NC GOVERNMENTAL PUBLIC HEALTH:
Workforce and Infrastructure Improvement in Action

Public health is **nutrition, vaccinations, lifestyle choices and maternal and child health, dental health, injury prevention, restaurant, public pools and septic system inspections, laboratory testing, death investigations and autopsies, health data, response planning as well as policy development.** ***We all eat, drink and breathe so we all benefit from public health.***

Introduction

The COVID-19 pandemic brought mainstream attention to public health across the globe, with the need to rapidly scale a chronically underfunded patchwork of infrastructure to meet the crisis. The increased awareness of funding and workforce needs – along with opportunities to overcome disparities and advance equity – point to potential for a better public health system in the future.

The Division of Public Health (DPH), housed within the North Carolina Department of Health and Human Services (NCDHHS), is the State's Public Health Department and is one of many partners in public health across the state. As a decentralized state, counties in North Carolina are given the legal responsibility to provide public health services. There are a total of 85[1] local health departments (LHD) that are led by local employees and cover all 100 counties with several multi-county jurisdictions. Under this governance structure, the LHDs retain most of the authority relating to budget, public health orders, and the selection of local health officials.

A well-funded, well-prepared and well-trained public health system is a necessity in keeping our communities healthy. Unfortunately, "North Carolina's governmental public health function has been chronically underfunded, leaving the state under-prepared for the enormity of the challenge of responding to COVID-19."[2]

From 2010–2020, **spending for NC's 85 LHDs dropped by 27%, 50% more than the national average.**

Average spending on public health services in 2020 **US $91 per person NC $61 per person**

In 2018, NC ranked **45th in the nation** on public health spending.[3]

This paper is being published in the context of initiatives to reform the public health architecture in North Carolina, including the NC Institute of Medicine (NCIOM) Task Force on the Future of Local Public Health, NC Association of Local Health Directors (NCALHD) ongoing initiatives, and North Carolina's participation in the cross-state 21st Century Learning Collaborative (21C) on public health system change. It intends to articulate efforts and plans already underway to improve governmental public health in North Carolina by DPH. It is a high-level overview of select activities and initiatives in three inter-related areas, with equity woven throughout as a key theme:

- Systems Capacity & Strong and Inclusive Workforce
- State-Local Efficiency and Effectiveness
- Data Modernization & Transparency

System Capacity & Strong and Inclusive Workforce

To improve the capacity of the public health system and to ensure a basic level of services to every person, nationally recognized frameworks have been introduced in recent years. NC public health can use these frameworks to determine a baseline of our services and determine which improvements should be made.

Together, these two frameworks provide health departments with a guide for what their responsibilities are ("Essential" services) and how they can operationalize those responsibilities for their communities ("Foundational" services).

Public health experts have come together across the nation to define *Foundational Capabilities and Essential Services* for public health systems to protect communities. These models are cited by both the 2016 call to action "public health 3.0" and 2021 "Public Health Forward" initiatives to build a 21st century public health infrastructure.

The Foundational Public Health Services[4] (FPHS) framework (Figure 1) outlines the unique responsibilities of governmental public health and defines a minimum set of capabilities and areas that must be available in every community. The framework was updated in 2022 to include equity as the eighth foundational capability. Equity plays a critical role in meeting community health needs and provides a foundational cross-cutting skill that uses its lens for the full framework.

The 10 Essential Public Health Services[6] (Figure 2) was introduced as a national framework in 1994 and refreshed in 2020 to reflect changes in public health practice and adds equity as a centerpiece.

