Innovations and Collaborations Born of Necessity During the COVID-19 Pandemic

Susan R. Mims

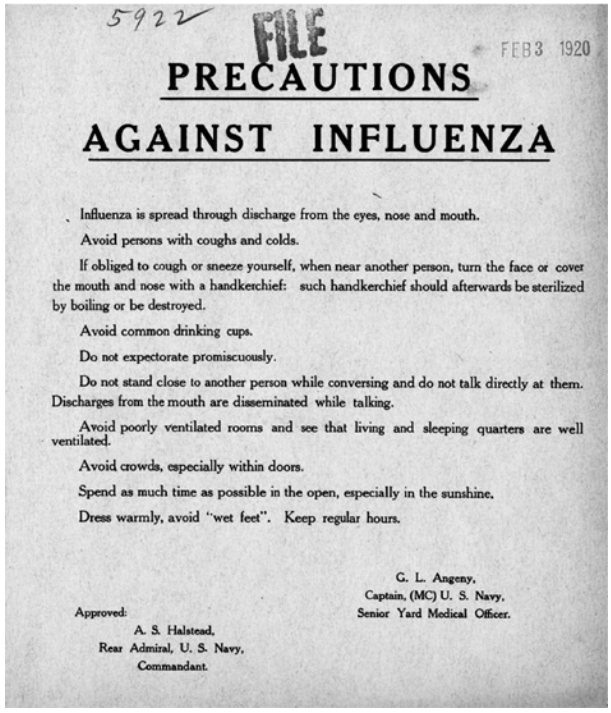
Certainly the COVID-19 pandemic will go down in history as one of the most significant public health challenges of our time. Responding to the uncertainty of the pandemic put public health officials, health care and human services providers, and people working in all service industries front and center in the response. Across the board, COVID-19 also elevated systemic racial disparities not only in health care access, but also in access to food, housing, education, and other pillars of a healthy life. Fortunately, countless individuals and institutions in North Carolina approach these challenges with a combination of innovative thinking and norm-breaking collaborations. These innovations and collaborations were born of necessity in the pandemic, but hold great promise for continued applications years into the future. This issue brief and the articles that follow examine several examples of innovation and collaboration in terms of securing, promoting, and administering testing and vaccines; providing virtual health care; producing needed supplies; addressing basic human needs such as housing and food; and using data to inform planning and decision making, all with an eye toward closing disparity gaps and moving toward equity.

Introduction

The COVID-19 pandemic seemed to catch the world off guard, causing rapid spread of disease and death across the globe. Was it really a surprise? Many people, from renowned scientists to historians, predicted this day would come. Dr. Jeremy Brown's book *Influenza: The Hundred Year Hunt to Cure the Deadliest Disease in History* was published just a year prior to the discovery of SARS-CoV-2, the virus that causes COVID-19 [1]. Recalling the influenza pandemic of 1918-1920, referred to as the Spanish Flu, Brown challenged his readers with vexing questions about preparedness for another pandemic. An image from the National Archives shown in Figure 1 could be the 100-year-old version of North Carolina's 3Ws (wear, wait, wash) (Figure 2). In 2015, billionaire Bill Gates warned of a potential global catastrophe caused by an infectious disease, writing in his blog that, "The world is simply not prepared to deal with a disease . . . that infects large numbers of people very quickly" [2].

The timing of COVID-19 also made it clear that it is not the only pandemic spreading among us; an ongoing racial reckoning in the United States and other countries, highlighted by the death of George Floyd and other Black people at the hands of police, coupled with excess deaths of Black people from COVID-19 compared to their White neighbors, led our country and state to begin a new examination of how structural racism affects our health. Journalist Jordan Fenster noted similarities between the "twin pandemics" of COVID-19 and racial injustice in 2020 and the Spanish Flu pandemic and heightened racial tensions during the "Great Migration" in 1919 [3]. Fenster remarks, "Viruses, of course,

FIGURE 1.
Precautions Against Influenza Flyer From 1918-1920 Pandemic



5922

FILE

FEB 3 1920

PRECAUTIONS

AGAINST INFLUENZA

Influenza is spread through discharge from the eyes, nose and mouth.

Avoid persons with coughs and colds.

If obliged to cough or sneeze yourself, when near another person, turn the face or cover the mouth and nose with a handkerchief: such handkerchief should afterwards be sterilized by boiling or be destroyed.

