONAL CONTEXT

At the height of funding for the CFST, 21 counties employed 100 nurse-social worker teams in 101 schools and provided funding for a statewide coordinator and evaluation. In 2010, reductions were made in the funding for the CFST, and only eight counties maintained their CFST; in 2011, the funding for a statewide coordinator position and evaluation was eliminated.[83]

STRATEGY 9.3c

Provide funding and technical assistance to PSU to promote student mental health and well-being.

North Carolina philanthropic organizations and community-based organizations should provide ongoing funding and technical assistance for training and practices that can be incorporated into PSU Improvement Plans for Social Emotional Learning and School Mental Health.

DESIRED RESULT

Partnerships between PSU and philanthropies and community-based organizations would enable schools to provide more comprehensive mental health training for staff and incorporate evidence-based strategies that are responsive to the needs of their local communities.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Each K–12 PSU is required to adopt and implement a plan for "promoting student mental health and well-being; assessing and improving upon the effectiveness of supports for the mental and social-emotional health and substance use needs of its students and staff,"[85] and staff are required to receive six hours of initial training and two additional hours annually.[86] North Carolina General Statute § 115C-376.5 requires these plans and subsequent training but does not provide funding for the training.[f]

North Carolina philanthropies and community-based organizations play a critical role in providing upstream strategies for whole-person health that are tailored to the needs of their communities.[87] PSU Improvement Plans for Social Emotional Learning (SEL) and School Mental Health (SMH) provide an opportunity for partnership on these upstream strategies. North Carolina philanthropies and community-based organizations have insight into the needs of their communities and serve as important connection points for wraparound services for students and staff.

ADDITIONAL CONTEXT

The pandemic shed a light on the social-emotional needs of teachers and school staff, and the stress of remote learning and delivery of services only compounded the existing stresses of these professions. According to a 2021 national survey, one in four teachers, and nearly half of Black teachers, stated they were likely to leave their jobs.[88] North Carolina has seen an average attrition rate of 8% over the last four school years,[89] and over the last decade, there has been a 35% decrease in enrollment in undergraduate education programs in the UNC System.[90] In July and August 2022, many North Carolina counties were reporting challenges in filling open teaching positions prior to the start of the school year, with some counties offering bonus pay to current teachers and those recruited to fill open positions.[91] Retaining highly qualified, experienced teachers will be critical to the academic recovery from COVID-19-associated learning loss. The effort to retain North Carolina teachers must incorporate supporting teachers' social-emotional and mental health, and assistance from North Carolina philanthropies and community-based organizations will be necessary to provide that support.

[f] *"Senate bill 476, § 115C-376.5 https://www.ncleg.gov/Sessions/2019/Bills/Senate/PDF/S476v6.pdf*

RECOMMENDATION 9.4

RECOMMENDATION 9.4

Address student learning loss caused or exacerbated by school closures and remote learning.

Strategy 9.4a: To provide increased support for students through one-on-one remediation and enrichment, the North Carolina General Assembly should provide funding to increase the amount of teacher assistants in Public School Units (PSU).

Strategy 9.4b: The North Carolina General Assembly and North Carolina county commissioners should provide increased funding to instructional and non-instructional staff for summer enrichment.

STRATEGY 9.4a

Support teaching assistants in PSU.

To provide increased support for students through one-on-one remediation and enrichment, the North Carolina General Assembly should provide funding to increase the amount of teacher assistants in Public School Units (PSU).

DESIRED RESULT

Providing increased funding for teacher assistants would provide more opportunities for all students to receive the tutoring and instructional support needed to address learning loss created and exacerbated by the COVID-19 pandemic.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Providing regular, ongoing tutoring during the school day is one of the most equitable and economical ways to address learning gaps caused by the COVID-19 pandemic,[92,93] but additional staff are necessary to provide that support. Tutoring in small groups or one-on-one during the school day, or immediately after or before the school day, is an evidence-based approach to addressing learning loss.[92,94] Teacher assistants can tutor students one-on-one or in small groups, provide informal observations around student performance, and conduct formal benchmark assessments.

ADDITIONAL CONTEXT

State funding for teacher assistants is "based on dollar allotments to each district based on the number of pupils in early grades," and districts use that funding to hire teacher assistants based on state salary schedules.[81,95] Over the past decade, the number of teacher assistants in North Carolina's PSU has steadily declined[96] due to funding cuts made during the Great Recession.[97] College-educated teacher assistants in a complementary role with certified teachers are effective at producing learning gain through tutoring.[67]

STRATEGY 9.4b

Support summer programs in PSU.

The North Carolina General Assembly and North Carolina county commissioners should provide increased funding for School Extension Learning Recovery and Enrichment programs in PSU, including increased bonuses to recruit instructional and non-instructional staff.

DESIRED RESULT

Increased funding for School Extension Learning Recovery and Enrichment programs and their staff will allow PSU to continue to address learning gaps exacerbated by the COVID-19 pandemic.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

To mitigate the impact of COVID-19 on student learning, the General Assembly passed a law in 2021 that required PSU to implement summer learning programs in order to address the learning needs of all students, and particularly those who are at risk for academic failure or not progressing toward grade promotion.[1,98] School Extension Learning Recovery and Enrichment programs (summer programs) offered by North Carolina PSU in 2021 were effective at recruiting students, and 86% of enrolled students were identified as at-risk. The end-of-program survey for the 2021 summer programs indicated that staffing for instructional and non-instructional staff was a significant challenge. The assessment data from the 2021 summer programs showed their effectiveness: 65% of students showed maintenance or improvement in reading and 66% showed maintenance or improvement in math.[98] Successful summer remediation and enrichment programs require early planning, robust staff hiring and training, hands-on activities, and curriculum targeted to meet students' learning needs.[93] Federal funds were utilized for the 2021–2022 summer programs,[99,100] but sustained, recurring funding will be necessary for them to continue.

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Effective partnerships are critical to the development and implementation of preparedness, response, and recovery plans that protect the health, safety, and well-being of North Carolinians during times of crisis. In the early months of the COVID-19 pandemic, representatives from local and state-level organizations had frequent meetings—over the phone or virtually, and often on a daily basis—to share information and updates from their agencies or sectors, or from within their communities, to promote collaboration and coordination. These partnerships also helped to promote sharing of technical expertise and skills across organizations, along with personal protective equipment (PPE) and other supplies and resources. At a time when support and resources from the federal government were limited or inaccessible, cross-sector collaboration and coordination bridged gaps and generated creative solutions to new and complex challenges presented by SARS-CoV-2. Although the COVID-19 pandemic continues as of the writing of this report, many partnerships established during the response will endure, providing new and ongoing opportunities to align around shared goals before, during, and after other public health emergencies.[1]

"Certainly, the COVID-19 pandemic will go down in history as one of the most significant public health challenges of our time. Responding to the uncertainty of the pandemic put public health officials, health care and human services providers, and people working in all service industries front and center in the response. Across the board, COVID-19 also elevated systemic racial disparities not only in health care access, but also in access to food, housing, education, and other pillars of a healthy life. Fortunately, countless individuals and institutions in North Carolina approach these challenges with a combination of innovative thinking and norm-breaking collaborations. These innovations and collaborations were born of necessity in the pandemic, but hold great promise for continued applications years into the future."[1] –Dr. Susan R. Mims, *North Carolina Medical Journal*

COVID-19 Response

In the first few months of the COVID-19 pandemic, federal agencies were slow to develop a coordinated national response, causing confusion about strategies for mitigating the spread of the virus that continue to persist.[2–4] As a result, state and local governments exercised their public health powers unevenly, leading to variation in the issuing of mask mandates, stay-at-home orders, and other mitigation measures throughout the pandemic.[3,5] High case rates, hospitalizations, and deaths in the United States, particularly in comparison with other industrialized nations, have been attributed to this lack of interjurisdictional coordination, along with other factors.[6]

Figure 1. Overview of the Early Months of the COVID-19 Pandemic Response[7]

- **January 9, 2020:** The World Health Organization (WHO) announces that a cluster of coronavirus-related pneumonia cases has been identified in Wuhan, China.
- **January 20, 2020:** The U.S. Centers for Disease Control and Prevention (CDC) announces plans to screen travelers for coronavirus at three airports: JFK International, San Francisco International, and Los Angeles International.
- **January 21, 2020:** The CDC confirms the first coronavirus case in the United States.
- **January 31, 2020:** The WHO declares a global emergency; the United States declares a public health emergency.
- **February 11, 2020:** In North Carolina, Governor Cooper establishes the COVID-19 Task Force to develop the state's preparedness plan and begin coordinating response efforts.[8]
- **February 25, 2020:** The CDC states that COVID-19 is nearing pandemic status.
- **March 10, 2020:** Governor Cooper issues Executive Order 116, declaring a state of emergency to allow state government agencies, nonprofits, and private sector partners to coordinate on the state's COVID-19 response, and activating the state's Emergency Operations Center (EOC).[a]
- **March 11, 2020**: The WHO declares that COVID-19 is a pandemic.
- **March 13, 2020:** President Trump declares COVID-19 a national emergency, unlocking federal funding to mitigate the spread of the disease.
- **March 14, 2020:** Governor Cooper issues Executive Order 117 to close K–12 schools statewide.[b]
- **March 17, 2020:** Governor Cooper issues Executive Order 118, which closes restaurants and bars for dine-in service, and makes unemployment benefits more widely available.[c]
- **March 23, 2020:** Governor Cooper issues Executive Order 120, closing K–12 public schools statewide through May 15, prohibiting mass gatherings of more than 50 people, and closing certain types of businesses.[d]
- **March 26, 2020:** The U.S. Senate passes the Coronavirus Aid, Relief, and Economic Security (CARES) Act, authorizing $2 trillion in aid to state and local governments, hospitals and health systems, and small businesses.
- **March 27, 2020:** President Trump signs the CARES Act into law. In North Carolina, Governor Cooper issues Executive Order 121 to implement a statewide stay-at-home order beginning March 30, 2020, through April 29, 2020, directing North Carolinians to stay at home except to visit essential businesses, exercise outdoors, or help a family member. Executive Order 121 also prohibits gatherings of more than 10 people and directs everyone to physically stay at least six feet apart from others.[e]

a Governor Cooper, Executive Order 116, https://governor.nc.gov/media/1750/open
b Governor Cooper, Executive Order 117, https://governor.nc.gov/media/1759/open
c Governor Cooper, Executive Order 118, https://governor.nc.gov/media/1760/open
d Governor Cooper, Executive Order 120,https://governor.nc.gov/media/1768/open
e Governor Cooper, Executive Order 121, https://governor.nc.gov/media/1774/open

The variation in official response across state and local jurisdictions also contributed to public perceptions that scientific experts and leaders had not reached a consensus about effective countermeasures to address the spread of SARS-CoV-2, raising highly nuanced questions that were difficult or impossible to definitively answer in the face of numerous uncertainties and information gaps. In response, some leaders acknowledged these uncertainties and attempted to provide answers that broadly applied to all groups, while others attempted to downplay the severity of the virus to reduce anxiety and offered reassurance that the situation was under control despite PPE and other supply shortages, rising case rates, and other widely publicized challenges.[9,10] The lack of clear, consistent, and coordinated communications (across all levels of government) facilitated the spread of misinformation around COVID-19 as the public searched for definitive answers and transparency from trusted messengers.[11] Low public confidence in the government, which can reduce adherence or willingness to accept public health mitigation measures, is another key factor in the disproportionate impact of the COVID-19 pandemic in North Carolina and throughout the United States.[12] **Chapter 6** (Data-Driven Decision-Making and Effective Communications with the Public) addresses the importance of effective communications in shaping public trust, transparent decision-making informed by reliable data, and the need for a robust public health infrastructure to support these goals. **Chapter 7** (Improving Access to Information and Services) includes recommendations from the task force to ensure the ability of all North Carolinians to receive essential communications and access services before, during, and after public health emergencies.

"This is the dark side of federalism: it encourages a patchwork response to epidemics. ...The defining feature of the U.S. response to COVID-19 therefore continues to be localized action against a threat that lost its local character weeks ago. The U.S. approach contrasts strikingly with those of South Korea and Taiwan, which have prevented widespread community transmission by rapidly implementing a centralized national strategy. Lacking strong federal leadership to guide a uniform response, the United States quickly fulfilled the World Health Organization's prediction that it would become the new epicenter of COVID-19."[3] – Haffajee & Mello, *New England Journal of Medicine* (2020)

An interim review of the state's response to the COVID-19 pandemic from January 2020 through December 2021 published by the North Carolina Department of Health and Human Services (NCDHHS) also cited the uncoordinated federal response and the collapse of the global supply chain as external challenges.[8] NCDHHS also recognized the state's chronically underfunded public health system, fragile health care safety net, high uninsurance rates, inadequate behavioral health services, and health and economic disparities in rural and historically marginalized communities as significant vulnerabilities.

"The lack of comprehensive federal guidance, particularly in the early days and months of the pandemic, made local efforts harder. When federal guidance did emerge, it was, at times, confusing. A slow and flawed COVID-19 national testing roll-out meant demand for tests quickly outpaced supply and manufacturers' ability to scale up production. ... At the same time, the federal government and the U.S. Congress acted quickly to ensure regulatory flexibilities, provide financial support, remove barriers to vaccine development, and ensure access to and payment for testing, treatment or vaccination. Civil servants at [the U.S. Department of Health and Human Services] HHS and other federal agencies provided essential research and information to their state counterparts. The Federal Emergency Management Agency (FEMA) worked to build supply stockpiles and provide both on-the-ground support and funding to states, including North Carolina."[8] – NCDHHS' Interim Review of the COVID-19 Response, January 2020 – December 2021 (p. 13)

Collaboration and Coordination to Address COVID-19 in North Carolina

In the absence of a coordinated federal COVID-19 response strategy, state and local leaders moved to address the pandemic by scaling up long-standing partnerships and forming new, cross-sector partnerships to meet the emergent and often unprecedented needs of communities across the state.

