COVID-19 Reflections

COVID-19 Vaccination in North Carolina: Promoting Equity by Partnering with Communities and Health Care Providers

North Carolina implemented a rapid statewide COVID-19 vaccine strategy that focused on vaccinating people quickly and equitably. We describe the sociodemographic factors associated with COVID-19 vaccine uptake in North Carolina and how these factors were considered in communication as well as community and health care provider engagement in the COVID-19 response.

Introduction

The COVID-19 pandemic exploited longstanding health and economic disparities across the country. COVID-19 vaccinations gave hope for a path out of the pandemic as soon as they became available in December 2020. That promise was predicated on rapid and widespread uptake of COVID-19 vaccinations. Failure to deliver on this promise equitably would further compound the pandemic's impacts on historically marginalized populations, including communities of color and rural communities.

North Carolina implemented a rapid statewide COVID-19 vaccine strategy that focused on vaccinating people as quickly and equitably as possible [1, 2]. The North Carolina Department of Health and Human Services (NCDHHS) built equity into every aspect of our COVID-19 prevention and response with work in three areas: building trust-based partnerships with historically marginalized communities, ensuring equity in vaccine allocation and delivery operations, and using data to promote accountability and drive decisions [3].

Here, we describe the sociodemographic factors associated with COVID-19 vaccine uptake in North Carolina and how these factors were considered in engaging with communities and health care providers in the COVID-19 response.

Sociodemographic Characteristics Associated with COVID-19 Vaccination in North Carolina

As of February 8, 2022, the percent of North Carolinians who had received at least one COVID-19 vaccine dose was 65% of the total population and 75% of adults aged 18+; 61% had received two doses or one dose of Johnson & Johnson (71% of adults aged 18+) [4].

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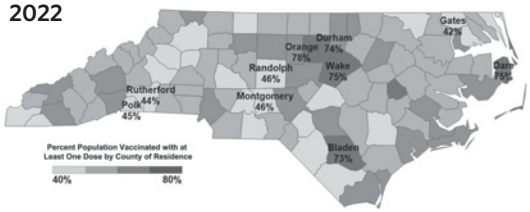
FIGURE 1.
Percent of Population with at Least One Dose of COVID-19 Vaccine by County, as of February 8, 2022



Note. Counties with highest and lowest percent vaccinated with at least one dose are indicated in the figure.
Data as of 2/8/22. Source: North Carolina DHHS COVID-19 Vaccine Management System (CVMS)

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Address correspondence to Charlene Wong, NCDHHS, Office of the Secretary, 101 Blair Dr, Raleigh, NC 27603 (Charlene.wong@dhhs.nc.gov).

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TABLE 1.
Sociodemographic Factor Associations with COVID-19 Vaccination Rates in North Carolina

	Percent Population Vaccinated with at Least 1 Dose	Percent of Population Vaccinated with Two Doses or 1 Dose Oneohnson & Johnson
Race		
American Indian/Alaska Native	31%	29%
Asian or Pacific Islanders	73%	71%
Black or African American	50%	46%
White	53%	51%
Ethnicity		
Hispanic	57%	52%
Non-Hispanic	53%	50%
Urban/Rural		
Diverse Urban	69%	66%
High Minority Rural	57%	51%
Low Minority Rural	53%	49%
Outlying Metro	61%	57%
Social Vulnerability Index Tertile County Comparisons		
Lower	66%	62%
Medium	58%	55%
Upper	56%	51%

Data as of 2/8/22.
Source. North Carolina DHHS COVID-19 Vaccine Management System (CVMS), CDC/ATSDR for SVI data

vaccine ranged from 44% in Rutherford County to 78% in Orange County (Figure 1). Diverse urban (69%) and outlying metro (61%) areas had higher proportions of population vaccinated compared to high-minority rural (57%) and low-minority rural (53%) areas (Table 1).