Avoid common drinking cups.

Do not expectorate promiscuously.

Do not stand close to another person while conversing and do not talk directly at them. Discharges from the mouth are disseminated while talking.

Avoid poorly ventilated rooms and see that living and sleeping quarters are well ventilated.

Avoid crowds, especially within doors.

Spend as much time as possible in the open, especially in the sunshine.

Dress warmly, avoid "wet feet". Keep regular hours.

G. L. Angeny,
Captain, (MC) U. S. Navy,
Senior Yard Medical Officer.

Approved:
A. S. Halstead,
Rear Admiral, U. S. Navy,
Commandant.

Source. Precautions against influenza flyer, National Archives Identifier 6861947

Electronically published July 6, 2021.

Address correspondence to Susan R. Mims, 866 Hendersonville Rd, Asheville, NC 28803 (s.mims@dht.org).

N C Med J. 2021;82(4):245-251.
0029-2559/2021/82404

FIGURE 2.
NC Department of Health and Human Services Know Your 3 Ws Flyer

Source. North Carolina Department of Health and Human Services. Know Your 3 Ws Flyer. https://files.nc.gov/covid/documents/know-your-ws/KYWs_Stop_Symptoms_ENG_8.5x11.pdf. Accessed April 22, 2021

know no race, no color, no creed, no nationality, they don't have passports."

Higher case rates of COVID-19 infection in Latinx communities also raised issues of inequities in health care, specifically related to pandemic response. With people of color disproportionately affected by COVID-19 cases, many public health workers focused attention on addressing these inequities. This focus is long overdue, and we have a long way to go in giving this subject the attention it deserves. Racial tensions contribute to challenges in responding to this pandemic and offer opportunities to do this work better with an intentional focus toward addressing inequities and building bridges toward improved health for all.

Like every dark cloud, even the cloud of COVID-19 has revealed some silver linings. The pandemic has proven the ability of individuals and institutions in our state to work collaboratively, developing innovative approaches to myriad challenges laid bare by the pandemic: from testing and vaccination, to basic human needs, to the harsh realities of long-term systemic racism.

Gijs van Wulfen, the author of the FORTH Innovation Methodology, defines innovation as, "a feasible, relevant offering" [4]. In this issue of the North Carolina Medical Journal there are many examples of *feasible and relevant* offerings developed through unusual collaborations in response to this unprecedented time.

Unexpected Collaborations

Competition can dissuade collaboration. However, history includes myriad examples of people and organizations coming together in a crisis to work in collaboration to address the needs before them. The COVID-19 pandemic is no exception. Every invited commentary and sidebar article in this issue addresses collaboration, many citing innovative public-private alliances.

In Western North Carolina (WNC), what began as a weekly, casual phone call among chief medical officers (CMOs) concerned about regional hospital bed capacity and availability of testing and equipment, grew to a consortium of health care providers, public health officials, retail pharmacies, educators, foundations, and community organizations working together to slow the spread of COVID-19 in their region and ensure residents get vaccinated. In "Pandemic-driven Community Collaboration in Western North Carolina: The Silver Lining around the COVID-19 Cloud," Hathaway and coauthors detail this transformation, including their efforts to share the latest information as the world learned more about the virus; organize for regional access to therapies, testing, and then vaccinations with a focus on equitable distribution of resources; and ensure consistent and effective messaging for the public [5].

A campaign entitled *My Reason WNC* offered an opportunity for local groups, counties, churches, and civic organizations and others to address the communities' concerns and share credible messaging through local leaders and influencers using locally branded materials based on the state's "My Reason NC" messaging (Figure 3) [6]. Incorporating best practices in health communications, this campaign achieved high engagement and self-reported behavior change [8]. A related sidebar column by Hodge and Lanou describes the collaborative work of the six residential colleges and universities in the 18 WNC counties, further demonstrating the collective impact of public-private partnerships among higher education and health care on maintaining in-person education while keeping infection rates low [7].

While it is difficult to know how much the efforts of these WNC collaborations contributed to the lower case rates of COVID-19 and higher vaccination rates in the region as compared with the surrounding counties, continued collective work offers opportunity for addressing the health of the region and being prepared for future challenges.