"Side-by-side coordination during disasters and training created access to capabilities that were not possible alone."[13] – Persia Payne-Hurley, North Carolina Emergency Management

Between March 10, 2020, and April 9, 2020, Governor Cooper issued 11 Executive Orders to enable the state's initial response to the COVID-19 pandemic (**Figure 1**).[8] Executive Order 116 declared a state of emergency, allowing state government agencies, in partnership with nonprofit and private sector organizations, to coordinate on the development and implementation of strategies to mitigate the spread of SARS-CoV-2. Executive Order 116 represented a critical recognition by the state of the high transmissibility of the virus and its potential to overwhelm health care and hospital systems, a situation that was occurring in several states experiencing surges in COVID-19 cases.[8] NCDHHS quickly partnered with the North Carolina Department of Public Safety's Division of Emergency Management (NCEM) to launch the state's response and worked closely together in the state's Emergency Operations Center (EOC) to secure necessary resources jointly. NCDHHS emphasized its partnership with NCEM, which was built on past collaboration between the agencies in response to hurricanes, as a key strength during the early months of the COVID-19 response. Existing relationships with health care and hospital systems across the state also supported effective collaboration and coordination with NCDHHS, NCEM, and other key partners.[8]

"Senior leaders from NCDHHS relocated to [NCEM] Emergency Management and worked out of conference rooms and makeshift office spaces and desks, separated to adhere to distancing requirements, for over a year to ensure effective and efficient collaboration. Heading into the pandemic North Carolina had both notable strengths to build on and daunting challenges as it faced the threat from SARS-CoV-2."[8]
– NCDHHS' Interim Review of the COVID-19 Response, January 2020 – December 2021

As part of their shared work, NCDHHS and NCEM coordinated with the National Guard to promote a unified statewide response and engagement with other state-level agencies, such as the State Board of Education, Department of Public Instruction (NCDPI), Department of Agriculture and Consumer Services (NCDA&CS), Department of Labor (NCDOL), and the Department of Transportation (NCDOT). NCDHHS and NCEM also collaborated and coordinated with local health departments, county officials, community and industry leaders, and other key perspectives and stakeholders to provide technical assistance, guidance, and other resources and support.[8]

Spotlight: Examples of Partnerships in North Carolina During the COVID-19 Pandemic

A number of partnerships emerged to address the unique challenges presented by the COVID-19 pandemic in North Carolina, several of which are described below:

- ***Regional Collaboration and Coordination in Western North Carolina:*** In March 2020, the Chief Medical Officers of hospitals in Buncombe and Henderson counties organized a weekly informal regional collaboration call to address the need for local support, information sharing, and pandemic planning. This collaboration included representatives from local health departments in the region, the medical director from the Cherokee Indian Hospital Authority, clinical/administrative leadership from other health system hospitals, Mountain Area Health Education Center, WNC Health Network, and Dogwood Health Trust. Partners focused on maximizing the availability of COVID-19 testing and PPE across the region, delivering resources to long-term care facilities, and implementing new patient care guidelines, facility visitation policies, and scarce resource allocation plans. As a result, partners were able to transfer patients between hospitals to ensure appropriate levels of care and prevent individual hospitals from becoming overwhelmed during the late 2020 surge in COVID-19 cases. This partnership also built trust between hospital leaders in the region and provided a forum in which partners were able to offer support to one another through challenging times.[1] WNC Health Network also brought regional partners together to form the WNC Health Communicators Collaborative, which focused on developing and implementing effective communication strategies to increase adherence with COVID-19 mitigation measures, such as masking and vaccination.[14,15]
- ***Hispanic/Latinx Populations:*** LATIN-19, which formed in March 2020 with the goal of advising and promoting Hispanic/Latinx community interests, represents a partnership between the Duke Pandemic Response Network, North Carolina Department of Health and Human Services' Historically Marginalized Populations Workgroup, Andrea Harris Social, Economic, Environmental, and Health Equity Task Force, Durham Recovery and Renewal Task Force, and the Duke Quality of Care Committee. Areas of focus for LATIN-19 included partnerships and outreach to improve access to COVID-19 testing and vaccinations, as well as addressing other drivers of health including housing, food, and transportation. As of August 2022, LATIN-19 continues to host weekly virtual meetings that are open to the public at which attendees can discuss challenges, needs, opportunities, and potential solutions to improve health and advance health equity.[16] LATIN-19 also engages in advocacy with key stakeholder groups, offers multilingual COVID-19 resources, and collaborates with LATIN-19 member organizations to build their capacity to achieve policy change through advocacy. Among many other successes, LATIN-19 has helped local health departments and state agencies publish COVID-19 data disaggregated by race and ethnicity to better understand impacts of the pandemic on historically marginalized communities.[16]
- ***Rural Populations:*** To address the challenges faced by rural communities across the state during the COVID-19 pandemic, the NC Rural Center, Foundation for Health Leadership and Innovation, Hometown Strong, North Carolina Area Health Education Centers, Governor's Office of Public Engagement, and North Carolina Department of Health and Human Services' Office of Rural Health partnered to form the North Carolina Rural Coalition Fighting COVID-19. Together, the Coalition offers rural-oriented tools, training, guidance, and messaging to trusted community leaders, such as county commissioners, health departments, faith-based leaders, business owners, and civic organization leaders. Since February 2021, the Coalition has hosted virtual meetings weekly, biweekly, or monthly that have helped to disseminate vital resources and messaging to rural communities.[16]
- ***Vaccine Distribution:*** Several partnerships have been formed in support of the state's COVID-19 vaccine distribution plan. The Healthier Together – Health Equity Action Network initiative represents a public-private partnership between the North Carolina Department of Health and Human Services and NC Counts to increase vaccine uptake among historically marginalized populations; Honeywell, Atrium Health, Tepper Sports and Entertainment, and the Charlotte Motor Speedway partnered with the North Carolina Department of Health and Human Services in the summer of 2021 to administer 1 million vaccinations at the Charlotte Motor Speedway, Bank of America Stadium, and other locations.[17,18]
- ***Research to Inform North Carolina's COVID-19 Response:*** In May 2020, the North Carolina General Assembly appropriated $29 million to the North Carolina Policy Collaboratory to research vaccines and treatment, community testing, prevention of COVID-19 transmission, economic impacts, mental and behavioral health impacts, and racial disparities facing communities across the state.[19] Partners involved in the Collaboratory worked closely with leadership at colleges and universities across the UNC system to develop research plans, solicit proposals, and award funding for projects aligned with the Collaboratory's funding priorities. Projects funded by the Collaboratory have focused on water and wastewater utilities as essential services, COVID-19 impacts on nursing homes and long-term care facilities, and impacts of the pandemic on Black families, among other research areas.[19–21]

The COVID-19 pandemic underscored the value of building and maintaining effective cross-sector partnerships to promote collaboration and coordination, as well as sharing technical expertise, skills, and resources to address gaps within individual agencies. To strengthen collaboration and coordination in anticipation of future public health emergencies, the task force recommends:

Recommendation 10.1
Strengthen emergency management infrastructure to support collaboration and coordination around emergency preparedness, response, and recovery.

Recommendation 10.2
Improve communications between local and state-level agencies to promote collaboration and coordination in the absence of a coordinated federal response strategy to guide response efforts.

Recommendation 10.3
Sustain and strengthen partnerships between school districts, local public health departments, and community partners.

The following organizations are responsible for implementing Recommendations 10.1–10.3:

- North Carolina General Assembly
- North Carolina Emergency Management
- North Carolina Department of Health and Human Services
  - Division of Health Service Regulation, Office of Emergency Medical Services
  - Division of Public Health
- Local health departments
- North Carolina Association of Local Health Directors
- North Carolina Healthcare Association
- North Carolina Medical Society
- Old North State Medical Society
- North Carolina Medical Group Management Association
- Western Medical Group Managers Association
- North Carolina Department of Commerce (NC Commerce)
- North Carolina Healthcare Facilities Association
- NC Chamber
- Philanthropic organizations
- State Board of Education
- School Health Advisory Councils
- PSU Offices of the Superintendent

RECOMMENDATION 10.1

To support collaboration and coordination between key partners at the state and local levels, a robust and resilient emergency management infrastructure must be in place. This infrastructure is critical, particularly in the absence of a coordinated federal response strategy, which was a key challenge during the height of the COVID-19 pandemic.

How is an emergency declared?

A declaration of emergency by the President in an affected state is required for access to federal emergency management funds. According to the Federal Emergency Management Agency (FEMA), requests for a declaration of emergency by the President must be made by the Governor of the affected state under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§ 5121-5207 (the Stafford Act) §401.[22,23] This requirement also applies to the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. The Republic of Marshall Islands and the Federated States of Micronesia are eligible to request a declaration and receive assistance through the Compacts of Free Association.

In North Carolina, the Governor can also declare an emergency under the Emergency Management Act (Chapter 166A),[f] which is intended to:

- Reduce vulnerability of people and property of this State to damage, injury, and loss of life and property.
- Prepare for prompt and efficient rescue, care, and treatment of threatened or affected persons.
- Provide for the rapid and orderly rehabilitation of persons and restoration of property.
- Provide for cooperation and coordination of activities relating to emergency mitigation, preparedness, response, and recovery among agencies and officials of this State and with similar agencies and officials of other states, with local and federal governments, with interstate organizations, and with other private and quasi-official organizations.

The Emergency Management Act also outlines the powers of the Governor, Secretary of Public Safety, and the Division of Emergency Management. Along with other duties, the Division of Emergency Management (NCEM) is responsible for coordinating the activities of all state agencies for emergency management, including "planning, organizing, staffing, equipping, training, testing, and activating and managing the State Emergency Response Team and emergency management programs."[f]

Overview of Emergency Management in North Carolina

Under the Emergency Management Act (Chapter 166A)[f] of the North Carolina General Statutes, the Governor delegates authority to the Secretary of the North Carolina Department of Public Safety (NCDPS) to direct and control operations upon a declaration of emergency as the State Coordinating Officer (SCO). As the SCO, the Secretary delegates responsibility to the Director of NCEM, who has authority and responsibility to respond to emergencies and disasters. NCEM also updates and maintains the North Carolina Emergency Operations Plan (NCEOP).

[f] *Chapter 166A, North Carolina Emergency Management Act, https://www.ncleg.net/enactedlegislation/statutes/html/bychapter/chapter_166a.html*

The NCEOP represents a "comprehensive framework of policy and guidance for state and local disaster preparedness, response, recovery and mitigation operations," and details the capabilities, authorities, and responsibilities of federal, state, local, and other public and private nonprofit organizations that comprise the State Emergency Response Team (SERT). Forms of assistance to be provided during times of crisis are outlined in the NCEOP according to the federal emergency support function (ESF) structure, which promotes interagency coordination in response to an incident.[24] The NCEOP also describes the responsibilities assigned to the eight SERT sections, which are collectively charged with ensuring that specific state and county-level needs are addressed:

1. SERT Public Information Section[25]
2. SERT Recovery Section[26]
3. SERT Operations Section[27]
4. SERT Planning Section[28]
5. SERT Logistics Section[29]
6. SERT Fiscal Section[30]
7. SERT Risk Management Section[31]
8. SERT Hazard Mitigation Section[32]

Each ESF is assigned a lead state agency, selected based on that agency's authorities, responsibilities, and capabilities within a particular area, along with an NCEM Office of Primary Responsibility (OPR). The assigned OPR coordinates activities between primary and support agencies, and the federal, state, and local emergency management structure.[27]

In alignment with the National Incident Management System (NIMS) model, emergency operations in North Carolina are "handled at the lowest level of government that can effectively respond and manage an incident," with each county having emergency management personnel trained and capable of responding.[27] Acknowledging that local resources and capabilities vary between rural and urban areas of the state, the NCEOP underscores that local jurisdictions can ask for assistance when needed by calling upon mutual aid agreements with neighboring counties. These agreements are designed to facilitate the flow of additional resources into the affected county, and state and federal resources are also available should local government resources become overwhelmed or exhausted.[27] It is important to note that each county maintains an emergency operations plan of its own, along with an emergency operations center staffed by these personnel when activated.

