Creating a Healthy North Carolina: Developing and Reaching Goals for the 21st Century

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Now in its fourth iteration with a 2030 report and measures, the Healthy North Carolina decennial initiative has galvanized the state and its diverse public health partners to develop, work toward, and track progress on a common set of health objectives for North Carolina.

Introduction

In 1979, the publication *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention* outlined the first set of measurable national goals emphasizing prevention to improve the health of the nation [1]. In the half century since its release, the Healthy People initiative has continued to reflect the changes and priorities of the American people. Surviving multiple administrations, the key to its longevity is a data-driven approach and participation of a broad coalition of national organizations, state health agencies, professional associations, and federal agencies.

North Carolina has a rich history in assessing health, starting with *community diagnosis*, a term first coined by Dr. B.G. Greenberg in 1968, which local health departments across the state began to use in 1974 [2, 3]. Community diagnosis evolved into the community health assessment process, the term still used today, which became required through the North Carolina Local Health Department Accreditation program in 2006.

As time passed, the North Carolina Division of Public Health also required local health departments to choose priorities and track progress linked to a decennial statewide measurement process, Healthy North Carolina. Focus and health measures may change with each decennial report, but the overarching vision is constant: "significant reductions in preventable death and disability, enhanced quality of life, and greatly reduced disparities in the health status of populations within our society" [4].

Healthy Carolinians 2000

In 1991, Governor James G. Martin created by executive order what would become the Healthy North Carolina Task Force. The task force adopted dozens of measures covering 11 topic areas. However, the process, and especially utilization of existing data systems, was challenging. Public health leaders and their partners found it difficult to select measures with baseline data that could be tracked over the next decade [5]. In 1997, the State Center for Health Statistics found reliable surveillance systems were not available for full segments of the population for many diseases [6]. When local data were available, they often could not be consolidated at the state level. Conversely, when state level data were available, local data might not exist.

Healthy Carolinians 2010

Healthy Carolinians 2000 failed to achieve many of its targets, but this did not deter Healthy Carolinians 2010 planners from setting higher goals and adding additional goals.

By 2010, North Carolina demonstrated progress in many of the outlined health measures. The state's infant mortality rate dropped from 9.3 deaths per 1,000 live births in 1998 to 8.2 in 2008 (Tables 1 and 2) [7]. Similarly, the cardiovascular death rate dropped from 363 deaths per 100,000 population in 1998 to 257 in 2008 [7]. And the percentage of high school youth who use any form of tobacco dropped from 38.3% in 1999 to 25.8% in 2009 (Table 1). Despite these improvements, North Carolina was ranked 36 among the 50 states in overall health (Figure 1) [8].

Healthy North Carolina 2020

In 2010, North Carolina public health leaders and their partners engaged with the North Carolina Institute of Medicine (NCIOM) to develop Healthy North Carolina 2020 (HNC 2020). The NCIOM publication *Prevention for the Health of North Carolina* inspired public health leaders to take a fresh approach to the state's health improvement plan initiative. The reframing brought a new name to the initiative—Healthy North Carolina. Leaders of this effort recognized that the state's per capita income was likely a strong driver of health and that social determinants of health, including access barriers and racial and ethnic disparities, also played a strong role in health outcomes [9]. The new approach recognized that while not all health behaviors needed to be included as a decennial measure, significant disparities in

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TABLE 1.
Healthy North Carolina Measure Characteristics by Decade

Healthy NC Report	Number of Objectives	General Goals Reached	Noted Continuing Challenges
2000	61 among 11 categories	Total teen pregnancy rate; immunization levels among children in kindergarten	Total infant mortality; percent low-weight births; non-white teen pregnancy rate; overweight; non-white syphilis, gonorrhea, and chlamydia; youth tobacco and alcohol use
2010	108	Infant mortality decreased but still high; teen pregnancy rates declined; decline in HIV mortality	Diabetes and obesity; health insurance; unintentional poisonings; gonorrhea, chlamydia, and syphilis; African American infant mortality; tobacco and alcohol use
2020	41 in 13 categories	Alcohol-related traffic crashes; pediatric dental services	Unintentional poisoning mortality rate; unintentional falls mortality rate; infant mortality racial disparity between whites and Blacks
2030	21 in 5 categories	Not applicable as progress but in 2020 there was a trend of increased graduation rates and a reduction of violent crime	In 2020, the state faced challenges in drug overdose deaths, obesity, and youth tobacco use.

