Carrying Equity in COVID-19 Vaccination Forward: Guidance Informed by Communities of Color

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CommuniVax

A Coalition to Strengthen the Community's Role in an Equitable COVID-19 Vaccination Campaign

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Executive Summary

Seven months into the COVID-19 vaccination campaign in the United States, nearly 50% of the American population has been vaccinated. While this is a monumental accomplishment, there is still much work to do.

In the coming months, the country will face a series of vaccination challenges including serving groups with persistently low vaccine uptake (due to, for example, low/no access, vaccine hesitancy, or a combination of factors), expanding COVID-19 vaccination to children (particularly those whose parents may be less willing to vaccinate their children than to get vaccinated themselves), and orchestrating a potential booster dose campaign (with its own hesitancy issues). As the COVID-19 vaccination campaign continues, lessons from the vaccine rollout to date can help provide direction moving forward.

One challenge that deserves closer attention and more refined solutions is the campaign's limited success at delivering vaccines to low-income persons and communities of color. During the pandemic, these populations have experienced significant physical, financial, and psychological harms at a disproportionate rate. The continued emergence and spread of new SARS-CoV-2 virus variants and the resumption of routine social, commercial, and educational activities across the country amplify the risks that COVID-19 poses to these groups.

This report provides specific guidance on adapting COVID-19 vaccination efforts to achieve greater vaccine coverage in underserved populations and, through this, to develop sustainable, locally appropriate mechanisms to advance equity in health.

In the first half of the report, we outline findings from local, ethnographic research conducted within Black and Hispanic/Latino communities in Alabama, California, Idaho, Maryland, and Virginia. Since January, local research teams have been assessing community infrastructure; listening to community members, public health officials, and government leaders; and coordinating engagement activities to understand how best to promote awareness of, access to, and acceptability of COVID-19 vaccines. In the second half of this report, we present the policy and practice implications of the local research. The Working Group on Equity in COVID-19 Vaccination—an advisory body of community advocates, public health experts, and social scientists—developed the recommendations, eliciting local team feedback.

FINDINGS

1

Naming vaccine hesitancy as "the problem" obscures a more complex set of realities

The now popular term "vaccine hesitancy" glosses over diverse concerns about vaccines, COVID-19, and health authorities. Rather than a perceived moral failure of being "hesitant" or "noncompliant," a lack of vaccination is often an external reality related to lack of access to vaccines. The same socioeconomic and structural forces that contribute to the disparate impacts of COVID-19 have also created persistent barriers to accessing vaccines. A myopic focus on vaccine hesitancy can conceal access issues, including those due to structural racism. Vaccine decision making is ongoing, dynamic, and interpersonal, rather than a straightforward process of an individual, alone, digesting educational materials and then moving to action.

2

Assuming communities of color are homogeneous is a critical error

Common experiences among communities of color do exist, particularly the shared burden of economic and racial inequalities. Where the communities live can also create similar experiences; for example, urban areas often have more developed internet and transportation infrastructure compared to frontier and rural locations. Despite these similarities, differences between and within local communities make them unique and result in different experiences. Black and Hispanic/Latino persons experience racism differently due to factors such as language, culture, and historical experiences with certain institutions (eg, immigration and law enforcement). Within communities, demographic characteristics like age, gender, and political party affiliation greatly influence and differentiate individuals' experiences and perspectives.

3

Hyperlocal responses to the pandemic result in better health outcomes

Community led, organized, and advocated measures have closed COVID-19 response gaps. Grassroots groups already have the trust of community members and understand the socioeconomic and cultural realities of their lives. Governmental public health agencies and healthcare systems do not always have such assets to the same extent or depth. Such trust is important. Vaccination moves at the speed of public trust; without trust, education campaigns, national messaging campaigns, and other pro-vaccination efforts fall flat.

RECOMMENDATIONS

Urgent Actions: Take immediately to improve vaccine coverage within underserved communities

1

Humanize delivery and communication strategies for COVID-19 vaccines

To reverse the vaccination campaign's current slowdown and persistent unevenness in vaccine coverage, the campaign should support more peer-led and neighborhood-based opportunities for community conversation and for convenient vaccine access. Health systems and health departments should develop and/or strengthen their collaborations with community-based organizations (CBOs), FBOs (faith-based organizations), and community health workers (CHWs) and, importantly, commit to maintaining these relationships after the COVID-19 pandemic subsides. CBOs, FBOs, and CHWs should play a key role in identifying reasons for low vaccination coverage and should be involved in developing interventions to address those issues, such as providing vaccines at locations community members perceive as safe, familiar, and convenient. Groups and people communicating about COVID-19 vaccination should target as many social settings as possible—in person, on air, and on screen—to create multiple opportunities that prompt peer-to-peer conversations about vaccination. Individuals do not make their decision alone, even if they make the final decision about getting the vaccine.