FIGURE 1: FOUNDATIONAL PUBLIC HEALTH SERVICES

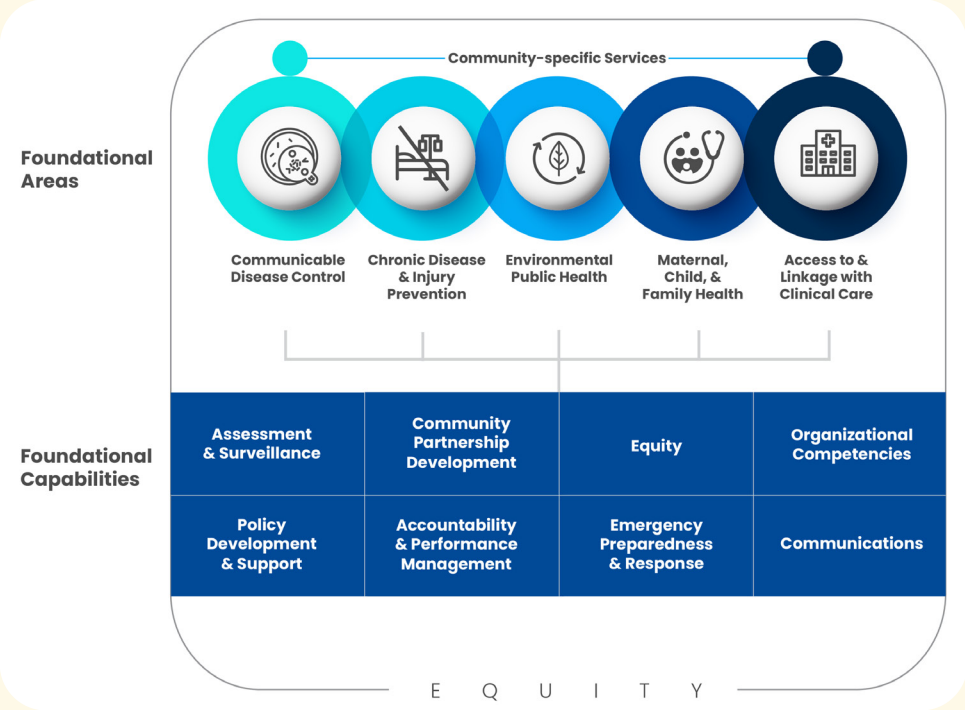
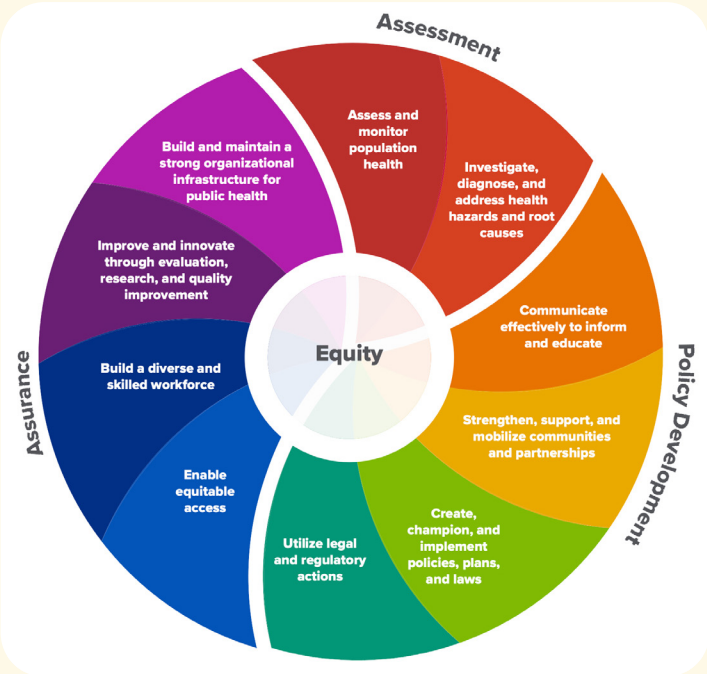