The proportion of population vaccinated with at least one COVID-19 vaccine dose was highest among Asian or Pacific Islanders (73%) and lowest among American Indian or Alaska Natives (31%), which were consistent trends from early in the COVID-19 vaccine efforts (Figure 2a). The equity gap between white (53%) and Black or African American (50%) North Carolinians narrowed over time. While rates of Hispanic vaccinations initially lagged behind Non-Hispanic populations, the percent of Hispanic population (57%) now outpaces Non-Hispanic (53%) populations across all age groups, except for ages 5–11 (Figure 2b).

The Social Vulnerability Index (SVI) uses US Census data to rank each census tract on 15 social factors (e.g., income, transportation access, crowded housing) [5]. North Carolina counties were categorized into low, medium, and high social vulnerability terciles. Counties with higher social vulnerability had lower COVID-19 vaccination uptake (56%) compared to counties with lower social vulnerability (66%) [6]. North Carolina also published a regularly updated a map that displayed the SVI and COVID-19 vaccine rates by census tract [7].

Equity data on COVID-19 vaccination available on the NCDHHS public COVID-19 dashboard (https://covid19.ncdhhs.gov/dashboard/vaccinations) were used throughout the pandemic response to inform communications and engagement with communities and health care providers.

Clear, Consistent, and Data-Driven Communications

Core to earning and sustaining trust and increasing access to vaccines was transparent, accurate, and frequent public communications. The COVID-19 messaging was informed by multiple rounds of market research that oversampled for historically marginalized communities. These data were used to develop an array of content, including signature campaigns (e.g., "You have a spot, take your shot"); website, social media, and printed collateral; and multiple toolkits [8]. These data were supplemented by regular discussions and feedback from a broad and diverse group of partners and stakeholders across North Carolina, including a specific COVID-19 vaccine communications advisory group.

The NCDHHS communications office, often in

partnership with community organizations, developed culturally specific materials and campaigns designed to speak directly to Black, indigenous, and people of color (BIPOC) communities about COVID-19 vaccines [9]. Materials were produced in English and Spanish and contained imagery and content representative of the communities being served. By using educational materials that centered the communities' experiences, as well as outreach tactics that were indigenous to those communities (e.g., door-to-door canvassing, site-based canvassing, and reaching out through relational contacts), the local teams were better able to reach and gain the trust of local residents.

Working with Communities to Promote and Provide COVID-19 Vaccination

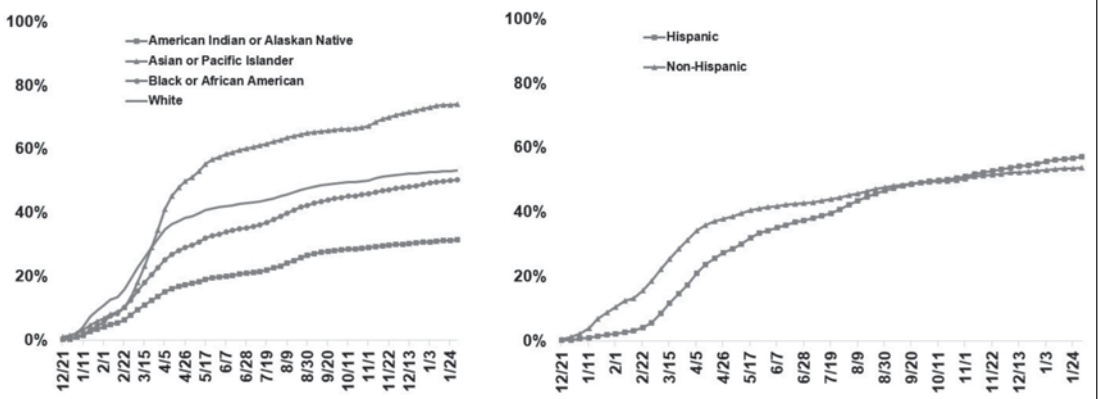
Earning and sustaining trust through relationship-building with community leaders and organizations were critical to effectively working with communities. Healthier Together, a major initiative launched in Fall 2021, took a community-centric approach to outreach and vaccine equity [10].