In the Piedmont and the Eastern part of the state, DeWitt and coauthors describe another collaboration of hospitals among the Cone, Duke, and Vidant health systems [8]. In "Community versus Crisis: How Cone Health Leveraged its Local Relationships to Meet the Demand for Masks," Schneider and West describe a link between unrelated and

perhaps unfamiliar organizations—Cone Health and a manufacturer of industrial products—to meet immediate needs for personal protective equipment (PPE) [9]. The spark that began through this partnership ignited a larger collaboration of community leaders, including representatives from health care, manufacturing, higher education, and economic development, who began meeting regularly "to discuss how the collaborative culture can be leveraged for the future" [9].

Focus on Equity

The rapidly spreading virus presented a challenge for public health leaders to respond quickly while maintaining an intentional focus on providing COVID-19 education, testing, and vaccinations to historically marginalized populations. Martinez-Bianchi relays the important role played by the Latinx Advocacy Team & Interdisciplinary Network for COVID-19 (LATIN-19), a public-private coalition of many stakeholders who came together to address disparities facing the Hispanic/Latinx community [10]. What began as a small effort convened by clinicians at Duke University Medical Center with expereince, expertise, and passion for working with the Latinx community, grew to become LATIN-19, a group with more than 770 participants of diverse backgrounds and occupations. Recognizing that the Latinx community represented more than 20% of cases but made up less than 10% of the population in their area, this team focused on collective leadership and forming trusted collaborative partnerships and alliances that allowed community members to be in direct conversation with decision makers [10]. These stakeholder conversations served to educate the Latinx community and helped inform policies and practices to better serve them. LATIN-19's work informed hospital policies and addressed the lack of sufficient and appropriately located testing and vaccine sites to ensure access to care, culturally and linguistically appropriate materials distributed through the state, and protections for food industry workers. This approach built trust by working with and through community organizations and helping to address people's immediate needs.

With the effects of the pandemic most severely felt by communities of color, the North Carolina Department of Health and Human Services (NCDHHS) worked to incorporate the voices of people of color into the state's pandemic response [11]. In the article "In the Path of the Storm: North Carolina's Response to COVID's Impact on Historically Marginalized Populations," the authors outline the work of the state's Historically Marginalized Populations (HMP) Workgroup in advising and informing every aspect of North Carolina's pandemic response to ensure equitable practices in communications, testing, and vaccine distribution [12]. The state's pilot program, Community Testing in High-Priority And Marginalized Populations (CHAMP), concentrated testing resources in communities of color to ensure pandemic control measures and access to care were distributed to everyone and focused where needed most [13]. Dowler explains how offering high-throughput testing informed by data and connection to primary care improved testing rates in targeted communities. To ensure implementation aligned with the state's described tactics, an evaluation process incorporated "secret shoppers" [13].

In the Spotlight on the Safety Net column, Dewitt-Feldman and coauthors outline an innovative, evidence-based strategy for addressing disparities in a rural Latinx community that focused on training community leaders and influencers to serve as COVID-19 community health ambassadors [14]. Armed with knowledge and access to resources, these paid "volunteers" educated their neighbors and friends with critical public health information to protect their community. While most of these influencers did this work after hours and after finishing another job, paying them

FIGURE 3.
Gladys Knight's Reason—WNC Health Network My Reason WNC Campaign

Source. WNC Health Network. My Reason WNC Campaign. https://www.wnchn.org/myreasonwnc/. Accessed April 22, 2021.

for their time and expertise in cultural understanding as well as their connections with the community was an important act of respect and equity.

Virtual Care

In March 2020, when the Centers for Disease Control and Prevention (CDC) issued recommendations for social distancing and remaining at home whenever possible, it also encouraged physicians and patients to use telehealth for health care delivery as appropriate [15].

As executive director for the North Carolina Academy of Family Physicians, Griggs is deeply connected to health services provided on the front lines by primary care providers. In his article, Griggs shares examples of feasible and relevant applications of technology to ensure quality care for patients is delivered in a safe and convenient way [16]. Griggs notes higher telemedicine use for primary care and behavioral health services during the height of the pandemic, and reports of benefits including gaining a better understanding of a patient's physical environment and an the ability to assess and address influences in health in a deeper and more meaningful way.