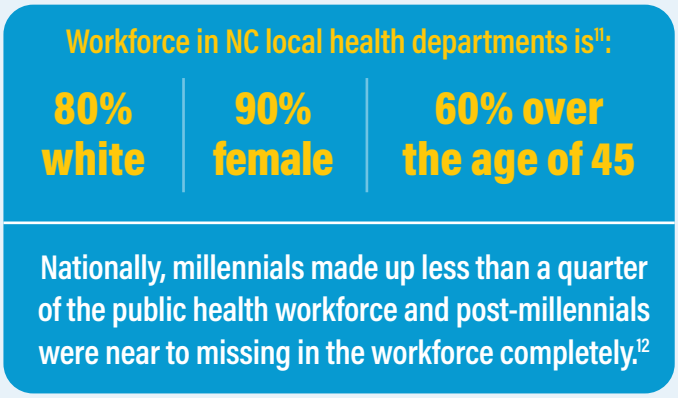
FIGURE 2: THE 10 ESSENTIAL PUBLIC HEALTH SERVICES



The ability of a public health agency to possess infrastructure of "foundational capabilities" and provide "essential services" relies on the skill of the people who comprise the workforce.

FIGURE 3: NATIONAL DATA FROM THE 2021 NATION-WIDE PUBLIC HEALTH WORKFORCE INTEREST AND NEEDS SURVEY (PH WINS),

FIGURE 4: PUBLIC HEALTH WORKFORCE DEMOGRAPHICS



With the loss of the public health workforce due to retirement and burnout from the pandemic, it is crucial that the public health system attract new talent. Governmental public health must prioritize the development and support needs of employees to recruit and retain new graduates and professionals.

DPH is leveraging funding to strengthen foundational capabilities, maximizing regional expertise and prioritizing attracting, retaining and growing the workforce.

STRENGTHENING FOUNDATIONAL CAPABILITIES

DPH is leveraging federal COVID-19 related funding streams toward capacity strengthening using the Foundational Capabilities (FCs) of the Foundational Public Health Services (Figure 1) as a framework for state and local COVID-19 response and recovery. The *Public Health Workforce* initiative – funded by the American Rescue Plan Act – predominately focuses on governmental public health capacity and the *COVID-19 Health Disparities* effort – funded by the CARES Act – goes beyond traditional governmental public health to address the non-medical drivers of health in partnership with a broader set of actors.

Emphasizing North Carolina's commitment to health equity, NCDHHS appointed its first Chief Health Equity Officer in 2021 with responsibility for leading the overarching strategy and operational goals to promote health equity, diversity, and inclusion across all the agency's health and human services.

In 2021, DPH allocated over $20,000,000 of ARP funds across 10 LHD regions, with an LHD to serve as the fiscal and administrative lead for the region. DPH took a regional approach to facilitate collaboration, and to ensure that the size of the allocations would be large enough to have sizable impact.

LHDs and DPH collaborated in Q4 2021 on a Rapid Needs Assessment process to outline immediate staffing and training needs of LHDs given the short-term nature of the funding. A more in-depth gap analysis is underway and will result in a Regional Workforce Development Plan, with expected completion in Spring 2023.

LHD Regions are pursuing several solutions to their changing workforce needs, such as:

- ☑ **Launching a Data and Communications Fellowship**
- ☑ **Commissioning studies on shared workforce challenges**
- ☑ **Developing strategies for recruiting and retaining staff**

Through the CDC *Health Disparities* grant, DPH is supporting funded LHDs to build capacity, develop or expand Health Equity Advisory Committees, and deliver staff t aining to advance understanding and drive health equity work. This same funding stream is also supporting the NCDHHS Office of Communications to expand its COVID-19 related communications to reach underserved populations including American Indian, Spanish-speaking, and people with disabilities. Emphasizing North Carolina's commitment to health equity, NCDHHS appointed its first Chief Health Equity Officer in 2021 with responsibility for leading the overarching strategy and operational goals to promote health equity, diversity, and inclusion across all the agency's health and human services. The Health Disparities Grant is providing additional capacity to this Office.