Sources. Green LW, Fielding J. The U.S. Healthy People Initiative: its genesis and its sustainability. Annual Review of Public Health. 2011;32(1):451-470.
Surles KB, Blue KP. Assessing the Public's Health: community diagnosis in North Carolina. Public Health Reports. 1993;108(2):198-203.
Nelson D, Rocco P, Dail K. A short history of community health assessment in North Carolina. Oral presentation at: Community Health Assessment Winter Institute; January, 2018; Raleigh NC.
Jones-Vessy, K, Farmer, A, Avery, M. North Carolina State Center for Health Statistics. Health profile of North Carolinians: 2011 update. Published September 2011. https://schs.dph.ncdhhs.gov/schs/pdf/healthprofile2011_web.pdf Accessed March 15, 2021.

marginalized populations must be addressed [10].

HNC 2020 reduced the number of indicators included in the decennial report. Whereas Healthy People included 350 indicators and Healthy Carolinians 2010 monitored 108 indicators, HNC 2020 drilled down to only 40 objectives and 13 focus areas (Table 1) [11]. The decrease in indicators improved focus and allowed for a better interpretation of results. HNC 2020 objectives provided a clear statement of rationale, current state data, a 2020 target, disparity data if available, and potential evidence-based actions.

Working with the Center for Healthy North Carolina, the North Carolina Division of Public Health, and other partners, HNC 2020 promoted new and expanded evidence-based strategies and encouraged coordination and leveraging of resources. New requirements for local health department accreditation required local health departments to link evidence-based strategies and Healthy North Carolina objectives to their periodic community health assessments and community improvement plans [12, 13].

Like the 2010 initiative, North Carolina made a number of notable improvements to many health measures by 2020. Of the 41 objectives, North Carolina met five (12%), made progress on 12 (29%), stayed the same/no progress on 18 (44%), and got worse on six (15%) (Table 1). Notably, the state made substantial progress and topped national numbers in the areas of increasing the percentage of children (aged 1–5) enrolled in Medicaid who received any dental services in prior 12 months; increasing the percentage of the population being served by community water systems with no maximum containment level violations; increasing the percentage of adults who consume vegetables one or more times per day; decreasing the percentage of high school students who had alcohol one or more days in the past 30 days; increasing the four-year high school graduation rate; and reducing colorectal cancer mortality [13].

However, some progress was masked by increasing disparities within many measures such as infant mortality between whites and African Americans, as well as new HIV diagnoses between African Americans and white non-Hispanics [14]. While disparities were widely understood by public health leaders and researchers at the time, the emerging ability of surveillance systems to capture demographically stratified data allowed HNC 2020 to emphasize the importance of assessing health disparities data while not yet establishing disparity targets. This recognition would lead to further evolution of the process in the next decade.

Healthy North Carolina 2030

Healthy North Carolina 2030 (HNC 2030) incorporated the University of Wisconsin Population Health Institute's County Health Rankings Model as a way, according to State Health Director Dr. Betsey Tilson, "to re-orient public health in the state from individual health topics to a focus on health equity and overall drivers of health outcomes" [14]. The plan also strove for consistency with other national and state plans such as the CDC's Healthy People 2030, the North Carolina Opioid Action Plan, the North Carolina Perinatal Health Strategic Plan, the North Carolina Early Childhood Action Plan, the NC Medicaid Managed Care Quality Plan, and the North Carolina Healthy Opportunities Framework. Using the Population Health Framework, focus areas were identified as health outcomes and health factors, including health behavior, clinical care, social and economic factors, and physical environment. The number of indicators allotted to each focus area was determined by the percent contribution identified in the framework [14, 15].

