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North Carolina Institute of Medicine

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

Recommendations from the Carolinas Pandemic Preparedness Task Force

OCTOBER 2022

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.

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Credits:
Report design and layout: Kayleigh Creech, Laser Image Printing & Marketing

TASK FORCE AND WORK GROUP MEMBERS

CO-CHAIRS

Machelle Baker Sanders, MHA
Secretary
North Carolina Department of Commerce

Harris Pastides, PhD, MPH
Interim President
University of South Carolina

NORTH CAROLINA STEERING COMMITTEE

Cardra Burns, DBA, MPA, CLC
Deputy Secretary, Operational Excellence
North Carolina Department of Health and Human Services

Ellen Essick, PhD
Section Chief, NC Healthy Schools
North Carolina Department of Public Instruction

Kelly Fuller
Strategic Advisor to the President
NC Chamber

Tatyana Kelly
Vice President, Planning/Strategy & Member Services
North Carolina Healthcare Association

Lillian Koontz, MPA
Health Director
Davidson County

William Ray, MPH
Director and Deputy Homeland Security Advisor
North Carolina Department of Public Safety
Division of Emergency Management

Polly Welsh, RN – BC, MPH
Executive Vice President
North Carolina Healthcare Facilities Association

NORTH CAROLINA TASK FORCE MEMBERS*

Steve Ashworth
Owner
Ashworth's Clothing

Vicki Banks, MSL, SPHR, SHRM-SCP, CPSP
Senior Vice President
Human Resources and Government Relations
The Biltmore Estate

Michelle Bucknor, MD
Chief Medical Officer
UnitedHealthcare, Community & State

Lori Byrd, PhD
Associate Director
Academic Programs - Health Sciences
North Carolina Community Colleges

Lenora Campbell, PhD
Dean of the College of Health and Human Sciences
North Carolina A&T State University

Kimberly Clement, MPH
Program Manager, Health Preparedness Program
Office of Emergency Medical Services
Division of Health Services Regulation
North Carolina Department of Health and Human Services

Sam Cohen, JD, MPP
Senior Vice President, Health Policy
Curi

Jennifer Copeland, PhD, MDiv
Executive Director
North Carolina Council of Churches

Robin Gary Cummings, MD
Chancellor
University of North Carolina at Pembroke

Representative Carla Cunningham
District 106
North Carolina General Assembly

Tracy Doaks
President and Chief Executive Officer
MCNC
Board Member
North Carolina Telehealth Network Association

Andy Ellen, JD
President and General Counsel
North Carolina Retail Merchants Association

Natalie English
President and Chief Executive Officer
Wilmington Chamber of Commerce

Iris Green, JD
Supervising Attorney, Disaster Recovery Project
Disability Rights NC

Lynn Harvey
Chief, School Nutrition Services
North Carolina Department of Public Instruction

Jack Hoke
Executive Director
North Carolina School Superintendents Association

Lin Hollowell, MBA
Director, Health Care
The Duke Endowment

Ivy Jones, MPA
CHIP Program Manager II
Division of Health Benefits, NC Medicaid
North Carolina Department of Health and Human Services

Kathryn Lanier, MS, GTY
Section Chief, Elder Rights and Special Initiatives
Division of Aging and Adult Services
North Carolina Department of Health and Human Services

Michelle Laws, PhD, MA
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

Kevin Leonard, MPA
Executive Director
North Carolina Association of County Commissioners

Roy Lee Lindsey, MS
President and Chief Executive Officer
North Carolina Pork Council

Norma Martí
Hispanic/Latinx Response Team Community Lead
North Carolina Community Engagement Alliance

Zack Moore, MD, MPH
State Epidemiologist
North Carolina Department of Health and Human Services

Sel Mpang
Community Engagement Associate
Greensboro Housing Coalition

Jacob Parrish, MPH
Vice President, Systems and Procedures
Vidant Health

Shannon Pointer, DNP, RN, CHPN
Vice President of Hospice & Palliative Care
Association for Home and Hospice Care of North Carolina
South Carolina Home Care & Hospice Association