Resources from the Health Disparities grant are being used for expanded partnerships, such as:

- Department of Transportation on prioritizing planning and projects to reach Historically Marginalized Populations (HMPs) in North Carolina
- UNC Chapel Hill to address health disparities among incarcerated women
- Center for Environmental Farming Systems to support the NC Local Food Council and community organizations in their efforts to expand healthy food access for communities across the state
- NC Counts Coalition through the Healthier Together initiative to work with community-based organizations to close COVID-19 vaccine related equity gaps.

MAXIMIZING REGIONAL EXPERTISE

Regional collaboration and capacity sharing has long been part of North Carolina's approach. Examples include:

- DPH's Local Technical Assistance & Training Branch (LTATB) has nurse consultants who are paired with administrative consultants to provide day-to-day expertise on best practices and capacity strengthening to LHDs. DPH also has programmatic consultants working in specialty public health program areas providing support across the state.
- Both the Oral Health Section and the NC Tobacco Prevention and Control Branch leverage a regional model to administer program activities. Under this model, public health dental hygienists and regional tobacco control managers are based out of LHD in each of the 10 NCALHD regions and deliver services across all 100 NC counties.[13]
- Based in LHDs regionally, Regional Infection Prevention Support (RIPS) serve as the primary point of contact for long-term care settings.

ATTRACTING, RETAINING, AND GROWING TALENT

Recognizing workforce challenges, the following efforts are underway:

- The NCDHHS Strategic Plan commits to the creation of a framework for divisions to examine recruiting and retention practices and pay audits to inform strategies to increase salary equity.
- Internship and fellowship programs to build career pipelines, including the North Carolina Partnership for Excellence in Applied Epidemiology for Infectious Disease in partnership with UNC, and a paid HBCU and Minority-Serving Institutions (MSIs) Internship program to attract people of color into public health. DPH is in the process of building a program to support higher education, including community colleges, that have initiatives for careers in governmental public health.
- DPH is revising the job descriptions and training modalities to attract and retain a skilled and diverse Public Health Nurse (PHN) workforce at the local level. The new NC Credentialed PHN program will focus directly on the new scope and standards of PHN through a competency-based learning approach with an emphasis on leadership, population health and the NC public health system.
- DPH recently delegated additional authorities to Registered Environmental Health Specialists to improve efficiency and onboarding of new specialists by LHDs and migrated trainings to be virtual.

In 2020, NCDHHS created 20 Diversity, Equity, and Inclusion Councils. DPH's DEI Council collaborates with DPH Human Resources (HR) teams to educate, assist, and provide any resources that are available to DPH HR to promote equity in hiring, salaries, and policies within HR. The Council is in the process of developing an Equity Action Plan to inform the tangible actions the Council will take to promote diversity, equity, and inclusion at DPH over the next two years.

State-Local Efficiency and Effectiveness

Federal and state public health resources in North Carolina frequently flow from DPH to a subset of the 85 LHDs. While beholden to parameters set forth by the funder, an agreement between DPH and LHDs called the "Consolidated Agreement" (CA) is the primary mechanism by which DPH coordinates activities across local jurisdictions:

1. The CA provides no direct funding to any of the LHDs, but it provides the LHDs the opportunity to sign additional Agreement Addenda (AAs).
2. These AAs set forth the program-specific requirements to be achieved by an LHD, if it chooses to accept the funding.
3. Each AA is developed independently by a technical lead within DPH and guides the clinical and support services through the best practices of care, and the legal requirements of staffing, quality and quantity of services.

The AA reporting and monitoring process is labor-intensive for both LHDs and DPH. While LHDs are often challenged with managing and balancing numerous AA reporting requirements, DPH is tasked with providing timely monitoring of the multiple AAs.

SEEKING SOLUTIONS

In 2021, DPH launched the AA Alignment project – a Quality Improvement initiative to streamline the operational process around AA reporting and to evaluate AA content to maximize activity impact for improving public health.

Subsequently, DPH and the North Carolina Association of Local Health Directors (NCALHD) established a working group to review funding allocation methodologies for equity and impact and jurisdictional collaboration, review performance metrics, and improve workflows.