Starting with a 2020 health rank of 31, North Carolina still has a way to go [8]. Although there has been success in increasing high school graduation rates and decreasing violent crime, there is still room for improvement in infant

mortality, adult smoking, children living in poverty, and the rate of uninsured. The state will also continue to face growing challenges in drug overdose deaths, obesity, and youth tobacco use [8, 16].

Progress into the 21st Century

North Carolina continues to be in the bottom third of all states for major health indicators [8]. To examine a small but representative snapshot of health data through the history of Healthy North Carolina, it is useful to focus on the two important health outcome measures chosen in HNC 2030: infant mortality and life expectancy. Life expectancy is a strong proxy for the overall health of a population. Though life expectancy at birth for the state has increased from 74.9 years for 1990–1992 to 78.2 years for 2017–2019, individuals who are white live on average an additional 3.4 years when compared to other races [17]. Disparities in life expectancy also exist geographically across the state, with a high of 82.2 years in Orange County and a low of 71.3 years in Swain County in 2017–2019 [17]. A similar overall health proxy is premature death. From 1990 until today, North Carolina has consistently ranked in the top third of states for premature death with a rank of 35 in 2020 [8]. While the gap against the national average was increasing from 1996 to 2010, it has been decreasing since—a positive trend that needs continued and sustained improvement [8].

Infant mortality is also a proxy for overall community health and is recognized as a major indicator for health disparities. In 1996, the overall infant mortality rate in the state was 9.2 per 1000 live births [18]. A wide disparity existed, with the white rate of 7.1, half the nonwhite rate of 14.3 [18]. By 2018, while the overall infant mortality rate had dropped significantly to 6.8 per 1,000 live births, the disparity had widened with a white rate of 5.0, African American of 12.2, American Indian of 9.3, and Hispanic of 4.8 [18]. The same is true for low birth weight. Much like with life expectancy, North Carolina has consistently ranked in the top quartile of states for low birth weight with a rank of 40 in 2020 [8]. This gap against the national average has been decreasing over the past decades.

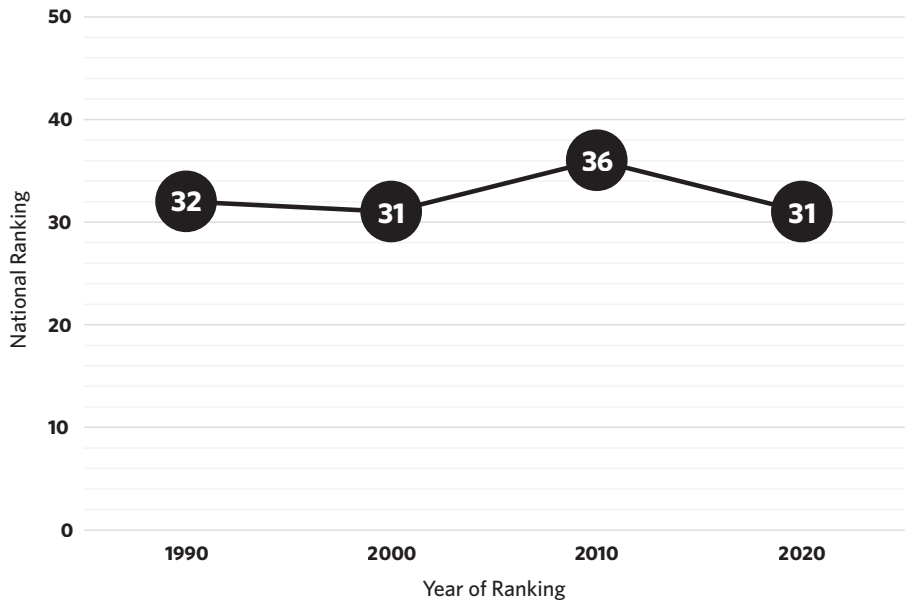
2030 and Beyond

Through the important work of Healthy North Carolina and many other efforts in the state, it is clear that leaders and partners now see that health improvement planning efforts are about more than goals for public health, but also must address disparities across the state [16]. However, implementation and resulting success with population health and healthy equity will only be achievable by addressing three key areas: robust and reliable data; coordinated and trusted multi-sector engagement; and addressing systems and policies.