Healthier Together is a grassroots mobilization strategy to increase the speed and equity of North Carolina's COVID-19 vaccine distribution. As a public-private endeavor, NCDHHS partnered with NC Counts Coalition to implement Healthier Together. By working with local organizers, community-based organizations, and existing networks that serve BIPOC communities, the Healthier Together team was able to forge deep relationships that resulted in 13,508 vaccinations in three months.

Alongside forging new and deeper relationships with communities, North Carolina worked to increase access to COVID-19 vaccinations and make getting vaccinated more convenient. Local teams organized a variety of "pop-up" vaccination events and educational outreach opportunities in historically marginalized communities where vaccine vendors worked alongside trusted partners and supporters. Example pop-up event locations were local bus stations, consulate offices, schools, churches, community centers, and parks.

Complementing Healthier Together, North Carolina has long been developing a statewide Community Health Worker (CHW) Initiative and building a sustainable infrastructure to support CHWs [11]. When NCDHHS saw the impact of COVID-19 on historically marginalized populations, CHWs were identified as a unique and ready network of trusted messengers in communities across North Carolina. Early in the pandemic, the NC CHW COVID-19 Program promoted safe quarantine and isolation for COVID-19 by providing services and supports in 29 highest-needs counties, including home-delivered meals, relief payments to supplement lost wages, and transportation to testing and vaccination sites [12]. CHWs also participated in contract-tracing, testing, and vaccine efforts, as well as continuing their work to connect community members to social supports. CHWs used NCCARE360, a statewide coordinated care network, to connect community members to resources [13]. Over 1.6 million services and 50,000 vaccines have been attributed to the work of CHWs since

FIGURE 2.
Percent of Population Vaccinated with at Least One Dose by Race (2a) and Ethnicity (2b)



Data as of 2/8/22. Source: North Carolina DHHS COVID-19 Vaccine Management System (CVMS)

2020 [14]. CHWs played an important role in rural areas, where they used telehealth tools and hot spots in places with little broadband access to promote health and well-being. The state's Rural Health Information Technology Program, established prior to the pandemic, supported this work.

Healthier Together has awarded close to $2 million in grants to 48 local community-based organizations (CBOs) working in COVID-19 mitigation and health equity [15]. CBOs used these funds for vaccine outreach and education efforts to connect people to primary series or booster vaccines and to support transportation and linkages to COVID-19 testing and CHW resources. These partnerships contributed to a significant uptick in vaccinations among historically marginalized communities statewide [16]. They also provided a consistent equity feedback loop through detailed monthly reports from CBOs that described challenges and opportunities for growth.

Partnering with Health Care Providers for Equitable COVID-19 Vaccine Distribution

Partnering with health care providers was equally important for promoting equitable distribution of vaccines. Health care providers were both primary access points for vaccinations and remained among the most trusted messengers about COVID-19 vaccination, based on multiple rounds of market research in North Carolina as well as national surveys [17]. When demand for COVID-19 vaccines far outstripped vaccine supply early in 2021, ensuring statewide access to COVID-19 vaccines in all counties was a top priority [1]. Local health departments were initially, and continue to be, essential partners in ensuring statewide vaccine access and other COVID-19 services (e.g., testing and distribution of personal protective equipment [PPE]).

NCDHHS set the expectation that in order to receive an allocation of vaccines, health care providers would have to administer them to populations that reflected their communities' demographics. We monitored these data and provided them to vaccine providers as part of a feedback loop, along with technical assistance, to continually push toward equity. As vaccine supply stabilized, the state was able to expand vaccine allocation to federally qualified health centers (FQHCs). Because of their critical role in access for historically marginalized communities, FQHCs received 16.7% of equity-based allocations in early 2021. Compared to non-FQHC vaccine providers, FQHCs outperformed race/ethnicity equity expectations for vaccine distribution [16].