At the state level, NCEM operates three branch offices, two warehouses, and the state EOC, which is co-located at the North Carolina Joint Force Headquarters alongside the National Guard. Each branch office becomes a regional coordination center during an emergency, ensuring operational information sharing and resource coordination between counties within each region and the state. Commodities such as bottled water, tarps, non-perishable foods, and other supplies are stored in the two warehouses, which serve as staging areas where warehouse personnel can pick up and transport needed supplies via NCEM trucks or contracted carriers.[27] The National Guard strengthens the state's response to an emergency, providing "Mission Ready Packages, which are assembled response and recovery capabilities that are organized, developed, trained, and exercised prior to an emergency or disaster."[27]

Collaboration and Coordination with Businesses and Other Private Sector Partners

The NCEOP emphasizes the importance of collaboration and coordination with businesses and other private sector partners during an emergency response. With this goal in mind, the North Carolina Business Emergency Operations Center (BEOC)[27,33] is established as a "physical and virtual communications and operational hub for business and industry" during events that pose hazards to the state. The NCEOP also states that "private sector partners are incorporated into the SERT, capitalize on shared information in the response, recovery, preparation and mitigation phases of state emergency management," which helps to ensure their ability to "make strong operational decisions, prepare, continue or resume normal business operations as quickly as possible before, during and after an event." The collaboration and coordination activities with private sector partners as part of the BEOC are summarized below and described in additional detail in the NCEOP:

- **Private sector partners provide input, recommendations, and sector analysis to build capacity and resiliency across the state.**
- **Private sector partners collaborate, train, and exercise with the SERT on preparedness activities.**
- **Fulfillment of resource requests, which are delegated to private sector partners and coordinated through the BEOC to expedite the provision of support whenever NCEM is activated.**
- **Support coordination of private sector offers to rent, lease, or donate resources.**
- **Encourage mutual aid between private sector partners to maximize resources.**

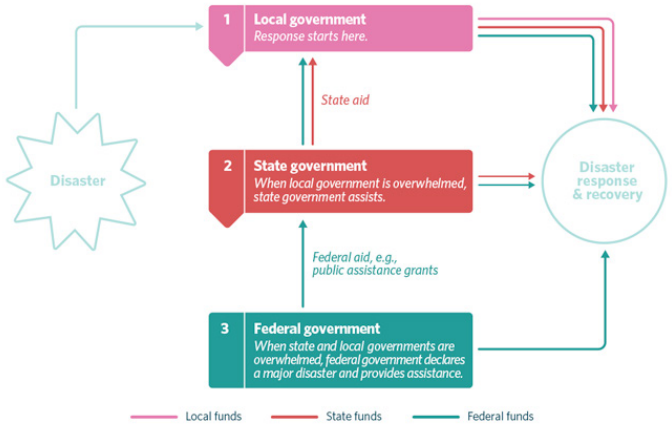
The NCEOP states that the mission of the BEOC is to promote situational awareness and information sharing to private sector organizations across the state during times of crisis, while also increasing support for the SERT. For more information, please refer to the NCEOP.[27]

The North Carolina Healthcare Preparedness Program (HPP), which was established in 2002 as a federally funded program, has been another critical component of the state's COVID-19 response.[34] Located within NCDHHS, HPP partners with health care and emergency response organizations to "prepare for, mitigate, and respond to and recover from emergencies and disasters affecting the residents and guests of North Carolina." HPP provides oversight to eight regional health care preparedness coalitions focused on strengthening health care preparedness, supporting continuity of operations, enhancing situational awareness, improving incident management, and augmenting medical surge capacity, a structure known as ESF-8.[34] HPP also serves on the SERT as the lead entity for disaster medical services under ESF-8. The responsibilities and capabilities of HPP include managing federal coordination

centers, supporting morgue capacity, leading state medical assistance teams, and providing infrastructure and logistical support, among other activities.

NCEM and HPP heavily rely on federal funding to support their activities, primarily through the Homeland Security Grant Program (HSGP) and the Emergency Management Performance Grant (EMPG) administered by the Federal Emergency Management Agency (FEMA).[35] Upon declaration of a national or state emergency by the President of the United States, NCEM can request reimbursement from FEMA for certain activities outlined by these programs. Funding streams to support emergency management activities, as well as the complex relationships between local, state, and federal government on response and recovery spending, are illustrated in **Figure 2**.

Figure 2. Sources of Emergency Response Funding



Notes: Funding flows are representative and reflect mainly post-disaster activity for a declared major disaster. They do not reflect funding amounts or the process for all federal and state programs. State and local funds include cost share payments related to federal programs.

Sources: Pew's analysis of information from J.T. Brown and D.J. Richardson, "FEMA's Public Assistance Grant Program: Background and Considerations for Congress" (2015), https://crsreports.congress.gov/product/pdf/R/R43990; U.S. Government Accountability Office, "Budgeting for Disasters: Approaches to Budgeting for Disasters in Selected States" (2015), https://www.gao.gov/products/GAO-15-424; Federal Emergency Management Agency, "FEMA Public Assistance Guide" (2007), http://www.fema.gov/pdf/government/grant/pa/paguide07.pdf

Source: Reprinted with permission from The Pew Charitable Trusts. Pew's analysis of information from J.T. Brown and D.J. Richardson, "FEMA's Public Assistance Grant Program: Background and Considerations from Congress." (2015).

The task force emphasized the need to ensure the capacity of NCEM and other critical partners to effectively collaborate and coordinate on emergency preparedness, response, and recovery activities. To strengthen emergency management infrastructure in support of this goal, the task force identified five strategies:

RECOMMENDATION 10.1

Strengthen emergency management infrastructure to support collaboration and coordination around emergency preparedness, response, and recovery.

Strategy 10.1a: The North Carolina General Assembly should explore opportunities to provide sustained, multi-year state appropriations to the North Carolina Department of Public Safety's Division of Emergency Management and the North Carolina Department of Health and Human Services' Healthcare Preparedness Program to ensure stable funding and reduce reliance on federal grant funds.

Strategy 10.1b: The North Carolina General Assembly should provide direct access to emergency funding to allow the North Carolina Department of Health and Human Services and local health departments to support ongoing COVID-19 response and recovery needs, such as vaccine administration, testing, communications and outreach, and protective equipment, once federal funds are no longer available for this purpose.

Strategy 10.1c: The North Carolina Department of Health and Human Services should expedite the establishment of the Office of Emergency Preparedness, Response, and Recovery to promote effective collaboration and coordination with North Carolina Emergency Management and leverage their successful partnership in the work of the State Emergency Response Team.

Strategy 10.1d: The North Carolina General Assembly should explore opportunities to provide sustained, multi-year state appropriations to the Office of Emergency Preparedness, Response, and Recovery in SFY 2024–2026.

Strategy 10.1e: North Carolina Emergency Management, the Office of Emergency Medical Services, and the Division of Public Health should define and update the roles and responsibilities of partnering entities outlined in the North Carolina Emergency Operations Plan and other preparedness plans based on input from partnering entities, which should be reviewed and signed by partnering entities annually.

STRATEGY 10.1a

Ensure stable funding to support emergency preparedness, response, and recovery.

The North Carolina General Assembly should explore opportunities to provide sustained, multi-year state appropriations to North Carolina Department of Public Safety's Division of Emergency Management and the North Carolina Department of Health and Human Services' Healthcare Preparedness Program to ensure stable funding and reduce reliance on federal grant funds.

DESIRED RESULT

Stable funding for key partners engaged in developing and implementing emergency preparedness, response, and recovery plans.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force emphasized that continuous funding for the North Carolina Department of Public Safety's Division of Emergency Management (NCEM) and the North Carolina Department of Health and Human Services' Healthcare Preparedness Program (HPP) is essential to improving the state's ability to prepare, respond, and recover from public health emergencies.[36,37] **Strategy 10.1a** is designed to provide stability to these agencies by reducing their reliance on federal grant funding to develop and implement emergency response plans.

Strategy 10.1a also recognizes that NCEM and HPP are central to emergency preparedness and response efforts in North Carolina, helping to coordinate activities between partners and provide technical assistance. Stable funding in the form of state appropriations will reduce reliance on federal grant funds, which may decrease or otherwise vary across fiscal years, and support NCEM and HPP in developing and implementing emergency response plans based on more predictable funding levels.

ADDITIONAL CONTEXT

The North Carolina General Assembly is the entity involved in **Strategy 10.1a.**

NCEM and HPP heavily rely on federal funding to support their activities, primarily through the Homeland Security Grant Program (HSGP) and the Emergency Management Performance Grant (EMPG) administered by the Federal Emergency Management Agency (FEMA).[35] Upon declaration of a national or state emergency, NCEM can request reimbursement from FEMA for certain activities outlined by these programs. FEMA may ultimately deny the reimbursement request, leaving the state to absorb unanticipated costs. Reimbursement processes may also be administratively burdensome and difficult to navigate.

STRATEGY 10.1b

Ensure direct access to state emergency response funds for the North Carolina Department of Health and Human Services.

The North Carolina General Assembly should provide direct access to funding to allow the North Carolina Department of Health and Human Services and local health departments to support ongoing COVID-19 response and recovery needs, such as vaccine administration, testing, communications and outreach, and protective equipment, once federal funds are no longer available for this purpose.

DESIRED RESULT

Direct access to emergency response funds to support the North Carolina Department of Health and Human Services in its ongoing efforts to address the COVID-19 pandemic.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

As the COVID-19 pandemic has continued, there has been a tremendous influx of federal funding to states for various aspects of response and recovery, as is detailed throughout this report. However, even as extensive planning and infrastructure have been implemented to allocate, monitor, and evaluate the use of federal relief funds, states including North Carolina acknowledge the expiration of these funding sources, and the need to have ongoing support from state legislatures for additional response and recovery needs. The task force recognized the need for dedicated response and recovery funding in the face of additional case surges, additional and potentially more severe virus variations, and even as COVID-19 is no longer considered a pandemic but continues to pose risk to individuals and communities in North Carolina.

ADDITIONAL CONTEXT

On July 11, 2022, Governor Cooper signed into law the 2022 Appropriations Act (Session Law 2022–74), which includes a section addressing disaster relief and COVID-19 recovery, mitigation, and resiliency.[9]

In addition, the North Carolina Institute of Medicine Task Force on the Future of Local Public Health is having ongoing discussions about the current structure, needs, and funding sources of local public health in North Carolina, including what is necessary for ongoing, robust, and dedicated outbreak response. The full recommendations for funding and infrastructure needs can be found in the task force report, available here: https://nciom.org/future-of-local-public-health-in-north-carolina/

State and local policymakers are also planning spending of federal funding according to deadlines for the appropriation and spending of these funds. For instance, funding from the American Rescue Plan Act must be appropriated no later than December 31, 2024, and the funds must be spent by the end of 2026.[38]

[9] *Session Law 2022-74, https://www.ncleg.gov/Sessions/2021/Bills/House/PDF/H103v5.pdf*

STRATEGY 10.1c-10.1d

Launch and sustain the Office of Emergency Preparedness, Response, and Recovery.

Strategy 10.1c: The North Carolina Department of Health and Human Services should expedite the launch of the Office of Emergency Preparedness, Response, and Recovery to promote effective collaboration and coordination with the North Carolina Division of Emergency Management and leverage their successful partnership in the work of the State Emergency Response Team.

Strategy 10.1d: The North Carolina General Assembly should explore opportunities to provide sustained, multi-year state appropriations to the Office of Emergency Preparedness, Response, and Recovery in SFY 2024–2026.

DESIRED RESULT

Timely launch of the Office of Emergency Preparedness, Response, and Recovery to formalize and strengthen the collaboration and coordination between the North Carolina Department of Health and Human Services, North Carolina Emergency Management, and their partners before, during, and after public health emergencies, along with funding to sustain this work beyond December 31, 2024.

WHY DOES THE TASK FORCE RECOMMEND THESE STRATEGIES?

The North Carolina Department of Health and Human Services and North Carolina Emergency Management have an extensive history of collaboration and coordination in their response to public health emergencies. The North Carolina Emergency Operations Plan outlines their roles, responsibilities, and other aspects of their partnership, but NCDHHS and NCEM remain separate entities.[39] The task force emphasized the forthcoming Office of Emergency Preparedness, Response, and Recovery as an important opportunity to create a well-supported bridge between these partners to encourage alignment. The Office of Emergency Preparedness, Response, and Recovery will rely initially on American Rescue Plan Act funds, which must be spent by December 31, 2024. **Strategy 10.1d** aims to ensure funding in the form of state appropriations to continue this work once American Rescue Plan Act funds have been spent.

ADDITIONAL CONTEXT

In April 2021, then North Carolina Secretary of Health and Human Services Mandy K. Cohen announced the department's plan to establish an Office of Emergency Preparedness, Response, and Recovery that will "bring together teams from across NCDHHS to prepare for, respond to, and recover from disasters and health emergencies affecting North Carolina, strengthening the department's partnership with the Division of Emergency Management at the Department of Public Safety."[40] This work was led by Deputy Secretary Kody H. Kinsley, who has since been appointed by Governor Cooper as Secretary of Health and Human Services following Dr. Cohen's departure in November 2021.

STRATEGY 10.1e

Ensure clear roles and responsibilities for all entities involved in the North Carolina Emergency Operations Plan.

North Carolina Emergency Management, the Office of Emergency Medical Services, and the Division of Public Health should define and update the roles and responsibilities of partnering entities outlined in the North Carolina Emergency Operations Plan and other preparedness plans based on input from partnering entities, which should be reviewed and signed by partnering entities annually.

DESIRED RESULT

Increased understanding of the roles and responsibilities of all entities involved in implementing the North Carolina Emergency Operations Plan to support interagency collaboration and coordination, along with improved internal planning among these entities.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force underscored the importance of providing entities involved in the state's emergency preparedness, response, and recovery efforts with clear roles and responsibilities that reflect their input and capabilities. The task force also underscored that these materials should be reviewed and updated frequently to ensure accuracy and promote ongoing discussion about opportunities for improvement.

ADDITIONAL CONTEXT

The North Carolina Department of Public Safety's Division of Emergency Management (NCEM) and two divisions within the North Carolina Department of Health and Human Services, the Division of Health Service Regulation's Office of Emergency Medical Services, and the Division of Public Health, are the entities involved in implementing **Strategy 10.1e**. The roles and responsibilities of entities involved in the State Emergency Response Team (SERT) are outlined in Annex A and subsequent appendices of the North Carolina Emergency Operations Plan.[41,27]

RECOMMENDATION 10.2

To promote collaboration and coordination between local and state-level agencies engaged in emergency preparedness, response, and recovery activities, the task force and its Communications, Misinformation, and Public Trust Work Group underscored the importance of effective communication. Effective communication ensures that plans are developed and implemented based on an informed understanding of the capabilities and resources of partnering agencies, along with the realities experienced by partners within their respective sectors and communities. To gain an informed understanding, key perspectives and experts in communities across the state must be identified, engaged, and meaningfully included—with compensation provided for their time and contributions—in emergency preparedness, response, and recovery activities.

"Pandemics and epidemics are most dangerous to those already at risk: people with underlying health conditions (caused, in part, by deeper racial, structural, and systemic inequities), and those who are members of marginalized communities without access to preventive care or health care services at their time of greatest need. As was seen in AIDS, SARS, and now COVID-19, responding to an evolving pandemic requires identification of and collaboration with those groups at greatest risk, who often lie outside the mainstream. Engagement with communities early on and throughout is critical, especially communities of color and other marginalized groups that require a public health response that is not channeled through discriminatory systems and structures and does not perpetuate inequities in the midst of crisis.... Community engagement and partnerships are at the heart and core of public health, are essential for achieving health equity, and are most dramatically needed during pandemics such as we now face."[42] – Michener, et al., *Engaging With Communities — Lessons (Re)Learned From COVID-19* (2020)

The meaningful inclusion of key perspectives and experts across a wide range of sectors can create invaluable opportunities to learn about the barriers and facilitators that can shape the uptake of strategies to protect health, safety, and well-being during times of crisis in North Carolina's communities. Engaging and partnering with communities in the development, implementation, and communication of public health strategies also serves to build trust within those communities.[42] In response, the task force and its Communications, Misinformation, and Public Trust Work Group recommend the following strategies to promote collaboration and coordination between local and state-level agencies:

RECOMMENDATION 10.2

Improve communications between local and state-level agencies to promote collaboration and coordination in the absence of a coordinated federal response strategy to guide response efforts.