Omari Richins, MPH
Program Officer
Health Improvement in North Carolina
Kate B. Reynolds Charitable Trust

Ben Rose, MSW
Director
Durham County Social Services

Emma Sandoe, PhD
Associate Director, Strategy and Planning
Division of Health Benefits, NC Medicaid
North Carolina Department of Health and Human Services

TASK FORCE AND WORK GROUP MEMBERS

Representative Wayne Sasser
District 67
North Carolina General Assembly

Janice Somers, RN, LNHA
Administrator
Westwood Hills Nursing and Rehabilitation Center

Drew Stanley
Warden, Nash County Correctional Facility
North Carolina Department of Public Safety

Arthur V. Stringer, MD
Former Medical Director of Quality, Women's Hospital at Cone Health
1st Vice President, Old North State Medical Society

Hugh Tilson, JD, MPH
Director
North Carolina Area Health Education Centers

Robin Tutor-Marcom, EdD, MPH
Director, Agromedicine Extension Specialist
North Carolina Agromedicine Institute

Erin Tyson
Teacher, John Small Elementary School
Beaufort County Schools

Louise Vincent, MPH
Executive Director
North Carolina Survivors Union

Leza Wainwright, MBA
Chief Executive Officer
Trillium Health Resources

Franklin Walker, MBA
Vice President
Rural Health Systems Innovation
North Carolina Medical Society

Amy Widderich, NCSN, RSN, BN
School Nurse, Grove Park Elementary School
Alamance Burlington Schools

Cornell Wright, MPA
Executive Director
Office of Minority Health and Health Disparities
North Carolina Department of Health and Human Services

*Task force and work group members' positions and organizations are listed from the start of the task force convening in July 2021.

COMMUNICATIONS WORK GROUP MEMBERS

Adrienne Ammerman, MA
Communications & Improvement Specialist
WNC Health Network

Jerry Cook
Vice President, Government and Trade Relations
Hanesbrands, Inc.

Jennifer Copeland, PhD, MDiv
Executive Director
North Carolina Council of Churches

Ellen Essick, PhD
Section Chief, NC Healthy Schools
North Carolina Department of Public Instruction

Tatyana Kelly
Vice President, Planning/Strategy & Member Services
North Carolina Healthcare Association

Lillian Koontz, MPA
Health Director
Davidson County Health Department

Kathryn Lanier, MS, GTY
Section Chief, Elder Rights
Division of Aging and Adult Services
North Carolina Department of Health and Human Services

Lisa Macon Harrison, MPH
Health Director
Granville-Vance District Health Department

Norma Martí
NC Hispanic/Latinx Community Response Team Lead
North Carolina Community Engagement Alliance

Jennifer Maurer, MA
External Communications Manager
Mountain Area Health Education Center

Andrew Mundhenk
Communications Manager
Henderson County Department of Public Health

Alecia Smith, PhD
Communications and Public Relations Manager
Durham County Health Department

Tim Rosebrock
Senior Vice President of Human Resources and Government Relations
The Biltmore Company

Susanne Schmal, MPH
School Health Partnerships and Policy Consultant
North Carolina Department of Public Instruction

Cornell P. Wright, MPA
Executive Director, Office of Minority Health and Health Disparities
North Carolina Department of Health and Human Services

Tracy Zimmerman
Deputy Secretary for Policy and Communications
North Carolina Department of Health and Human Services

LETTER FROM THE TASK FORCE CO-CHAIRS

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.

Harris Pastides, PhD, MPH

President Emeritus
University of South Carolina

Machelle Baker Sanders, MHA

Secretary of Commerce
North Carolina Department of Commerce

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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630 Davis Drive, Suite 100
Morrisville, NC 27560
(919) 445-6500
www.nciom.org

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