NCDHHS also partnered with other provider groups with deep reach and trust among populations with lower COVID-19 vaccine uptake. For example, NCDHHS partnered with Old North State Medical Society (ONSMS) and the North Carolina Community Health Center Association (NCCHCA) to evaluate access at all provider locations throughout the state. These organizations and their affiliated providers created community-specific events to increase acceptance and access to vaccination. These provider efforts reached more historically marginalized populations compared to earlier vaccine program efforts that stressed high-throughput mass vaccination events.

In addition, NCDHHS partnered with the North Carolina Medical Society, North Carolina Pediatric Society, and North Carolina Academy of Family Physicians in September 2021 to identify vaccine deserts (i.e., areas of the state with few-to-no COVID-19 vaccine providers) and focus recruitment efforts in rural communities. By January 2022, these partnerships resulted in the recruitment of 203 additional vaccine providers to the COVID-19 program. Efforts led by primary care providers were impactful in rural areas. For example, the Watauga County Health Department supported pediatric vaccination efforts led by local pediatric health care providers, resulting in some of the highest rural pediatric vaccination rates in the state [18]. NCDHHS continues to focus on having vaccines broadly available in clinical practices so that any eligible North Carolinian can receive one in any medical setting.

Conclusion

North Carolina is looking ahead to how to promote equity as COVID-19 becomes an endemic disease and the long recovery from the pandemic begins. Due to longstanding health disparities, much work remains, not only in mitigating the ongoing impact of the COVID-19 pandemic but also in embedding health equity into the fabric of health and health care delivery in our state. This

will require continued effort to earn trust from historically marginalized communities and to incorporate their voices into mitigation strategies.

Our strategy of partnering with trusted community members and leaders to share accurate information about vaccines, listening to people's concerns, and answering their questions with transparency will remain embedded in our long-term strategy, as will continuing to make vaccines available from trusted providers in accessible locations. We will also continue our strategy of investing in community organizations, including public-private partnerships with CBOs and coalitions, to increase COVID-19 vaccinations among BIPOC populations. Community collaboration has afforded NCDHHS the opportunity to provide an evidence- and community-informed response to the needs of North Carolina residents that takes into account the nuances of race, ethnicity, culture, language, geography, and socioeconomic status. These social drivers impact the ability of residents to navigate COVID-19 and their health beyond the pandemic. Successfully navigating the disparate impact of the pandemic on historically marginalized communities will necessitate having the voices of all historically marginalized groups at the various tables of decision-making, action, and engagement.

Equity data priorities for NCDHHS will continue to focus on quantifying the disparity, while recognizing and acknowledging longstanding inequities. A successful data strategy will identify the underlying social inequities and the resources needed to afford all North Carolinians a fair and just opportunity to achieve their healthiest outcome. Our evaluation efforts will not be limited to measuring average impact on the health of a whole population.

We will measure change in outcomes among selected disadvantaged groups, quantify the size of gaps between disadvantaged and advantaged groups, seek to engage disproportionally impacted communities in solution generation, and then measure if efforts have been successful. NCDHHS recognizes that, historically, not all communities have benefitted equally from the advancements in science and thought leadership. The COVID-19 pandemic has in some ways provided an opportunity for a reset that we must both embrace and navigate with intentionality. NCMJ

Charlene A. Wong, MD MSHP assistant secretary for children and families, North Carolina Department of Health and Human Services, Raleigh, North Carolina.
Carolina Alzuru, BA senior director, Healthier Together, NC Counts Coalition, Raleigh, North Carolina.
Kody Kinsley, MPP secretary, North Carolina Department of Health and Human Services, Raleigh, North Carolina.
Ryan Jury, RN MBA program director, COVID-19 Vaccine Program, North Carolina Department of Health and Human Services, Raleigh, North Carolina.
Margaret L. Sauer, MHA director, Office of Rural Health, North Carolina Department of Health and Human Services, Raleigh, North Carolina.
Tivi Jones, BA marketing communications consultant, Hey Awesome Girl, Durham, North Carolina.
Victor Armstrong, MSW chief health equity officer, North Carolina Department of Health and Human Services, Raleigh, North Carolina.

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