Strategy 10.2a: North Carolina Emergency Management (NCEM), in partnership with the North Carolina Department of Health and Human Services, should convene local health departments and other partners on a quarterly basis to increase awareness and understanding of the role of NCEM in providing technical assistance and support during emergencies, the value of the incident command system, and the role of the forthcoming Office of Preparedness, Response, and Recovery.

Strategy 10.2b: Local health departments and/or regional coalitions should convene quarterly meetings with local businesses, community-based organizations, faith-based leaders, and other partners to strategize, develop, and update communication plans that can be leveraged before, during, and after public health emergencies.

Strategy 10.2c: The North Carolina Department of Health and Human Services, North Carolina Healthcare Association, North Carolina Medical Society, Old North State Medical Society, North Carolina Medical Group Management Association, Western Medical Group Managers Association, and philanthropic organizations should work together to identify sustainable funding sources to provide compensation to partners working in community-based organizations for their time, expertise, and contributions.

Strategy 10.2d: The North Carolina General Assembly should (1) provide additional state appropriations to support state and local public health infrastructure, including positions focused on community engagement, small business support, and partnerships, and (2) provide state appropriations to increase capacity among community-based organizations to engage and partner with local and state public health; the Departments of Commerce, Labor, and Agriculture and Consumer Services; Economic Development Partnership of North Carolina; and other organizations.

Strategy 10.2e: The North Carolina Department of Health and Human Services, North Carolina Association of Local Health Directors, North Carolina Emergency Management, North Carolina Department of Commerce, and NC Chamber should establish an advisory group charged with developing strategies to ensure the ongoing, sustainable inclusion of business and private-sector emergency management representatives in public health emergency preparedness, response, and recovery planning.

Strategy 10.2f: The North Carolina Department of Health and Human Services should (1) consider opportunities to strengthen the partnership between state and local public health and the Centers for Disease Control and Prevention (CDC) to increase awareness of resources and tools needed locally, regionally, and statewide, and (2) engage with entities receiving CDC funding to promote coordination.

STRATEGY 10.2a

Increase understanding of emergency management systems and processes among local health departments and other partners.

North Carolina Emergency Management, in partnership with the North Carolina Department of Health and Human Services, should convene local health departments and other partners on a quarterly basis to increase awareness and understanding of the role of NCEM in providing technical assistance and support during emergencies, the value of the incident command system, and the role of the forthcoming Office of Preparedness, Response, and Recovery.

DESIRED RESULT

Increased awareness of the technical assistance and support available to local health departments and their partners from NCEM, along with greater understanding of the incident command system and how it can strengthen response efforts during public health emergencies to improve coordination. Improved coordination between NCEM, NCDHHS, local health departments, and other community partners can strengthen partnerships between these entities, creating opportunities that can be leveraged by the forthcoming Office of Preparedness, Response, and Recovery.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force identified the need for increased awareness of the role of NCEM as a technical assistance and support provider, and the value of the incident command system (ICS) in promoting a standardized, coordinated response to emergencies. **Strategy 10.2a** is designed to ensure that local health departments, which are integral to county-level response efforts, are aware of state-level supports available from NCEM and prepared to adopt an ICS structure in the event of a public health emergency. **Strategy 10.2a** is also designed to increase awareness of the forthcoming Office of Preparedness, Response, and Recovery and resources that will be available as a result.

ADDITIONAL CONTEXT

Generally, an incident command system (ICS) allows local, state, and federal agencies to standardize and integrate their emergency response efforts. An ICS allows for flexibility and efficiency as various agencies respond to complex emergency situations.[43] In North Carolina, the state Emergency Operations Plan has adopted an ICS to effectively manage emergency response; the plan states that "these systems provide a rational model to prioritize and manage emergency operations in order for disaster response protocols to remain flexible." The ICS allows for the state to address the five critical mission areas when working on emergency preparedness and response: prevention, protection, response, recovery, and mitigation.[44]

Strategies 10.2b–10.2f were developed by the Communications, Misinformation, and Public Trust Work Group of the Carolinas Pandemic Preparedness Task Force.

The Communications, Misinformation, and Public Trust Work Group

The Communications, Misinformation, and Public Trust Work Group, which included 17 task force members and other key perspectives and experts representing multiple sectors, met three times between February and March 2022 to consider the communication challenges that were caused or exacerbated by the COVID-19 pandemic and develop recommendations and strategies to address these challenges. Chapter 6 (Data-Driven Decision-Making and Effective Communications with the Public) includes additional recommendations developed by the Work Group that are designed to strengthen the communications infrastructure and capabilities of state and local health departments. The following sectors and organizations participated in the Work Group:

- **State and Local Government: North Carolina Department of Health and Human Services, North Carolina Department of Public Instruction, Davidson County Health Department, Durham County Health Department, Granville-Vance County Health Department, Henderson County Department of Public Health**
- **Business: The Biltmore Company; Hanesbrands, Inc.**
- **Health Systems, Associations, and Providers: North Carolina Healthcare Association, Mountain Area Health Education Center, Western North Carolina Health Network**
- **Community Advocates and Representatives: North Carolina Council of Churches, North Carolina Community Engagement Alliance**

STRATEGY 10.2b

Convene quarterly meetings to provide a forum for open discussion and strategic planning.

Local health departments and/or regional coalitions should convene quarterly meetings with local businesses, community-based organizations, faith-based leaders, and other community partners to strategize, develop, and update communication plans that can be leveraged before, during, and after public health emergencies.

DESIRED RESULT

Ongoing, sustainable collaboration and coordination between local health departments, local businesses, community-based organizations, faith-based leaders, and other community partners in the development and implementation of communication strategies that are tailored to their respective audiences with the goal of maximizing the reach of evidence-based public health messages within communities.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The Communications, Misinformation, and Public Trust Work Group emphasized that community perspectives are critical in the development and implementation of public health messages, which must be tailored to the needs of target audiences to be effective. **Strategy 10.2b** promotes collaboration and coordination between diverse perspectives and experts in communities to better understand those needs and develop responsive communication plans. Ongoing, sustainable collaboration and coordination is critical to ensure that communication plans are updated regularly as community needs evolve and to consider new strategies for maximizing the reach of messages. **Strategy 10.2b** also recognizes that local health departments and regional coalitions, where they exist , are central to bringing these partners together to strategize effective, evidence-based public health messages. The Work Group underscored that the capacity of local health departments to serve in a convening role depends on the existence of a robust communications infrastructure as described in **Chapter 6**, as well as on sustainable funding focused on communications and collaborations.

ADDITIONAL CONTEXT

The North Carolina Institute of Medicine convened a Task Force on the Future of Local Public Health in 2021–2022. This task force also recognized the need for enhanced communications training, staffing, and infrastructure in local public health. Its recommendation, in a forthcoming report from the NCIOM, states: Strengthen capabilities and build trust to communicate effectively with diverse community members, media, and policymakers. Strategies outlined in the recommendation include building a community of practice to improve upon collaboration; developing a communication certification program in local public health; and investing in a robust local public health communications framework to better utilize trusted messengers to raise awareness about the role of public health.

Local Public Health in North Carolina

North Carolina has a decentralized local governmental public health system with 86 local health departments serving 100 counties, each governed locally rather than at the state level. There are six district health departments throughout the state that serve two or more counties. Each health department is served by a health director and their staff, and is responsible for essential public health services codified in state statute. The Eastern Band of Cherokee Indians has responsibility for public health services within the Qualla Boundary in Western North Carolina and works with health departments serving counties that border Tribal land. In addition, health departments often collaborate for regional initiatives to enhance and expand their reach while also maximizing resources.

Local health departments fund their work from a variety of sources, such as federal, state, and local appropriations; health insurance payments for services provided; grants; fees; and donations. Of these sources, local health departments rely heavily on local, state, and federal funds, which vary widely across the state.

Along with local and state health departments, public health in North Carolina is served by a variety of essential partners, such as other governmental agencies, nonprofits, community organizations, faith institutions, businesses, schools and academic institutions, and philanthropies.

Source: North Carolina Institute of Medicine, Report from the Task Force on the Future of Local Public Health, Morrisville, NC: Ahead of Print www.nciom.org/publications/

STRATEGY 10.2c

Provide compensation to community-based organizations and community partners for their time, expertise, and contributions.

The North Carolina Department of Health and Human Services, North Carolina Healthcare Association, North Carolina Medical Society, Old North State Medical Society, North Carolina Medical Group Management Association, Western Medical Group Managers Association, and philanthropic organizations should work together to identify sustainable funding sources to provide compensation to partners working in community-based organizations, including consumers, patients, and people with relevant lived experiences, for their time, expertise, and contributions.

DESIRED RESULT

The identification of sustainable funding sources to ensure that partners working in community-based organizations in order to provide diverse and important perspectives are adequately compensated for their time, expertise, and contributions with the goal of ensuring their ability to continue to work alongside the North Carolina Department of Health and Human Services and health care systems and professional associations across the state. Promoting ongoing collaboration between state, regional, and local partners would serve to strengthen coordination during times of crisis, which is essential in the absence of a coordinated federal response strategy.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force recognized that the thoughtful and intentional inclusion of consumers, patients, and others with lived experiences provides invaluable insight into the perspectives and needs of the groups they represent. During the COVID-19 pandemic, community partners have also supported communication strategies, helped to deliver public health messages as trusted messengers, and addressed questions and concerns that have arisen within their communities, which has helped to reduce the impact of misinformation. **Strategy 10.2c** aims to bring NCDHHS and representatives from health care associations across the state together to identify sustainable funding sources to enable the compensated inclusion of key community-level perspectives in state and regional initiatives before, during, and after public health emergencies.

ADDITIONAL CONTEXT

The North Carolina Department of Health and Human Services, the North Carolina Healthcare Association, North Carolina Medical Society, Old North State Medical Society, North Carolina Medical Group Management Association, Western Medical Group Managers Association, and philanthropic organizations are the entities involved in **Strategy 10.2c**.

Over the course of the pandemic, many initiatives aimed at building partnerships with state and local agencies and community organizations arose in order to combat misinformation, identify priority strategies for reducing risk of infection and death, and provide needed services, such

as increased testing and vaccine distribution, in an equitable way. For example, Healthier Together: Health Equity Action Network is a public private partnership between NCDHHS and the NC Counts Coalition that aims to increase the number of Black, Indigenous, and People of Color (BIPOC) and other members of historically marginalized populations who receive COVID-19 vaccinations across the state. Funded by federal COVID-19 relief dollars, Healthier Together works with organizations led and supported by BIPOC communities to increase vaccine access in these communities through outreach, education, vaccine events, and assistance with scheduling, transportation, and interpretation needs. The initiative also provides grants directly to community-based organizations to work on these goals within their communities. According to NCDHHS, "as we move from COVID-19 response to recovery, we will extend this program's infrastructure as a foundation for a longer-term framework for health equity."[45] The task force recognized the importance of sustainable funding for building such partnerships between government and other organizations, as well as the need for funding directly to these organizations to ensure that strategies are driven by community identification of assets, strengths, and challenges.

NCDHHS also designed the NC Community Health Worker (CHW) Program and Support Services Program (SSP) to provide an equitable coordination of services, including social services and material goods, that individuals with COVID-19 may need while ill and isolating or in quarantine. As cases rose in the spring and summer of 2020, and disparate impacts across historically marginalized communities were identified, the CHW and SSP program were linked through a technology platform, allowing community health workers to act as resource navigators, connecting those in need with support services programs. Implementers of the program have identified "building on local capacity, trusted partners, and longstanding relationships," as well as the prioritization of "historically marginalized populations in program design, implementation, and ongoing monitoring," as key to the success of the program. Sustaining an infrastructure for compensated partnerships can help ensure that this and other programs are able to maintain these goals.[46]

STRATEGY 10.2d

Provide funding to support community engagement and partnerships in order to support meaningful inclusion of key community perspectives.

The North Carolina General Assembly should (1) provide additional state appropriations to support state and local public health infrastructure, including positions focused on community engagement, small business support, and partnerships, and (2) provide state appropriations to increase capacity among community-based organizations to engage and partner with local health departments; the Departments of Health and Human Services, Commerce, Labor, and Agriculture and Consumer Services; the Economic Development Partnership of North Carolina; and other organizations.

DESIRED RESULT

Expanded capacity among state and local health departments to meaningfully engage and partner with community-based organizations, small businesses, and other key partners, as well as funding to provide compensation to community partners for their time, expertise, and contributions. Please also see final report from the Task Force on the Future of Local Public Health for additional recommendations and context on local public health funding, available at www.nciom.org/publications/

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force identified the need for additional state appropriations to ensure that NCDHHS and local health departments have dedicated staff focused on community engagement, small business support, and building and maintaining cross-sector partnerships in communities as part of a robust public health infrastructure. The task force also identified the need for additional state appropriations to ensure that community-based organizations and other key partners in communities (including consumers of services and/or persons with lived experience) have the capacity to work with state and local entities before, during, and after public health emergencies.

STRATEGY 10.2e

Establish an advisory group to ensure the inclusion of business and private-sector emergency management representatives in preparedness, response, and recovery planning.

The North Carolina Department of Health and Human Services, North Carolina Association of Local Health Directors, North Carolina Emergency Management, North Carolina Department of Commerce, and NC Chamber should establish an advisory group charged with developing strategies to ensure the ongoing, sustainable inclusion of business and private-sector emergency management representatives in public health emergency preparedness, response, and recovery planning.