ENHANCING CONSISTENCY AND TRANSPARENCY FOR FUNDING, METRICS

Funding Methodologies

Across the Agreement Addendas, funding formulas to LHDs vary. Some include a base amount per county plus additional population-based allocation; others are based on the high incidence of a disease or vector in a particular area. During the COVID-19 pandemic, DPH factored in the Social Vulnerability Index to over-index investments in more vulnerable communities. DPH has been evaluating funding allocation methodologies for current programs to identify gaps and ascertain suitable data-based strategies to drive improvements in local public health funding.

Adjustment must be considered carefully and strategically, recognizing the potential impact of adjusting funding formulas, and that any dollars lost to individual health departments may impact the staff t at are supported by the AAs.

Aligning Reporting Metrics

Efforts are underway to identify new opportunities to align performance metrics and activities with Healthy NC 2030, the NC State Health Improvement Plan (NC SHIP), Community Health Improvement Plans (CHIPs), and the foundational capabilities. Through a focused review of current AAs, DPH will work closely with LHDs to determine programs that are strongly aligned with population-level public health and policy change, and may be suitable for a multi-agency regional model.

Assessing Clinical Services

Assuring the provision of clinical services is part of the Foundational Capabilities and is frequently included in AAs stemming from siloed federal funding streams. Depending on local resources in community, it may not be appropriate for an LHD to directly provide clinical services at the encounter level. However, Federally Qualified Health Centers and other clinics providing services to the most vulnerable are not ubiquitous across the state, and it therefore, still may fall on certain LHDs to do so. The absence of expanded Medicaid further exacerbates healthcare access and puts pressures on LHDs to provide otherwise unreimbursed clinical care. DPH recognizes its role in reinforcing the role of LHDs as a safety net provider, as it continues to pass siloed funding for clinical services on from federal sources. LHDs may be reliant upon these funds to generate revenues for population health services.

Data Modernization and Transparency

Data modernization and transparency support taking data from multiple sources and nimbly analyzing it so that viable, usable and accessible information is available to the public health stakeholders in a timely way. DPH has initiatives underway to optimize the use of data for decision-making, publication and access. This will include examining how data are reported and how data can be useful in driving public health performance, policy and programs. With technology changing at a rapid pace, multiple systems collecting data on a daily basis and the need for relevant, accessible data, this is an important component of public health's ability to respond quickly and appropriately to any threat to a healthy population. Public health information and technology infrastructure has been chronically underfunded for decades, leaving the country unprepared to share data efficiently.[15]

NCDHHS made modernizing information systems and increasing data transparency a Department level strategic priority prior to the pandemic. In 2019, NCDHHS established a Data Office, which developed a data strategy roadmap and began foundational work toward stronger integration of data across disparate sources. In 2022, DPH is prioritizing the hire of a Chief Data Officer to drive improvement across the Division.

COVID highlighted the persistent disparities in health outcomes in our historically marginalized populations across the state. Improving data collection, transparency and reporting processes will improve DPH's ability to implement equity-focused interventions.

FIGURE 5: HERE ARE SOME OF THE IMPROVEMENTS BEING MADE

Equity – using data to inform priorities and drive action – Efforts are underway to establish an HBCU Consortium that will inform and facilitate the development of a centralized health equity data initiative.

Integrating Data Sets – The COVID response team used a Master Patient Index (MPI) to bring together two sources of COVID data – the COVID-19 Vaccine Management System (CVMS) and North Carolina's COVID-19 Surveillance System (NC-COVID) to better understand vaccination rates among people testing positive for COVID-19.

Building customizable and accessible data dashboards – DPH is working to make North Carolina's existing communicable disease surveillance software (NC EDSS) more accessible by LHDs. DPH is recruiting and deploying regional epidemiologists to assist LHDs with NC EDSS data access, and NC EDSS and NC COVID (the covid-specific instance of NC EDSS) are being upgraded to offer additional communication and data-handling capacities.