An analysis of NC Medicaid data by Dowler, Crosbie, and coauthors adds to Griggs's report, demonstrating that telemedicine helped maintain continuity of care during Governor Cooper's Stay at Home Order [17]. Both Griggs and Crosbie address how innovations in payment model changes facilitated the rapid adoption of telemedicine by lifting restrictive rules on how and where telemedicine can be delivered. Additionally, new or increased payments for virtual services offered financial sustainability for critical primary care practices through a time of decreased in-person visits.

In her evaluation of these changes in care delivery and the alterations in reimbursement for services delivered remotely, Crosbie presents data indicating a trend toward reduced use of care in the two weeks following a telemedicine visit for non-COVID-related care, but emphasizes that additional analyses will be key to capturing and retaining the benefits of these new models of care delivery [17]. Sorenson, addressing the need to consider the value of care in payment models, recommends continuing flexibilities in payment for telehealth for needed services that add value for patients and discontinuing payments that are of low value or encourage overuse of medical care [18]. Griggs adds that virtual care is an important complement to care delivery, but argues it will never replace in-person care [16]. Sorenson contends that with value-based payment models, the means through which care is delivered is less important, as long as the desired outcomes are achieved [18].

Infrastructure

Broadband Connectivity

One drawback to increased use of telemedicine is the lack of broadband access in North Carolina, especially in rural areas. Doaks describes the work of MCNC to address the lack of digital inclusion across the state with a focus on digital equity [19]. The pandemic highlighted how this basic need is a determinant of health, education, and employment in this time of dependency on connected access to health care services, classrooms, and remote work. In 2018, one-quarter of Medicare beneficiaries had no digital access [20]. People who lack connectivity are more often older, have lower income, and are people of color [19]. This lack of access complicates getting care through telehealth, registering for testing or a vaccine, or finding information about COVID-19. Internet services are also needed for vaccine distribution sites, and lack of access limits vaccine distribution in some areas. Both Griggs and Crosbie also identify challenges in using technology (especially for the elderly) and lack of high-speed, quality internet as barriers to widespread use of telemedicine [16, 17].

Because there are many aspects to quality broadband, just having access is insufficient to close the digital divide. Doaks writes that access must be accompanied by support for continuous monitoring and updates, education, cybersecurity, and risk management. Doaks points to universal internet access as an equity issue and emphasizes the importance of "understanding the link between broadband and socioeconomic growth" [19].

Housing

Just as access to quality internet services can influence a person's health and well-being, so can access to a safe, affordable place to live. The CDC publicly declared this link when its director signed a temporary moratorium on housing evictions to prevent the spread of COVID-19 [21]. With North Carolina's lack of affordable housing, the rise in unemployment during the pandemic tipped the scales, with increasing numbers of individuals and families becoming cost-burdened by their mortgages or rent payments. In "Housing Instability and Public Health: Implication of the Eviction Moratoria During the COVID-19 Pandemic," Sills and Rich describe the backdrop of an affordable housing desert in North Carolina further complicated by high unemployment rates in the state's leisure and hospitality industry, which faced a near-complete shutdown because of the pandemic. The authors highlight the disproportionate impact of the unemployment and housing crises on "women, Latinx people, immigrants, young workers, and those with less education" [22]. In addition to federal assistance through the Coronavirus Aid, Relief, and Economic Security Act (the CARES Act), Governor Cooper and then Supreme Court of North Carolina Chief Justice Beasley enacted provisions to offer assistance to residents for emergency support in holding off evictions and utility service termination, funding to help keep people housed, and programs for tenants and landlords to find equitable solutions for preventing homelessness [22]. Sills and Rich's evidence for how these swift actions and aggressive legislative protections helped to ensure homeowners and renters remained housed dur-

ing the crisis, prevented the spread of COVID-19, and saved lives, offers some hope. The authors warn that this pandemic-intensified housing crisis demands our attention and action.

Food Insecurity

In a brief issued March 9, 2021, Feeding America predicted that "42 million people (1 in 8), including 13 million children (1 in 6), may experience food insecurity in 2021," and, in 2020, people living in rural areas experienced the highest levels of food insecurity, with as much as 14.4% of this population being affected" [23]. Randall describes the role of the Mountain Area Nutritional Needs Alliance (MANNA) in responding to the increase in food needs of Western North Carolinians during the pandemic. As one of over 200 food banks across the country in the Feeding America network, MANNA has recognized the association between lack of access to adequate food with poor health, and how the increased need may translate for some—especially people of color and people experiencing socioeconomic strain—into poorer health outcomes during the pandemic [24]. MANNA's response, working to change this outcome, involved organizing a collaborative group of community leaders and experts who worked collectively to deliver vital food and other needed supplies to underserved Latinx communities, as well as sharing vaccine and other important information in both English and Spanish.