TABLE 2.
Healthy North Carolina Measure Categories by Decade

Categories	2000	2010	2020	2030
Access to Care	–	Access	–	Clinical care
Behavioral Health	Mental health	–	Mental health	Clinical care
Chronic Disease	Chronic disease	Chronic disease	Chronic disease	–
Community Health	–	Community health	–	–
Cross-cutting	–	–	Cross-cutting	Health outcomes; clinical care
Disability	–	Disability	–	–
Environmental Health	Environmental pollution	Environmental health	Environmental health	Physical environment
Immunizations	Immunization	–	–	–
Infant Mortality	Infant death	Infant mortality	Maternal and infant health	Health outcomes
Injury Prevention	Injury	Injury	Injury and violence	–
Healthy Eating	Nutrition	Health promotion	Physical activity and nutrition	Health behaviors & physical environment
Older Adult Health	–	Older adult health	–	–
Oral Health	Dental decay	Oral health	Oral health	–
Physical Activity	Physical fitness	Health promotion	Physical activity and nutrition	Health behaviors & physical environment
Infectious Disease	Sexually transmitted diseases	Infectious disease	Sexually transmitted disease and unintended pregnancy; infectious disease and foodborne illness	–
Social Determinants of Health	–	–	Social determinants of health	Social and economic factors
Substance Misuse	Abuse of tobacco, alcohol, and other drugs	–	Substance abuse	Health behaviors
Tobacco	Abuse of tobacco, alcohol, and other drugs	–	Tobacco use	Health behaviors

FIGURE 1.
North Carolina's Overall Health Ranking Among the 50 States, 1990-2020



Source. United Health Foundation. America's Health Rankings. https://www.americashealthrankings.org/explore/annual/state/NC. Accessed February 2, 2021.

Robust and Reliable Data

While data may be available for many measures, it may not be collected the same way over time or across geographies, which limits the ability to compare and see trends in health outcomes and factors [19]. Analyzing and tracking disparities in measures is critically important, but stratified data may result in numbers too small to interpret reliably, which occurs especially in small and rural counties where disparities are often strong. For example, even in the HNC 2030 report, only 5 of the 21 measures had data for all race/ethnicity categories.

The HNC 2030 Task Force specifically struggled with identifying measures that were important to population health issues focused on in the report, but for which reliable or robust data was not available. As such, the report notes "developmental measures" and identifies specific data needs to hopefully be addressed over the next decade [15]. Hence, it is crucial that investment be made in the development of more robust and reliable data systems in North Carolina that address both traditional health data and also drivers of health data so that all 2030 measures can be tracked against 2030 targets to select even better and more relevant measures for 2040.

Coordinated and Trusted Multi-sector Engagement

More than ever, public health must engage partners across multiple sectors to meet the ambitious, yet achievable, targets set out in HNC 2030. With the acknowledgment of the strong role social drivers of health play in health improvement, entities traditionally outside of public health must be engaged and supported [16]. Successful and lasting engagement means enhancing collaboration and cooperation as well as developing trusted relationships. It is critical that partners work together in a non-competitive spirit to reduce duplication and address gaps to ensure that while they won't necessarily win individually, the community wins. Local health departments across the state are historically strong and successful in developing and supporting partnerships that drive specific health improvement efforts and programs, such as an HIV coalition or a minority diabetes program collaborative. However, to more effectively address drivers of health and work toward Public Health 3.0, an intentional shift in how local health departments partner will be required to make the needed impact on changing systems and policies.

Addressing Systems and Policies

Policy works. From the development of HNC 2020 in 2009 to its ending review in 2019, it was clear that policy changes helped drive improvements in some measures. For example, the passage of the Affordable Care Act reduced the number of uninsured and changes in tobacco policy led to fewer smokers and reductions in cardiovascular disease [14]. With the understanding that social drivers of health are shaped by infrastructure and systems at multiple levels, policy to change dated and sometimes structurally racist systems at all levels of government and community is necessary to make significant and sustained health improvements in North Carolina in 2030 and beyond [15]. NCM

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