Modernizing Vital Records – DPH is transitioning to a unified Vital Events Registration system for the state of North Carolina (NCDAVE) to lead to the more efficient processes of vital events, timelier issuance of records, and higher quality vital statistics data for NC public health.

Growing capacity in Results-Based Accountability™ – Increasing the capacity of public health professionals to use Results-Based Accountability™ [16] (RBA) is an important strategy to improve health outcomes and improve equity. DPH, the Foundation for Health Leadership & Innovation (FHLI), and NC Area Health Education Centers (AHEC) are collaborating to build a large cohort of RBA certified faculty and train DPH staff and the b oader community. The North Carolina State Health Improvement Plan (SHIP) uses RBA and its web-based tool Clear Impact Scorecard to monitor progress on population indicators and program performance measures.

Strengthening Data Use to Drive Action – The NC State Health Improvement Plan (NC SHIP) and Healthy North Carolina 2030 (HNC 2030)[17], and the Clear Impact scorecards that monitor progress use a population health framework. The SHIP is being revised using the 2020 plan as the foundation. DPH and FHLI opened the HNC 2030 Resource Center in March 2022. The Resource Center manages Scorecard School and provides assistance with accessing data sources for community health assessments.

Conclusion

As the pandemic gradually recedes, varied funding sources will follow. The boom and bust cycles of public health funding not only present immediate challenges, but they pose a long-term threat for a state's ability to respond to another health crisis.

COVID presented public health with challenges that haven't been experienced during the lifetimes of state and local health department workforces. The pandemic highlighted and magnified the inconsistencies, fragmentation and inadequate funding of the governmental public health system in North Carolina (NC) and across the country. COVID further confirmed what many in the public health field already knew – that a pandemic was a when, not if, and the funding and staffing cuts would leave us under resourced to respond to such an event.

The *Division of Public Health* is eager to build on the lessons of the pandemic, and opportunities to create a *healthier, more resilient, and equitable North Carolina.*

ENDNOTES: [1] At the time of publication an 86th local health department was in formation, with Yancey County separating from the Toe River Health District. • [2] NCDHHS COVID-19 Response Interim Review https://covid19.ncdhhs.gov/media/3773/open • [3] www.americashealthrankings.org/explore/annual/measure/PH_funding/state/NC • [4] https://phnci.org/transformation/fphs • [5] https://nam.edu/public-health-covid-19-impact-assessment-lessons-learned-and-compelling-needs/ • [6] https://express.adobe.com/page/Qy1ve0hGWyeu5/ and www.cdc.gov/publichealthgateway/publichealthservices/essentialhealthservices.html • [7] https://debeaumont.org/wp-content/uploads/dlm_uploads/2022/03/Stress-and-Burnout-Brief_final.pdf • [8] https://debeaumont.org/news/2020/when-we-need-them-most-the-number-of-public-health-workers-continues-to-decline/ • [9] www.businessinsider.com/55000-plus-public-health-jobs-cut-after-2008-financial-crisis-2020-4 • [10] https://debeaumont.org/wp-content/uploads/2021/10/Staffing-Up-FINAL.pdf • [11] https://sph.unc.edu/wp-content/uploads/sites/112/2019/07/LHD_Survey_FINAL.pdf • [12] (PHWINS, 2017) https://debeaumont.org/wp-content/uploads/2019/04/PH-WINS-infographic.pdf • [13] https://publichealth.nc.gov/oralhealth/docs/2020-2025-NCOralHealthPlan.pdf • [14] County government should not be penalized by state/federal funding formulas if the county government chooses to participate in a district governance model. Economies or cost saving achieved should be available to the district health department or to the participating counties in multi-county governance models. • [15] NCDHHS COVID-19 Response Interim Review • [16] RBA is a disciplined way of thinking that improves performance by challenging assumptions, building collaboration and consensus, and taking action to improve lives. • [17] https://schs.dph.ncdhhs.gov/units/ldas/hnc.htm