DESIRED RESULT

The meaningful inclusion of business and private sector emergency management representatives in public health emergency preparedness, response, and recovery planning to promote alignment and increased understanding of needs and priorities.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The task force and the Communications, Misinformation, and Public Trust Work Group both elevated the need for business representatives to be meaningfully and sustainably included in public health emergency preparedness, response, and recovery planning. To achieve this goal, both groups encouraged the formation of an advisory group to strategize the engagement and inclusion of business and private-sector emergency management perspectives in planning processes. The Work Group also described the Lowe's Emergency Command Center as an example of private sector emergency preparedness, response, and recovery planning, emphasizing this work as a potential opportunity for alignment with local and state-level agencies.[47]

ADDITIONAL CONTEXT

The North Carolina Department of Health and Human Services, North Carolina Association of Local Health Directors, North Carolina Emergency Management, North Carolina Department of Commerce, and NC Chamber are the entities involved in **Strategy 10.2d**.

During the pandemic, innumerable initiatives have aimed to ensure effective connection and partnerships between state agencies, health systems, and business interests. These collaborations have generally provided opportunities for cross-organization learning about the impacts of COVID-19—including from the impacts of mitigation strategies such as closures and of financial and material relief to businesses from federal and state sources. Initiatives such as the Business Pulse Survey, launched through the North Carolina Department of Commerce in partnership with the NC Works Commission and myFutureNC, with additional support from the Duke Energy Foundation, aim to understand the ongoing experiences of businesses, particularly with regard to conditions and staffing impacts.[48] Other state agencies, including NCDHHS and the North Carolina Pandemic Recovery Office, have coordinated with the NC Department of Administration's Historically Underutilized Business Office (HUB office) to ensure that historically underutilized small businesses have full access to economic recovery assistance and supports.[49]

However, the Work Group recognized the need for sustained and ongoing connection between business and policymakers, particularly during the development of emergency plans and mitigation policies at the beginning of, and throughout, a public health emergency. While recognizing efforts to alleviate economic and other impacts on businesses after they occur, the Work Group also encouraged state agencies to ensure the incorporation of business perspectives and leadership throughout the planning and implementation phases of emergency response.

STRATEGY 10.2f

Explore state-level opportunities to improve collaboration and coordination with entities outside of North Carolina.

The North Carolina Department of Health and Human Services should (1) consider opportunities to strengthen the partnership between state and local public health and the Centers for Disease Control and Prevention (CDC) to increase awareness of resources and tools needed locally, regionally, and statewide, and (2) engage with entities receiving CDC funding to promote coordination.

DESIRED RESULT

Improved collaboration and coordination between state and local health leaders and the CDC to increase awareness of North Carolina-specific needs at the federal level, along with improved engagement between entities receiving CDC funding outside of North Carolina to promote cross-state learning.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

The Communications, Misinformation, and Public Trust Work Group emphasized that the lack of a coordinated national response to the COVID-19 pandemic caused fragmentation and variation in state and local efforts to mitigate the spread of the virus in North Carolina and across the United States.[50] The Work Group also shared that throughout the pandemic, CDC guidance has often changed without adequate notice, making it difficult for states, counties, and cities to prepare for an influx of questions from the media and their communities around the interpretation and translation of new or revised guidance into practice. The task force noted that in some cases, this led to different counties or local health departments giving advice that conflicted with neighboring counties or state agencies. Work Group members noted that on several occasions, local health departments became aware of evolving CDC guidance when media outlets reached out for comment. **Strategy 10.2f** encourages the North Carolina Department of Health and Human Services, as the state's lead public health agency, to explore opportunities to strengthen communication between public health agencies across the state and the CDC in anticipation of future outbreaks of infectious disease and other public health emergencies.

> **"The U.S. government's structure meant that much of the pandemic response was left up to state and local leaders. In the absence of a strong national strategy, states implemented a patchwork of largely uncoordinated policies that did not effectively suppress the spread of the virus. This caused sudden, massive spikes of infections in many local outbreaks, placing enormous strain on health care systems and leaving no region untouched by the disease. 'Every district, every county, every state could make decisions and keep them to themselves,' [Dr. Monica] Gandhi says. 'And we just have uneven applications of public health recommendations in a way that I can't imagine any other country does.'"[51]** ***– Lewis T. How the U.S. Pandemic Response Went Wrong—and What Went Right—during a Year of COVID. Scientific American.***

ADDITIONAL CONTEXT

The North Carolina Department of Health and Human Services is the organization involved in **Strategy 10.2f**.[52] NCDHHS, in its Interim Response Report, noted that guidance received from the CDC was at times insufficient to guide how individuals and sectors should develop effective policies or make day-to-day decisions about risk and response. NCDHHS pointed to specific guidance it developed and distributed across sectors, including early care and education, K–12 schools, higher education, small and large businesses, and high-risk workplace settings, as well as individuals at higher risk. In the report, NCDHHS noted the lessons learned regarding this guidance, including the need for "concrete, specific advice that could support (stakeholders) in making hard calls."[53]

The Work Group also recognized the need for coordination on communicating this sort of guidance across local public health and other sectors. This aligns with recommendations from the 2021–2022 North Carolina Institute

of Medicine Task Force on the Future of Local Public Health, which has recommended several strategies to strengthen capabilities and build trust in order to communicate effectively with diverse community members, media, and policymakers. These strategies will serve to build the capacity of local public health to coordinate and effectively communicate messages across the state and within and between counties.[h]

RECOMMENDATION 10.3

RECOMMENDATION 10.3

Sustain and strengthen partnerships between school districts, local public health departments, and community partners.

Strategy 10.3a: The North Carolina General Assembly should amend § 115C-81.30(f) to define school health coordinators as employed by public schools and charter schools, also known as Public School Units (PSU), for the purposes of (1) providing support for any portions of the comprehensive health education programs for public and charter schools, (2) serving as liaisons between the local health department and public and charter schools, and (3) providing support for the policy recommendations that School Health Advisory Councils (SHACs) develop.

Strategy 10.3b: The North Carolina General Assembly should provide funding annually for dedicated school health coordinators for each PSU to carry out the responsibilities defined in Strategy 10.3a.

Strategy 10.3c: The State Board of Education should revise administrative code HSP-S-000 (The Healthy Active Children Policy) to require the following representation on School Health Advisory Councils: (1) the local public health department, (2) the office of the district's superintendent, and (3) the PSU school health coordinator.

STRATEGY 10.3a

Define the roles and responsibilities of school health coordinators to support their use by PSU.

The North Carolina General Assembly should amend § 115C-81.30(f) to define school health coordinators as employees of each PSU for the purposes of (1) providing support for of any portions of the comprehensive health education programs for public and charter schools, (2) serving as liaisons between the local health department and public and charter schools, and (3) providing support for the policy recommendations that School Health Advisory Councils (SHACs) develop.

DESIRED RESULT

Strategy 10.3a would allow for dedicated staff in PSU to foster communication and streamline collaboration between PSU, local public health departments, school health, NCDHHS, and local DHHS agencies.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Contact tracing and the coordination needed to facilitate COVID-19-related mitigation efforts required coordination between a variety of local public health and school staff personnel.[54] School nurses were responsible for facilitating a large portion of the NCDHHS toolkits for safe return to schools in 2020 and 2021,[55,56] including enforcing mask guidance and quarantine and isolation policies, but the average school nurse-to-student ratio in North Carolina is 1:890,[57] and nurses are often responsible for multiple schools (see **Chapter 9**: Addressing Disparities to Promote Whole-Person Health and Economic Stability).[58] Defining school health coordinators as standalone positions (not a school nurse or other school staff functioning as a coordinator) would enable greater coordination between PSU, local public health departments, school health, NCDHHS, School Health Advisory Councils, and local DHHS agencies. This coordination and collaboration would streamline communication around rapidly changing guidance during public health emergencies, reduce redundancies across state and local agencies, and provide a coordinated whole-person health effort in PSU.

Table 2.[59] Coordinated School Health

Coordinated school health is a statewide model that has been used by states including Tennessee to streamline school health programs at the local level and promote consistency in services available to students. In 2021, the Tennessee Department of Education published a report on coordinated school health that explains the value of this approach:

"Coordinating the many parts of school health into a systematic approach enables schools to:

- eliminate gaps and reduce redundancies across initiatives and funding streams;
- build partnerships and teamwork among school health and education professionals;
- build collaboration and enhance communication among public health, school health, and other education and health professionals in the community; and focus their efforts on helping students engage in protective, health-enhancing behaviors and avoid risky behaviors."[59]

[h] *North Carolina Institute of Medicine. Task Force on the Future of Local Public Health: Report from the Task Force. Ahead of print. 2022.*

ADDITIONAL CONTEXT

Since 2006, Tennessee has allocated tens of millions of dollars annually to coordinated school health in order to promote evidence-based practices designed to create healthy school environments.[59] School health coordinators in Tennessee assumed the following additional responsibilities to support the state's COVID-19 response: contact tracing and support in schools; collecting COVID-19 case counts in schools; reporting school case counts to health departments; interpreting state and national guidelines; communicating those guidelines with staff and families; and ordering and distributing PPE to schools.[59] In North Carolina, most of those responsibilities were added to the existing workload of administrators, teachers, school nurses, and other school staff.[54]

Since 2003, every school district has been required to establish a School Health Advisory Council (SHAC)[i] composed of individuals from the community who represent various health and education entities, including but not limited to medical professionals, social service agencies, community-based organizations, the faith community, governmental officials, and school staff. SHACs are responsible for identifying areas for growth related to school health based on needs assessments, but often require organizations, businesses, and community-based organizations that are not members of the SHAC to carry out the recommendations they develop.[60] School health coordinators could participate in their district's SHAC; foster and develop relationships with health-related leaders in the community through that participation on the SHAC; and work with community members to lead the change around policy recommendations developed by their SHAC.

STRATEGY 10.3b

Provide funding to support school health coordinators in each PSU.

The North Carolina General Assembly should provide funding annually for a dedicated school health coordinator for each PSU to serve as the liaison to the local public health department and oversee the recommendations provided by School Health Advisory Councils in support of Strategy 10.3a.

DESIRED RESULT

Recurring funding for dedicated school health coordinators in each PSU would enable **Strategy 10.3a**.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

Coordinated school health efforts in North Carolina have been funded by grants from philanthropies and the federal government for decades.[61] To sustain coordinated school health, state funds are needed to cover the salaries and benefits of staff dedicated to this purpose in each PSU.

STRATEGY 10.3c

Ensure representation from key perspectives on School Health Advisory Councils.

The State Board of Education should revise administrative code HSP-S-000 (The Healthy Active Children Policy) to require the following representation on School Health Advisory Councils: (1) the local public health department, (2) the office of the district's superintendent, and (3) the PSU school health coordinator.

DESIRED RESULT

Strategy 10.3c would allow SHAC meetings to serve as an important space for discussions, policy recommendations, and dissemination of information during public health emergencies. Partnerships between the primary decision-makers at the local level for school health would be established prior to any emergency that occurred.

WHY DOES THE TASK FORCE RECOMMEND THIS STRATEGY?

SHACs are composed of a variety of members, and SHACs were designed to have flexible membership requirements in order to be responsive to community needs.[60] Maintaining that flexibility but requiring representation from the local public health department, the office of the school district's superintendent, and the participation of the PSU school health coordinator would allow for the primary school health decision-makers to be involved in the policy recommendation process while gaining input from other community representatives on the SHAC. Representation from local public health and the office of the school district's superintendent would increase regular communication between both entities, strengthen school health partnerships, and decrease redundancy of efforts around school health.

[i] *North Carolina State Board of Education HSP-S-000, Healthy Active Children Policy, https://studylib.net/doc/10701099/north-carolina-state-board-of-education-policy-manual-pol*

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NORTH CAROLINA

Chapter 3: Building a Resilient Supply Chain

RECOMMENDATION 3.1

Ensure adequate personal protective equipment (PPE) and other supplies to protect the health and safety of the health care and frontline essential workforces.

Strategy 3.1a: The North Carolina Division of Emergency Management should conduct a study to assess emergency declarations and other local, state, and national-level processes or mechanisms (including but not limited to the Defense Production Act) that could help to (1) shift the distribution of PPE and other supplies and (2) ramp up the production of PPE and other supplies in North Carolina in response to needs. This assessment should also identify strategies to strengthen communication with procurement and purchasing offices and support their understanding of PPE and other supplies needed during public health emergencies.

Strategy 3.1b: The North Carolina Department of Health and Human Services should develop and regularly update a policy manual to establish guidelines for stockpiling and monitoring PPE and other health care supply levels in partnership with the North Carolina Healthcare Association, North Carolina Health Care Facilities Association, North Carolina Medical Society, North Carolina Nurses Association, North Carolina Medical Group Management Association, and Western North Carolina Medical Managers Association. This policy manual should include guidelines around the collection, interpretation, and reporting of data on PPE and other health care supply levels and the distribution of these supplies.

Strategy 3.1c: The North Carolina Department of Commerce, NC Chamber, North Carolina Nurses Association and other partners should work with hospitals and health systems to ensure the development of local infrastructure for PPE and other supplies in North Carolina.

Strategy 3.1d: The Office of State Budget and Management, in partnership with the North Carolina Department of Administration, should (1) survey North Carolina Department of Administration subcontractors that purchased and distributed PPE using CARES Act funding to assess the effectiveness of this model in streamlining PPE delivery to health care providers and facilities and (2) consider opportunities to modify procurement processes during public health emergencies based on the results of this assessment.