MANNA also forged other partnerships across WNC to meet urgent needs and worked with Feeding America on advocacy efforts for more permanent policy solutions. The American Rescue Plan Act of 2021, signed into law by President Biden on March 12, 2021, provides for a 15% increase in Supplemental Nutrition Assistance Program (SNAP) benefits through September 2021 and offers additional nutrition assistance to mothers and young children [25]. This additional benefit "will provide about $28 more per person, per month, or more than $100 more per month for a household of four" [25]. Understanding the influence of structural racism and discrimination on food insecurity may help in discerning why more people of color experience hunger on a daily basis, and this informs solutions beyond economic interventions alone. Prepandemic racial disparities in food insecurity have intensified during this crisis. Randall's offers a note of optimism that collective efforts can transform the future to one of food security for all.

Ensuring Sufficient Supplies

The tried-and-true public health interventions of isolation and quarantine depend on accurate and available testing for the offending disease. As new tests for COVID-19 gained approval under the Emergency Use Authorization (EUA) by the Federal Drug Administration (FDA), laboratory professionals working with frontline health care providers and public health workers faced the challenge of using the limited number of available tests to control the spread of COVID-19 in their communities. A team working in Eastern North Carolina addressed this challenge by rapidly expanding testing to support public health efforts with a focus on availability in populations disproportionately impacted by COVID-19. In the article "Laboratory: From the Shadows to the Front Line," Parrish and Harlow outline Vidant Health's rapid expansion of laboratory services, employing multiple testing platforms such as rapid and high-throughput testing [26]. The use of a variety of testing modalities offered some buffer to the fluctuation of testing reagent supplies faced across the country. To ensure maximum efficiency, the Vidant team employed robots for pipetting that helped them meet the testing needs across the eastern part of our state [26].

Combining the array of testing with data analysis helped the Vidant team refine its testing strategies and target geographic regions with the highest disease prevalence. Community partners helped to facilitate testing events through the CHAMP effort, rapidly reaching rural and underserved communities across a wide geographic area. As was the case throughout North Carolina, Vidant's testing revealed the highest positivity rates in the younger Latinx populations [26]. To ensure everyone who was tested received the care they needed, the testing teams linked patients with a primary care provider, and patients testing positive for COVID-19 were enrolled in a nurse home-monitoring program. Parrish and Harlow highlight the importance of a collaborative effort, describing the contributions of health care staff, who are often siloed in their work, coming together to meet this challenge [26]. They further identify the importance of maintaining and building on this cross-discipline work to ensure we are prepared for the future.

Just as access to testing supplies affected health care and public health workers' ability to control the pandemic, disruptions in supply chain and demand for personal protective equipment (PPE) posed challenges in providing care to all patients. These disruptions also challenged frontline social service professionals working to control COVID-19's spread in communities. The World Health Organization warned that the situation was dire and encouraged creative public-private arrangements to increase PPE production [27].

In response to this challenge, many new partnerships formed to produce needed supplies: distilleries made hand sanitizer; clothing manufacturers pivoted to making hospital gowns; and at Cone Health in Greensboro, a collaboration with private manufacturing company Custom Converting Solutions (CCS) was created. As Schneider and West write, facing a seven-fold increase in demand for masks, Cone Health was desperate, and through community relationships and circumstance found a partner to help increase mask supplies [9]. CCS used its infrastructure and technology to shift production to manufacture the badly needed masks, donating 250,000 to Cone Health [9]. Not only did CCS's contributions help to protect staff and patients, but this effort also served to bring together a community and left all

involved feeling empowered in a time when many felt powerless. Whether this story is about a company learning to make PPE or a community business recognizing and appreciating the challenging work of frontline caregivers, the act of helping is vitally important in achieving collective resilience.