Strategy 3.1e: Building on the work outlined in Executive Order 143 and in the North Carolina Department of Commerce's Strategic Economic Development Plan for the State of North Carolina, the North Carolina Department of Administration should conduct an annual procurement planning survey to (1) identify local contracting opportunities for PPE and other needed supplies and (2) increase access to contracting opportunities for historically underutilized and other small businesses. The results of this survey should be publicly accessible and widely disseminated to support the North Carolina Department of Commerce, the North Carolina Pandemic Recovery Office, and other economic development partners in identifying and working to increase the manufacturing of PPE and other needed supplies locally.

Strategy 3.1f: The North Carolina Department of Commerce should partner with the NC Chamber and other economic development partners to consider opportunities to incentivize or otherwise encourage the formation of public and private sector partnerships to manufacture, purchase, or distribute PPE and other needed supplies in alignment with the North Carolina Department of Commerce's Strategic Economic Development Plan for the State of North Carolina.

Strategy 3.1g: The North Carolina Healthcare Association, NC Chamber, and partners at the Duke University School of Medicine, UNC Health Care System, ECU Health, Atrium Health Wake Forest Baptist, and other North Carolina health systems should establish an advisory group to study the challenges associated with verifying the quality of PPE purchased from new suppliers and develop a plan to ensure the provision of high-quality PPE to health care providers and frontline essential workers.

The following organizations are responsible for implementing the strategies included in Recommendation 3.1:

Public Safety

- North Carolina Division of Emergency Management

Health

- North Carolina Department of Health and Human Services
- North Carolina Healthcare Association
- North Carolina Health Care Facilities Association
- North Carolina Medical Society
- North Carolina Nurses Association
- North Carolina Medical Group Management Association
- Western North Carolina Medical Managers Association
- North Carolina health systems

Business

- North Carolina Department of Commerce
- NC Chamber
- Local businesses

Other

- Office of State Budget and Management
- North Carolina Department of Administration
- North Carolina Pandemic Recovery Office

Chapter 4: Improving Infrastructure to Promote Health, Safety, and Well-Being

RECOMMENDATION 4.1

Upgrade existing structures and construct new facilities with infection control measures in mind.

Strategy 4.1a: To reduce the spread of airborne pathogens among students, teachers, and school system employees, the North Carolina General Assembly should provide funding to (1) support ventilation upgrades and carbon dioxide (CO_2) monitoring in schools and (2) ensure proper ventilation and CO_2 monitoring in the construction of new school facilities in accordance with the recommendations for reducing airborne infectious aerosol exposure provided by the Centers for Disease Control and Prevention, Environmental Protection Agency, American Society for Heating, Refrigerating and Air-Conditioning Engineers, and the North Carolina Department of Health and Human Services.

Strategy 4.1b: The North Carolina Department of Public Instruction and the North Carolina Department of Health and Human Services' Occupational and Environmental Epidemiology Branch should work together to develop and provide ongoing guidance for school systems and state agencies to (1) understand the risk of exposure to airborne infectious aerosols based on carbon dioxide (CO_2) level monitoring and (2) identify effective strategies to reduce exposure and infection risk.

Strategy 4.1c: The North Carolina Department of Health and Human Services, North Carolina Society for Human Resource Management, Office of State Human Resources, and other private sector partners should work together to (1) establish minimum standards to reduce the risk of exposure to airborne infectious aerosols in workplaces and (2) evaluate and assess opportunities to provide incentives for employers and employees that implement additional evidence-based strategies to reduce the risk of exposure to airborne infectious aerosols in workplaces.

Strategy 4.1d: The North Carolina General Assembly should provide additional funding to the North Carolina Department of Public Safety to (1) upgrade heating, ventilation, and air conditioning (HVAC) systems to improve indoor air quality and reduce airborne infectious aerosol exposure in North Carolina prison facilities and (2) create a multidisciplinary team to provide infection control guidance and other forms of technical assistance to state prisons, county jails, and detention centers with the goal of promoting the health, safety, and well-being of justice-involved populations and staff.

Strategy 4.1e: North Carolina Emergency Management, North Carolina Office of Emergency Medical Services, North Carolina Healthcare Association, and other partners should work together to develop a plan to (1) ensure that existing assets can be quickly converted into mobile care units and (2) identify locations that would most benefit from the deployment of mobile care units during declared emergencies. This plan should consider the need for potential revisions to existing statutes to allow for payment for mobile services within and/or outside the context of declared emergencies.

The following organizations are responsible for implementing the strategies included in Recommendation 4.1:

State and Local Government

- North Carolina General Assembly
- North Carolina Department of Public Instruction
- North Carolina Department of Public Safety
- North Carolina Department of Health and Human Services
- North Carolina Department of Health and Human Services' Occupational and Environmental Epidemiology Branch
- Office of State Human Resources
- North Carolina Office of Emergency Medical Services

Public Safety

- North Carolina Department of Public Safety
- North Carolina Emergency Management

Health

- North Carolina Healthcare Association

Other

- North Carolina Society for Human Resource Management, private sector partners

Chapter 5: Strengthening the Health Care and Frontline Essential Workforces

RECOMMENDATION 5.1

Develop and implement an action plan to respond to urgent and long-term health care workforce needs.

Strategy 5.1a: The North Carolina General Assembly, North Carolina Department of Health and Human Services, and/or philanthropic organizations should provide sustained, ongoing funding to establish and resource the North Carolina Center on Workforce for Health. The work of the Center should include an assessment of staffing and resource allocation levels to understand workforce shortages, areas in which workload has exceeded capacity, and adequate staffing levels needed in the event of another COVID-19 surge or other public health emergency; and the identification and sharing of best practices to address these issues.

Strategy 5.1b: The Center on Workforce for Health should develop an action plan that focuses on: (1) recruitment and retention of the health care workforce, ensuring that provider and clinician perspectives are included in the development and implementation of this action plan; and (2) pathways into health professions and opportunities to strengthen the health care workforce pipeline.

Strategy 5.1c: The North Carolina Department of Health and Human Services should work with leadership of the forthcoming Center on Workforce for Health to identify areas of alignment between the Department's strategic plan and the research and analysis work of the Center.

Strategy 5.1d: The North Carolina Healthcare Association, North Carolina Healthcare Facilities Association, Association for Home & Hospice Care of North Carolina, North Carolina Medical Society, North Carolina Nurses Association, Old North State Medical Society, North Carolina Medical Group Management Association, and Western North Carolina Medical Managers Association should work with local coalitions and partners engaged in implementing the forthcoming Center on Workforce for Health to assess health care workforce shortages (including those facing hospitals, health systems, independent physician practices, long-term care, and other elements of the health care ecosystem in the state) and develop short, medium, and long-term solutions.

RECOMMENDATION 5.2

Assess workforce shortages and other needs of frontline essential workers to support continuity-of-operations planning.

Strategy 5.2a: North Carolina county commissioners should conduct a study of the issues facing the frontline essential workforce to understand shortages and requirements for ensuring continuity of operations in North Carolina's cities and counties during public health emergencies. This study should focus on water and wastewater management, solid waste services, emergency medical services, public safety, and other community-specific areas of interest.

Strategy 5.2b: The North Carolina Association of County Commissioners should provide guidance and technical assistance to county commissioners in their efforts to study issues facing the frontline essential workforce described in Strategy 5.2a.

Strategy 5.2c: The Office of Human Resources for the University of North Carolina system, Office of Human Resources for the North Carolina community college system, and North Carolina's independent colleges and universities should conduct a study to ensure adequate staffing levels for essential personnel.

RECOMMENDATION 5.3

Prioritize the health, well-being, and safety of the health care and frontline essential workforces.

Strategy 5.3a: The following entities should continuously evaluate evidence-based strategies to address burnout, compassion fatigue, and other mental and behavioral health needs—including but not limited to existing peer-to-peer support programs, support lines, and incentives to increase mental and behavioral health services available to workers—and consider opportunities for expansion of these strategies (see Strategy 5.3a for additional information).

Strategy 5.3b: The North Carolina Society for Human Resource Management, North Carolina Office of State Human Resources, and employers should develop and update policies and procedures to: (1) establish clear expectations and channels of communication between employees, managers, and human resources; (2) provide employees with tools and resources to manage stress and conflict; and (3) increase employee awareness of the resources available to help manage stress and conflict.

Strategy 5.3c: The North Carolina General Assembly should amend relevant statutes to include an add-on criminal charge or other penalty for harassment of a health care worker and/or frontline essential worker in relation to action(s) undertaken in furtherance of implementing one or more policies related to a state of emergency declared pursuant to G.S. 166A-19.20.

Strategy 5.3d: The North Carolina Department of Health and Human Services should convene representatives from the North Carolina Healthcare Association, North Carolina Association of Local Health Directors, North Carolina Medical Society, Old North State Medical Society, North Carolina Nurses Association, North Carolina Association of Physician Assistants, North Carolina Health Care Facilities Association, NC Chamber, North Carolina Department of Commerce, North Carolina Department of Public Safety, and the North Carolina Medical Group Management Association to develop and implement other strategies to protect health care and frontline essential workers from threats, harassment, and other forms of violence before, during, and after public health emergencies.

Strategy 5.3e: The UNC School of Government, North Carolina Institute for Public Health, North Carolina Public Health Association, and North Carolina Association of Local Health Directors should work together to address threats and harassment of the local public health workforce (see Strategy 5.3e for additional information).

RECOMMENDATION 5.4

Strengthen workforce recruitment and retention.

Strategies 5.4a–5.4d focus on retention and well-being of North Carolina's workforce across sectors and industries, while **Strategies 5.4e–5.4g** are designed to support recruitment of health care workers and pathways into the health care workforce in particular.

Strategy 5.4a: The North Carolina Department of Commerce, NC Chamber, North Carolina Society for Human Resource Management, the Office of State Human Resources, and Family Forward NC should work together to develop additional tools, resources, and guidance for employers on:

- Managing remote work and employees working remotely;
- Offering flexibility during public health emergencies and other crises, as well as developing strategies to improve employers' ability to offer flexibility to employees as a long-term strategy of promoting recruitment and retention; and
- Creating staff development and training opportunities that are accessible remotely, and strategies to support employers in pivoting to alternative methods of delivering staff development and training opportunities.

Strategy 5.4b: The North Carolina General Assembly should consider statewide approaches to paid sick leave to help workers maintain financial stability during public health emergencies, ensuring that paid sick leave can be used by workers when experiencing illness and when providing care to their loved ones.

Strategy 5.4c: The North Carolina Department of Commerce, NC Chamber, Economic Development Partnership of North Carolina, and other partners should study the potential impact of providing wage supports—such as retention bonuses, hazard pay, and other monetary rewards—to increase retention.

Strategy 5.4d: Hospitals across the state should establish policies and procedures to promote the inclusion of bedside clinicians and practitioners in decision-making processes.

Recruitment and Workforce Pathways

Strategy 5.4e: The North Carolina Department of Health and Human Services, in partnership with historically minority-serving institutions, should consider strategies to increase the accessibility and affordability of educational opportunities with the goal of improving diversity and economic stability across the health care workforce. Strategies should include (1) offering resources and supports for students applying to college who intend on taking health-related courses to advance their career or major in a health-related program, (2) expanding access to tuition assistance and paid internships, and (3) elevating existing opportunities focused on increasing diversity.

Strategy 5.4f: The North Carolina Area Health Education Centers should consider strategies to increase the accessibility and affordability of educational opportunities with the goal of improving diversity and economic stability across the health care workforce. Strategies should include promoting access to mentorship beginning in the middle grades.

Strategy 5.4g: University of North Carolina system schools, North Carolina's community colleges, and independent colleges and universities across the state should apply findings from **Recommendation 5.1** to the development of curricula, recruitment efforts, and other strategies of illuminating workforce pathways into health care.

RECOMMENDATION 5.5

Provide flexibility to health care workers to increase surge capacity during public health emergencies.

Strategy 5.5a: The North Carolina Medical Board, North Carolina Board of Nursing, North Carolina Healthcare Association, North Carolina Medical Society, North Carolina Nurses Association, Old North State Medical Society, North Carolina Medical Group Management Association, Western Medical Group Managers Association, and others should work together to (1) identify potential areas of flexibility for health care providers during declared public health emergencies and (2) consider criteria that must be met before flexibilities can be used by providers during declared public health emergencies.

Strategy 5.5b: The North Carolina General Assembly and/or Executive Order from the Governor should provide immunity from medical malpractice liability[12] and address other vulnerabilities associated with practicing under unusual circumstances to encourage providers who have met the criteria identified as part of **Strategy 5.5a** to exercise their flexibilities with the goal of increasing surge capacity.

The following organizations are responsible for implementing Recommendation 5.1-5.5:

State and Local Government

- North Carolina General Assembly
- North Carolina Department of Health and Human Services
- North Carolina Department of Public Instruction
- North Carolina Department of Public Safety
- Office of State Human Resources
- North Carolina Association of County Commissioners and county commissioners
- North Carolina League of Municipalities
- University of North Carolina School of Government

Health Care

- North Carolina Healthcare Association
- North Carolina Health Care Facilities Association
- Association for Home & Hospice Care of North Carolina
- North Carolina Medical Society
- Old North State Medical Society
- North Carolina Nurses Association
- North Carolina Academy of Physician Assistants
- North Carolina Association of Local Health Directors
- North Carolina Institute for Public Health
- North Carolina Public Health Association
- North Carolina Area Health Education Centers
- North Carolina Medical Group Management Association
- Western North Carolina Medical Managers Association
- National Alliance of Mental Illness North Carolina
- Hospitals and health care systems

Business

- North Carolina Society for Human Resource Management
- North Carolina Department of Commerce
- Economic Development Partnership of North Carolina
- North Carolina College Personnel Association
- NC Chamber
- Employers

Education

- North Carolina Association of Educators
- Office of Human Resources for the University of North Carolina and community college systems
- North Carolina's independent colleges and universities

Other

- Philanthropic organizations
- Other education, health care, mental, and behavioral health professional and advocacy organizations, including the North Carolina Early Childhood Foundation

Chapter 6: Data-Driven Decision-Making and Effective Communication with the Public

RECOMMENDATION 6.1

Advance equitable access to vaccines and therapeutics through data development.