Data and Analytics

To aid in the pandemic response, analytics teams across health care systems modeled data and offered insights to health care delivery teams on cases and facility needs, procurement of staff and supplies, facilitation of testing and vaccine distribution, and evaluation of new treatments. DeWitt and coauthors describe a collaboration among the Vidant, Duke, and Cone health systems to create predictive models [8]. Using innovative methods to help answer the myriad questions facing health care providers, this unlikely grouping of analysts provided informed direction to health systems as well as state officials. This cross-institutional collaborative informed clinical care through support of clinical trials and facilitated organizational planning to ensure patient care needs were efficiently addressed [8]. Using social vulnerability data, the team described inequities and highlighted opportunities for intervention. Defining populations most at risk and using predictive analytics, they facilitated prevention and early response that focused resources toward rural and historically marginalized populations.

Sorenson points to the need for further development of collective analytic capabilities in order to analyze the impact of the shift in care delivery during the pandemic in order to gain better understanding of various interventions and services [17]. In addition to learning about the value of a particular service, this analysis can add to our understanding of the value associated with how the service is delivered, with special focus on equitable delivery models. The advancement in data analytics and understanding the importance of timely connection with service delivery providers in a pandemic emergency will undoubtedly continue to inform and improve health outcomes.

Heeding the Lessons

COVID-19 is not the first time our country has dealt with a deadly pandemic. The Spanish Flu epidemic of 1918-1920 brought challenges that were eerily similar, including resistance to recommended public health policy, a decline in economic activity, xenophobia, and tensions surrounding racism and racial disparities [3]. There are lessons from that period that might have better informed our current response. But as the articles in this issue show, there are also areas where we have made great strides.

Sharing stories of innovation and collaboration, finding ways to contribute, building trust, and realizing the connections each person has to another are important lessons in perseverance and hope. Without a doubt, the COVID-19 pandemic shined a bright light on disparities in all of our systems. Many began to see the societal and cultural structure that has consistently, at every turn, disadvantaged people of color in the United States. The success of the many programs and initiatives described in this issue, along with the success stories of working within and among communities, offer inspiration.

The ingenuity, fortitude, and deep commitment demonstrated by those within and alongside our health care and public health system have been nothing short of heroic. Remembering these stories, and building increased public health investment upon the foundation of innovative collaboration developed through this time of crisis, will serve us well in our everyday work to improve the health of the communities we serve. It also will ensure that we are better prepared when the next crisis arrives. NCMJ

Susan R. Mims, MD, MPH interim CEO, Dogwood Health Trust, Asheville, North Carolina.

Acknowledgments

Assistance with editing was provided by Betsey Russell.
Disclosure of interests. No disclosures were reported.

References

1. Brown J. 1964-Influenza: The Hundred Year Hunt to Cure the Deadliest Disease in History. New York, NY: Atria Books; 2018.
2. Gates B. We're not ready for the next epidemic. GatesNotes.com. https://www.gatesnotes.com/Health/We-Are-Not-Ready-for-the-Next-Epidemic. Published March 18, 2015. Accessed April 17, 2021.
3. Fenster J. Racial unrest, disease, depression: 1919 versus 2020. MiddletownPress.com. https://www.middletownpress.com/news/article/Racial-unrest-disease-depression-1919-versus-15351648.php. Published June 19, 2020. Updated June 21, 2020. Accessed April 21,2021.
4. Skillicorn N. What is innovation? 15 experts share their innovation definition. Idea to Value website. https://www.ideatovalue.com/inno/nickskillicorn/2016/03/innovation-15-experts-share-innovation-definition/. Published March 18, 2016. Accessed April 11, 2021.
5. Hathaway WR, Mims SR, Ellis D, et al. Pandemic-driven community collaboration in Western North Carolina: the silver lining around the COVID-19 cloud. N C Med J. 2021;82(4):259-265 (in this issue).
6. WNC Health Network. #My Reason WNC. WNC Health Network website. https://www.wnchn.org/myreasonwnc/. Accessed April 22, 2021.
7. Hodge B, Lanou AJ. Regional relationships: creative collaboration for prevention and mitigation among Western North Carolina learning institutions. N C Med J. 2021;82(4):260-261 (in this issue).
8. DeWitt ME, Scheib C, Jones M, Cowin P. Deriving analytic insights during a novel pandemic. N C Med J. 2021;82(4):284-286 (in this issue).
9. Schneider M, West H. Community versus crisis: how Cone Health leveraged its local relationships to meet the demand for masks. N C Med J. 2021;82(4):290-291 (in this issue).
10. Martinez-Bianchi V, Maradiaga Panayotti GM, Corsino L, Felsman IC, Gonzalez-Guarda RM, Nagy GA. Health and wellness for our Latina community: the work of the Latinx Advocacy Team and Interdisciplinary Network for COVID-19 (LATIN-19). N C Med J. 2021;82(4):278-281 (in this issue).
11. North Carolina Department of Health and Human Services. Promoting COVID-19 Vaccine Equity in North Carolina. Raleigh, NC: NCDHHS; 2021. https://covid19.ncdhhs.gov/media/2388/open. Published April 22, 2021. Accessed April 22, 2021.
12. Laws M, Martinez-Bianchi V. In the path of the storm: North Carolina's response to COVID-19's impact on historically marginalized populations. N C Med J. 2021;82(4):276-277 (in this issue).
13. Dowler S. Community testing in high-priority and marginalized populations (CHAMP). N C Med J. 2021;82(4):282-283 (in this issue).
14. Dewitt-Feldman S, Robinson HJ, Thach SB, Tipton L, McCall S. Bilingual, bicultural CARE health ambassadors in rural Western North Carolina. N C Med J. 2021;82(4):292-293 (in this issue).