Strategy 6.1a: The North Carolina General Assembly, North Carolina Department of Health and Human Services, local health departments, health systems, pharmacies, other health care providers, and community partners should ensure ongoing investment in data collection on vaccine distribution and uptake, including the collection of data disaggregated by race, ethnicity, age, gender, preferred language, geography (region, county, ZIP code, census tract, etc.), and other demographic characteristics to inform policies, procedures, and outreach strategies that promote equity and minimize disparities.

RECOMMENDATION 6.2

Strengthen state and local communications infrastructure and capabilities.

Strategy 6.2a: The North Carolina General Assembly and county commissioners should provide additional state and local appropriations to ensure that all local health departments have public health information officers and other staff with the majority of their time allocated to internal and external communications.

Strategy 6.2b: The North Carolina General Assembly and county commissioners should provide additional state and local appropriations to support community health workers and other trusted messengers in the community working in partnership with state and local public health to deliver targeted, accessible communications and increase community engagement.

RECOMMENDATION 6.3

Ensure the inclusion of key perspectives in the development, implementation, and evaluation of communication strategies.

Strategy 6.3a: The North Carolina Department of Health and Human Services and local health departments should continue to (1) engage and include community representatives and representatives from business, traditional, and social media and public relations; K–12 and higher education; and other key perspectives from targeted audiences in the development, implementation, and evaluation of communication strategies, and (2) conduct community listening sessions and message-testing sessions to inform communication strategies as part of their shared work.

Strategy 6.3b: The North Carolina Department of Health and Human Services should establish a statewide consortium with regional representatives from business, media and public relations, public health, health care systems, faith-based leaders, education, trusted community-level messengers, and other partners to (1) establish or strengthen trusting relationships, (2) strategize opportunities to promote consistent, collaborative messaging, and (3) develop recommendations around communicating data and scientific information.

The following organizations and entities are responsible for implementing the strategies described in Recommendations 6.1–6.3:

State and Local Government

- North Carolina Department of Health and Human Services
- North Carolina General Assembly
- County commissioners
- Local health departments

Health Care

- Hospitals and health systems
- Pharmacies
- Other health care providers

Other

- Community-based organizations
- Other community partners

Note: Additional recommendations were developed by the North Carolina Institute of Medicine Task Force on the Future of Local Public Health and supported by the Carolinas Pandemic Preparedness Task Force. Please see the final report from the Task Force on the Future of Local Public Health for additional details and information (www.nciom.org/publications).

Chapter 7: Improving Access to Information and Services: Broadband Infrastructure, Telehealth, and Remote Learning

RECOMMENDATION 7.1

Strengthen broadband infrastructure and improve digital equity.

Strategy 7.1a: The North Carolina Department of Information Technology should continue to work with private and public sector partners to strengthen broadband infrastructure, improve digital equity, and close the digital divide by:

1. Establishing and tracking performance measures to assess digital equity, support strategic planning to promote digital equity, and examine opportunities to use current performance measures more effectively.
2. Mapping initiatives and partnerships to promote coordination around efforts to assess and address gaps and needs across the state.
3. Partnering with NC Medicaid and commercial insurers to assess the effects of digital equity initiatives on utilization of telehealth services and resulting health outcomes.

RECOMMENDATION 7.2

Support ongoing access to clinically appropriate telehealth services and medications.

Strategy 7.2a: NC Medicaid should continue to track evidence-based service delivery offerings to expand clinically appropriate health care services for Medicaid beneficiaries.

Strategy 7.2b: NC Medicaid and private insurers should explore opportunities to build the capacity of health care providers to deliver telehealth services by improving digital literacy, offering additional administrative and technical support, and considering potential incentives for health care providers to expand access to telehealth services for beneficiaries.

RECOMMENDATION 7.3

Improve the transition to remote learning for school systems, teachers, students, and their families during public health emergencies.

Strategy 7.3a: The North Carolina Department of Public Instruction should evaluate existing one-to-one (1:1) computing initiatives to (1) assess their effectiveness and impact on student learning and (2) consider whether the 1:1 model should be pursued statewide based on the results of this evaluation.

Strategy 7.3b: The Digital Teaching and Learning Division within the North Carolina Department of Public Instruction should partner with public and charter schools, also known as Public School Units (PSU), faith-based organizations, and other community-based organizations to provide digital literacy training and technical assistance to parents and guardians. These organizations should share learnings from these trainings with MCNC (a technology nonprofit based in North Carolina) to inform MCNC's ongoing provision of direct technologies (connectivity, cybersecurity, and consulting) to PSUs.

The following organizations are responsible for implementing Recommendations 7.1 – 7.3:

- North Carolina Department of Information Technology
- North Carolina Department of Health and Human Services, NC Medicaid
- Commercial insurers and Centers for Medicaid and Medicare Services (CMS)
- North Carolina Department of Public Instruction
- MCNC
- Faith-based and other community-based organizations
- Foundations and other private funders

Chapter 8: Ensuring the Availability of Health Care Services

RECOMMENDATION 8.1

Ensure access to high-quality, low-barrier health care before, during, and after public health emergencies.

Strategy 8.1a: The North Carolina General Assembly should increase access to and utilization of health care services for uninsured residents.

Strategy 8.1b: NC Medicaid and private insurers should explore opportunities to relieve prior authorization requirements for prescription medications.

RECOMMENDATION 8.2

Ensure comprehensive and equitable access to diagnostic testing services.

Strategy 8.2a: State and local health departments should enhance coordination with and support for laboratory infrastructure to ensure efficient testing services and procurement of necessary materials.

Strategy 8.2b: Stakeholders should develop standards of care and ongoing implementation strategies that incorporate best practices from innovative approaches implemented during the COVID-19 pandemic. Health systems, state and local health departments, laboratory partners, employers, schools, higher education institutions, and community-based organizations should identify the most successful strategies that prioritized continued access to diagnostic testing services, particularly among historically marginalized populations and/or those most heavily impacted. Strategies may include use of community health workers, mobile testing units, school- and employer-based services, faith-based organizations, and other approaches.

The North Carolina Department of Health and Human Services, local public health departments, federally qualified health centers (FQHCs), higher education institutions, and other partners should continue and expand the convening of cross-sector work groups to identify, share, and plan implementation of best practices in improving access to testing services. Work groups should have an intentional and consistent focus on addressing and alleviating disparities and inequities in access to testing services. Participants should include health systems, community-based organizations, local public health leaders, and other community representatives.

RECOMMENDATION 8.3

Ensure comprehensive and equitable access to diagnostic testing services.

Strategy 8.3a: The North Carolina General Assembly, North Carolina county commissioners, the North Carolina Association of County Commissioners, and the UNC School of Government should provide ongoing financial and technical assistance support to sustain existing harm reduction programs, including syringe services programs and naloxone distribution, before, during, and after public health emergencies to reduce the risk of fatal and non-fatal overdose and infectious disease transmission.

Strategy 8.3b: NC Medicaid and private payers should explore opportunities to increase support for, and provide incentives to, providers offering low-barrier access to evidence-based treatment with buprenorphine and methadone to reduce the risk of overdose and improve outcomes for people who use drugs.

Strategy 8.3c: NC Medicaid and private insurers, the UNC Injury Prevention Research Center, community-based harm reduction programs, and other partners should strategize opportunities to increase access to evidence-based treatment with buprenorphine and methadone in alignment with federal guidance during public health emergencies.

For each of the above strategies, *support* should include financial resources to modify spaces, adjust staffing, or take other necessary actions to reduce exposure to infectious airborne aerosols while providing services.

RECOMMENDATION 8.4

Examine the impact of the COVID-19 pandemic on access to and utilization of health care services.

Strategy 8.4a: Academic research centers, including (but not limited to) the UNC Gillings School of Global Public Health, Sheps Center for Health Services Research, Wake Forest University Maya Angelou Center on Health Equity, Duke-Margolis Center for Health Policy, and others, should examine the impact and burden of missed or delayed health care during the COVID-19 pandemic. Subjects of study should include drivers of missed care, data on resumption of care, impact on health care costs, health outcomes, and projected disease burden. Policymakers should use study results to inform ongoing policies to improve access to preventive and acute care during a public health emergency

The following organizations are responsible for implementing Recommendations 8.1 – 8.4:

- North Carolina General Assembly
- North Carolina Department of Health and Human Services' Division of Health Benefits (NC Medicaid)
- Private health insurers
- Local health departments
- Federally qualified health centers
- Health systems
- Laboratory partners
- Higher education institutions
- Public School Units (PSU)
- Community-based organizations
- Employers

Chapter 9: Addressing Disparities to Promote Whole-Person Health and Economic Stability

RECOMMENDATION 9.1

Assess pandemic-driven impacts on economic stability to mitigate the impact of closures intended to promote public health.

Strategy 9.1a: The North Carolina Department of Commerce, NC Chamber, local chambers of commerce, the Economic Development Partnership of North Carolina, and other work groups created during the course of the pandemic should conduct assessments of the impact of county and state closure policies on small businesses, including short- and long-term financial stability, staffing needs, and ongoing business viability. State and local policymakers should use study results and ongoing input from the business sector to inform revisions of emergency response plans.

Strategy 9.1b: The North Carolina General Assembly, state agencies, community-based organizations, and philanthropic organizations should assess the impact of pandemic-driven closures on families and children, along with historically marginalized and vulnerable populations, such as persons involved in the justice system, individuals facing housing insecurity, and people who use drugs.

Strategy 9.1c: The North Carolina General Assembly, state agencies, community-based organizations, and philanthropic organizations should develop and implement policies to provide additional support and relief to alleviate ongoing impacts based on the results of the assessment described in **Strategy 9.1b**.

RECOMMENDATION 9.2

Ensure access to high-quality early childhood education.

Strategy 9.2a: The North Carolina Early Education Coalition, in partnership with the North Carolina Early Childhood Foundation, the Child Care Services Association, and the North Carolina Department of Health and Human Services Division of Child Development and Early Education should assess the impact of federal and state action to alleviate financial and staffing impacts of the COVID-19 pandemic on the early care and education industry and provide recommendations for ongoing support, including provisions and planning for emergency child care services.

Strategy 9.2b: Public and private employers should consider policies, such as wage support, additional paid leave, and on-site child care, that support families in obtaining high-quality and affordable child care.

RECOMMENDATION 9.3

Ensure access to social, emotional, and physical health resources in K–12 Public School Units (PSU).

Strategy 9.3a: To provide access to mental and behavioral health support services, the North Carolina General Assembly should provide funding to improve ratios of Specialized Instructional Support Personnel (SISP)—including nurses, counselors, psychologists, and social workers—to students.

Strategy 9.3b: The North Carolina General Assembly should provide funding for a statewide coordinator for the Child and Family Support Team (CFST) initiative for technical assistance and data collection for existing CFST programs and to help expand the CFST across the state.

Strategy 9.3c: North Carolina philanthropic and community-based organizations should provide ongoing funding and technical assistance for training and practices that can be incorporated into PSU Improvement Plans for Social Emotional Learning and School Mental Health

RECOMMENDATION 9.4

Address student learning loss caused or exacerbated by school closures and remote learning.

Strategy 9.4a: To provide increased support for students through one-on-one remediation and enrichment, the North Carolina General Assembly should provide funding to increase the amount of teacher assistants in Public School Units (PSU).

Strategy 9.4b: The North Carolina General Assembly and North Carolina county commissioners should provide increased funding to instructional and non-instructional staff for summer enrichment.

The following organizations are responsible for implementing Recommendations 9.1 – 9.3:

- North Carolina Department of Commerce
- NC Chamber
- Local chambers of commerce
- Economic Development Partnership of North Carolina
- Public and private employers
- North Carolina General Assembly
- North Carolina county commissioners
- The North Carolina Early Education Coalition
- North Carolina Early Childhood Foundation/Family Forward NC
- Child Care Services Association
- North Carolina Department of Health and Human Services' Division of Child Development and Early Education
- North Carolina Department of Public Instruction
- State agencies
- Community-based organizations
- Philanthropic organizations

Chapter 10: Promoting Collaboration and Coordination to Support Pandemic Preparedness, Response, and Recovery

RECOMMENDATION 10.1

Strengthen emergency management infrastructure to support collaboration and coordination around emergency preparedness, response, and recovery.

Strategy 10.1a: The North Carolina General Assembly should explore opportunities to provide sustained, multi-year state appropriations to the North Carolina Department of Public Safety's Division of Emergency Management and the North Carolina Department of Health and Human Services' Healthcare Preparedness Program to ensure stable funding and reduce reliance on federal grant funds.

Strategy 10.1b: The North Carolina General Assembly should provide direct access to emergency funding to allow the North Carolina Department of Health and Human Services and local health departments to support ongoing COVID-19 response and recovery needs, such as vaccine administration, testing, communications and outreach, and protective equipment, once federal funds are no longer available for this purpose.

Strategy 10.1c: The North Carolina Department of Health and Human Services should expedite the establishment of the Office of Emergency Preparedness, Response, and Recovery to promote effective collaboration and coordination with North Carolina Emergency Management and leverage their successful partnership in the work of the State Emergency Response Team.

Strategy 10.1d: The North Carolina General Assembly should explore opportunities to provide sustained, multi-year state appropriations to the Office of Emergency Preparedness, Response, and Recovery in SFY 2024–2026.

Strategy 10.1e: North Carolina Emergency Management, the Office of Emergency Medical Services, and the Division of Public Health should define and update the roles and responsibilities of partnering entities outlined in the North Carolina Emergency Operations Plan and other preparedness plans based on input from partnering entities, which should be reviewed and signed by partnering entities annually.

RECOMMENDATION 10.2

Improve communications between local and state-level agencies to promote collaboration and coordination in the absence of a coordinated federal response strategy to guide response efforts.

Strategy 10.2a: North Carolina Emergency Management (NCEM), in partnership with the North Carolina Department of Health and Human Services, should convene local health departments and other partners on a quarterly basis to increase awareness and understanding of the role of NCEM in providing technical assistance and support during emergencies, the value of the incident command system, and the role of the forthcoming Office of Preparedness, Response, and Recovery.

Strategy 10.2b: Local health departments and/or regional coalitions should convene quarterly meetings with local businesses, community-based organizations, faith-based leaders, and other partners to strategize, develop, and update communication plans that can be leveraged before, during, and after public health emergencies.

Strategy 10.2c: The North Carolina Department of Health and Human Services, North Carolina Healthcare Association, North Carolina Medical Society, Old North State Medical Society, North Carolina Medical Group Management Association, Western Medical Group Managers Association, and philanthropic organizations should work together to identify sustainable funding sources to provide compensation to partners working in community-based organizations for their time, expertise, and contributions.

Strategy 10.2d: The North Carolina General Assembly should (1) provide additional state appropriations to support state and local public health infrastructure, including positions focused on community engagement, small business support, and partnerships, and (2) provide state appropriations to increase capacity among community-based organizations to engage and partner with local and state public health; the Departments of Commerce, Labor, and Agriculture and Consumer Services; Economic Development Partnership of North Carolina; and other organizations.

Strategy 10.2e: The North Carolina Department of Health and Human Services, North Carolina Association of Local Health Directors, North Carolina Emergency Management, North Carolina Department of Commerce, and NC Chamber should establish an advisory group charged with developing strategies to ensure the ongoing, sustainable inclusion of business and private-sector emergency management representatives in public health emergency preparedness, response, and recovery planning.

Strategy 10.2f: The North Carolina Department of Health and Human Services should (1) consider opportunities to strengthen the partnership between state and local public health and the Centers for Disease Control and Prevention (CDC) to increase awareness of resources and tools needed locally, regionally, and statewide, and (2) engage with entities receiving CDC funding to promote coordination.

The following organizations are responsible for implementing Recommendations 10.1 – 10.3:

- North Carolina General Assembly
- North Carolina Emergency Management
- North Carolina Department of Health and Human Services
  - Division of Health Service Regulation, Office of Emergency Medical Services
  - Division of Public Health
- Local health departments
- North Carolina Association of Local Health Directors
- North Carolina Healthcare Association
- North Carolina Medical Society
- Old North State Medical Society
- North Carolina Medical Group Management Association
- Western Medical Group Managers Association
- North Carolina Department of Commerce (NC Commerce)
- North Carolina Healthcare Facilities Association
- NC Chamber
- Philanthropic organizations
- State Board of Education
- School Health Advisory Councils
- PSU Offices of the Superintendent

For a full list of recommendations from South Carolina Institute of Medicine and Public Health, please see Appendix B.

SOUTH CAROLINA

Public Health Infrastructure

PH 1. Fund increased workforce development and maintenance for the South Carolina Department of Health and Environmental Control.

PH 2. Evaluate opportunities to expand inclusion of community-based individuals and organizations in formal contagious disease outbreak planning and response efforts.

PH 3. Improve and expand communications channels between state agencies and local organizations to better reach and accommodate all South Carolinians.

PH 4. Follow evidence-based guidance at the state leadership level for preparation and response to contagious disease outbreaks.

PH 5. Provide funding to expand and sustain existing mobile models of public health delivery.

Data

DAT 1. Facilitate statewide participation in an interoperable Health Information Exchange to ensure frictionless portability of health information between all providers, clinical laboratories and public health officials in the state.

DAT 2. Utilize surveillance and projection data from validated modeling techniques designed for communicable disease transmission during contagious disease outbreaks.

Workforce

WF 1. Strengthen the health care workforce to combat shortages and ensure ongoing capacity to plan for and respond to contagious disease outbreaks.

- **WF 1a.** Scale health apprenticeship programs for high school students and recent high school graduates.
- **WF 1b.** Create a structured process to guide nursing students to smaller programs in the state if spaces for upper division classes in larger universities are unavailable.
- **WF 1c.** Increase the availability and sustainability of clinical site placements for future health science students and residents to combat workforce shortages.
- **WF 1d.** Identify, develop and implement mental health support programs for health workers.
- **WF 1e.** Continue to research and deploy alternative health care staffing models and explore technology solutions or partnerships to maximize or extend the capabilities of health professionals.

WF 2. Evaluate opportunities for community health workers to increase the capacity of the contagious disease response workforce.

WF 3. Better support the workforce that responds to contagious disease outbreaks.

WF 3a. Develop a statewide definition of essential workers to be used during contagious disease outbreaks.

WF 3b. Develop a plan to address burnout among essential workers during public health emergencies.

WF 3c. Ensure sustainability of continuing education for health and human service providers through virtual platforms during communicable disease outbreaks lasting longer than three months.

Education

EDU 1. Keep schools open during contagious disease outbreaks but develop the infrastructure and capacity to shift to virtual and hybrid learning as needed to prevent the interruption of education.

EDU 2. Evaluate and implement opportunities to improve scientific literacy in South Carolina from Pre-K through terminal degree programs.

EDU 3. Provide effective learning opportunities that protect medically vulnerable students and staff during contagious disease outbreaks.

Supply Chain

SPC 1. Use data-informed decision-making to ensure adequate, equitable maintenance and distribution of personal protective equipment.

SPC 2. Ensure the availability and sustainability of programs/organizations that provide food to those in need during contagious disease outbreaks.

SPC 3. Lift procurement restrictions to reduce bureaucratic burdens and increase efficiency during public health emergencies.

Health Care Delivery

HCD 1. Define, evaluate and implement standing orders for testing and vaccination during contagious disease outbreaks.

HCD 2. Refine and implement policies to protect those residing in congregate living settings during contagious disease outbreaks.

HCD 3. Redeploy the Virtual Grand Rounds Programs established in 2020 during future contagious disease outbreaks.

Behavioral Health

BH 1. Coordinate to develop, sustain and scale policies and programs that increase access to behavioral health services in South Carolina to ensure ongoing comprehensive care that is adaptable to public health emergencies.

BH 2. Continue to increase access to naloxone and/or other opiate antagonists to reverse overdoses.

Telehealth & Broadband

THB 1. Continue and scale efforts to provide broadband access to all South Carolinians.

THB 2. Enact policies that ensure that telehealth services expanded under COVID continue to be authorized to provide increased access to care and to prevent disruption of care during contagious disease outbreaks.

Additional information, background, and context for these recommendations can be found in the full report of the Task Force, "Lessons Learned from COVID-19: Contagious Disease Outbreak Planning and Response in South Carolina," available here: https://imph.org/press-release-imph-releases-report-and-recommendations-developed-by-s-c-experts-examining-lessons-learned-from-covid-19/

Issue Briefs: COVID-19 and the Carolinas: State Responses and Federal Legislation to Address the Crisis

Starting in April 2020, the North Carolina Institute of Medicine partnered with the South Carolina Institute of Medicine and Public Health to produce a series of resources to monitor state and federal actions to address the pandemic. Through April 2021, the partner organizations published four parts in this series tracking federal and state pandemic response in the Carolinas. All briefs in the series are available here: https://nciom.org/covid-19-and-the-carolinas-part-iv-state-responses-and-federal-legislation-to-address-the-crisis/

North Carolina Institute of Medicine Blog

Throughout the pandemic, NCIOM has published data and analysis about COVID-19 response, impact, and relation to other state health policy issues. Our blog can be accessed here: https://nciom.org/news/blog/

Pandemic-related blog posts include:

February 26, 2020 - What You Need to Know About COVID-19 (Coronavirus) https://nciom.org/what-you-need-to-know-about-covid-19-coronavirus/

March 1, 2020 - COVID-19 and Sick Leave Policies https://nciom.org/covid-19-and-sick-leave-policies/

March 13, 2020 - What the 2007 NCIOM Pandemic Flu Task Force recommendations can tell us about the ethics of handling COVID-19 https://nciom.org/what-the-2007-nciom-pandemic-flu-task-force-recommendations-can-tell-us-about-the-ethics-of-handling-covid-19/

March 23, 2020 - COVID-19 and the Digital Divide https://nciom.org/covid-19-and-the-digital-divide/

March 25, 2020 - COVID-19 and the Health Insurance Coverage Gap https://nciom.org/covid-19-and-the-health-insurance-coverage-gap/

March 27, 2020 - The Impact of COVID-19 on Unemployment and Health https://nciom.org/the-impact-of-covid-19-on-unemployment-and-health/
April 13, 2020 - COVID-19 and Health Disparities: Emerging Data Suggest African Americans are at an Increased Risk https://nciom.org/covid-19-and-health-disparities-emerging-data-suggest-african-americans-are-at-an-increased-risk/

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October 19, 2020 - North Carolina Submits COVID-19 Vaccination Plan https://nciom.org/north-carolina-submits-covid-19-vaccination-plan/

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December 7, 2020 - NC DHHS Provides an Update on COVID-19 Vaccines https://nciom.org/nc-dhhs-provides-an-update-on-covid-19-vaccines/

December 15, 2020 - Clinical, Financial, and Social Impacts of Foregone Care: 2020 NCIOM Annual Meeting https://nciom.org/clinical-financial-and-social-impacts-of-foregone-care-2020-nciom-annual-meeting/

January 5, 2021 - Use of Telemedicine to Increase Access to Maternal Health Care https://nciom.org/use-of-telemedicine-to-increase-access-to-maternal-health-care/

January 21, 2021 - New COVID-19 Vaccination Priorities Aim to Avoid Waste, Improve Speed & Equity https://nciom.org/new-covid-19-vaccination-priorities-aim-to-avoid-waste-improve-speed-equity/

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February 23, 2021 - Monitoring COVID-19 Impacts on Social Drivers of Health https://nciom.org/monitoring-covid-19-impacts-on-social-drivers-of-health/

March 11, 2021 - American Rescue Plan Act Provisions to Increase Access to Affordable Health Insurance https://nciom.org/american-rescue-plan-act-provisions-to-increase-access-to-affordable-health-insurance/

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May 25, 2021 - Update on the Work of the North Carolina Vaccine Advisory Committee https://nciom.org/update-on-the-work-of-the-north-carolina-vaccine-advisory-committee/

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June 28, 2021 - COVID-19 and Health Care Worker Burnout https://nciom.org/covid-19-and-health-care-worker-burnout/

July 12, 2021 - COVID-19's Complex Impact on the Deaf and Hard of Hearing Population https://nciom.org/covid-19s-complex-impact-on-the-deaf-and-hard-of-hearing-population/

August 2, 2021 - Strengthening Pandemic Preparedness and Building Resilience in the Carolinas https://nciom.org/strengthening-pandemic-preparedness-and-building-resilience-in-the-carolinas/

August 10, 2021 - Update on Vaccine Status and Virus Spread in North Carolina https://nciom.org/update-on-vaccine-status-and-virus-spread-in-north-carolina/

September 30, 2021 - COVID and North Carolina Kids: What's the Latest? https://nciom.org/covid-and-north-carolina-kids-whats-the-latest/

October 4, 2021 - Pt 2: COVID and North Carolina Kids: What's the Latest? https://nciom.org/pt-2-covid-and-north-carolina-kids-whats-the-latest/

November 9, 2021 - The Oncoming Nurse Workforce Shortage in North Carolina https://nciom.org/the-oncoming-nurse-workforce-shortage-in-north-carolina/

December 3, 2021 - Reducing Alcohol-related Harm for Individuals, Families, and Communities https://nciom.org/reducing-alcohol-related-harm-for-individuals-families-and-communities/

March 2, 2022 - North Carolina Department of Health and Human Services: COVID-19 Response Interim Review and Related Work from the NCIOM https://nciom.org/north-carolina-department-of-health-and-human-services-covid-19-response-interim-review-and-related-work-from-the-nciom/

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North Carolina Medical Journal

The *North Carolina Medical Journal* has dedicated several full issues, and many other articles, to the impacts of the pandemic on our state.

- COVID-19 and the Drivers of Health, January-February 2021; Volume 82, Issue 1. https://www.ncmedicaljournal.com/content/82/1
- Immunizing North Carolina, March-April 2021: Vol. 82, Issue 2. https://www.ncmedicaljournal.com/content/82/2
- 50 Years of Public Health in North Carolina, May-June 2021: Vol. 82, Issue 3. https://www.ncmedicaljournal.com/content/82/3
- Innovations Born of COVID-19, July/August 2021: Vol. 82, Issue 4. https://www.ncmedicaljournal.com/content/82/4

NCIOM Task Force on the Future of Local Public Health

The North Carolina Institute of Medicine's Task Force on the Future of Local Public Health in North Carolina developed a vision for the future of local public health in the state and recommendations to achieve that vision. This includes principles of health equity, leadership, connection between clinical services and population health, opportunities for targeted investments, public communication about the value of public health, and data integration to drive improvements in service delivery and outcomes.

The work of the task force took place in conjunction with a special initiative of the North Carolina Association of Local Health Directors (NCALHD) to improve the visibility and influence of public health as a critical part of the state's health care safety net infrastructure, supported by a grant from the Kate B. Reynolds Charitable Trust. The NCALHD will lead future action planning to implement task force recommendations with local public health departments, and additional partners may carry forward regional and state public health action planning, including policy development for consideration by the NC General Assembly. The full report of the Task Force on the Future of Local Public Health is available here: https://nciom.org/future-of-local-public-health-in-north-carolina/

Healthy North Carolina 2030

The Healthy North Carolina 2030 project brought together experts and leaders from multiple fields to inform the development of a common set of public health indicators and targets for the state over the next decade. These indicators serve as the population health improvement plan for the North Carolina Division of Public Health, an update to which was published in September 2022. With a focus on health equity and the overall drivers of health outcomes (health behaviors, clinical care, social and economic factors, and the physical environment), these indicators and targets will help drive state and local-level activities, provide a springboard for collaboration and innovation, and develop a new vision for public health in our state to improve the health and well-being of all people of North Carolina. The full report of Healthy North Carolina 2030 is available here: https://nciom.org/healthy-north-carolina-2030/

North Carolina Institute of Medicine

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