15. Koonin LM, Hoots B, Tsang CA, et al. Trends in the use of telehealth during the emergence of the COVID-19 pandemic — United States, January–March 2020. MMWR Morb Mortal Wkly Rep. 2020;69(43):1595-1599. doi: 10.15585/mmwr.mm6943a3
16. Griggs GK. Innovations in virtual care during the pandemic: implications for the future. N C Med J. 2021;82(4):252-254 (in this issue).
17. Dowler S, Crosbie K, Thompson S, Drucker E, Jackson C. Telemedicine utilization trends during the COVID-19 public health emergency. N C Med J. 2021;82(4):255-258 (in this issue).
18. Sorenson C. Capitalize on the moment: leveraging the COVID-19 experience to spur low-value care reduction in North Carolina. N C Med J. 2021;82(4):294-298 (in this issue).
19. Doaks T. Digital equity and high-speed health born from the COVID-19 Crisis. N C Med J. 2021;82(4):266-270 (in this issue).
20. Roberts ET, Mehrotra A. Assessment of disparities in digital access among Medicare beneficiaries and implications for telemedicine. JAMA Intern Med. 2020;180(10):1386-1389. doi: 10.1001/jamainternmed.2020.2666
21. Centers for Disease Control and Prevention. Temporary Halt in Residential Evictions to Prevent the Further Spread of COVID-19. CDC website. https://www.cdc.gov/coronavirus/2019-ncov/covid-eviction-declaration.html. Updated April 13, 2021. Accessed April 19, 2021.
22. Sills SS, Rich BA. Housing instability and public health: implication of the eviction moratoria during the COVID-19 pandemic. N C Med J. 2021;82(4):271-275 (in this issue).
23. Feeding America. The Impact of the Coronavirus on Food Insecurity in 2020 & 2021. Chicago, IL: Feeding America; 2021. https://www.feedingamerica.org/sites/default/files/2021-03/National%20Projections%20Brief_3.9.2021_0.pdf. Published March 9, 2021. Accessed April 19, 2021.
24. Randall SH. Climbing with hope: how food banks and community came together in COVID-19. N C Med J. 2021;82(4):262-263 (in this issue).
25. USDA Increases SNAP Benefits Up To $100 Per Household with Funding from American Rescue Plan [press release]. Washington, DC: US Department of Agriculture; March 22, 2021. https://www.usda.gov/media/press-releases/2021/03/22/usda-increases-snap-benefits-100-household-funding-american-rescue#:~:text=%E2%80%9CThe%20American%20Rescue%20Plan%20brings%20help%20to%20those,most%20meaningful%20investments%20in%20generations%20to%20reduce%20poverty.%E2%80%9D. Accessed April 19, 2021.
26. Parrish JW, Harlow D. Laboratory: from the shadows to the front line. N C Med J. 2021;82(4):287-289 (in this issue).
27. Chaib F. Shortage of personal protective equipment endangering health workers worldwide. Who Health Organization website. https://www.who.int/news/item/03-03-2020-shortage-of-personal-protective-equipment-endangering-health-workers-worldwide. Published March 3, 2020. Accessed April 19, 2021.