2

Anchor COVID-19 vaccination for hard-hit areas in a holistic recovery process

First, public agencies, hospitals and health systems, nonprofit social service providers, CBOs, FBOs, and CHWs should align themselves around a "whole person" model of recovery to meet underserved communities' self-identified needs (eg, food, housing, jobs, mental health support) and to multiply the benefits of each vaccination encounter. A wraparound service approach provides the sense of safety and security important to informed health decision making. Second, local and state jurisdictions should take immediate steps to plan for long-term recovery and community resilience by: (a) convening a cross-sector council of stakeholders, including Black and Hispanic/Latino leaders, CBOs, FBOs, and CHWs to apply a whole-of-community, whole-of-government approach; and (b) engaging existing data-driven coordinating bodies that already facilitate disaster recovery, economic development, and other long-range planning.

Essential Actions: Execute steadily to create systems-level changes and advance health equity broadly

3 **Develop a national immunization program to protect people throughout the life course**

During the COVID-19 vaccination effort, public health authorities and government leaders at federal and state levels should capitalize on an already highly successful national immunization program for children, building out systems to provide broader coverage for COVID-19 vaccines and the 13 other vaccines recommended for some or all adults. Tasks include reconfiguring funding systems to support a life-course (versus childhood-only) approach to immunization, facilitating the integration of adult immunization with other health systems and priorities, and developing systems to monitor program progress and measure social and economic impacts. The funding support must be adequate to ensure health departments have sufficient staffing to oversee progress in enhancing adult immunization uptake and can take corrective actions if progress is judged to be inadequate.

4 **Rebuild the public health infrastructure, properly staffing it for community engagement**

Political leaders at all levels should allocate steady core funding for the public health infrastructure, sustaining its capacity to respond to future emergencies and address prevalent health challenges (eg, diabetes, heart disease) that affect communities of color in greater numbers. A mandatory national investment of $4.5 billion per year in a public health infrastructure fund will ensure a predictable minimum capacity at state and local levels. State and local officials should provide steadfast support to agencies that protect the health of their populations. Furthermore, state and local health departments should commit to the strategic goals of promoting equity in their ranks at every level, including their boards of health, and strengthening human-centric competencies through the recruitment of more social and community proficient professionals, such as health educators/promoters, risk communicators, language translators, social media strategists, and sociobehavioral researchers.

5 **Stabilize the community health system as the backbone for equity and resilience**

Federal, state, and local leaders should take steps to formalize and finance the country's struggling, but promising, community health system. Through community roots and shared experiences, CHWs build trust with clients while navigating health and human services systems, bridge client

and provider cultures to adapt service delivery and better meet needs, and advocate for system-level changes that will improve clients' access to care and overall health. In consultation with local, regional, and national CHW networks, federal and state officials should create sustainable financing strategies (including Medicaid reimbursement) for community health work on disease prevention, health promotion, and social determinants of health. To generate opportunities and a career ladder, state legislators should authorize a CHW workforce development plan; public health officials should work with human resources systems to create positions at varying levels of experience. To acknowledge the deep social assets and community organizing abilities of CBOs, FBOs, and CHW-led organizations, public and private funders should provide grants directly to these entities, adapting funding processes and eligibility criteria to create an environment where communities with the greatest need benefit from funding first.

Introduction

This report outlines recommendations for immediate and ongoing actions that public health officials and government leaders can take to facilitate COVID-19 vaccination. Drawing upon research conducted with Black and Hispanic/Latino communities across the country, it provides specific guidance on adapting COVID-19 vaccination efforts to achieve greater vaccine coverage in underserved populations and, through this, to develop sustainable, locally appropriate mechanisms to advance equity in health.

Problem

Despite considerable effort, the United States did not reach the Biden administration's goal of having 70% of adults vaccinated by July 4.[1] Several factors can be attributed to this problem, including a slowdown of the vaccination campaign and the persistence of pockets of low vaccine coverage.[2-4] As the COVID-19 vaccination campaign expands to include young children and a potential booster dose campaign, the country's COVID-19 vaccination strategy should be updated to address issues that require more focus or different approaches.

A critical inclusion in the updated strategy should be improving vaccine coverage for persons hardest hit by the pandemic: socially disadvantaged groups and communities of color. Low vaccination coverage in these groups is highly problematic, as many people in these communities are generally at risk for poor health outcomes due to the lack of or poor access to healthcare and high rates of chronic health conditions like diabetes. These people are also more likely to be exposed to SARS-CoV-2 through their living and working conditions, be diagnosed at later stages of infection, require hospitalization due to COVID-19 symptoms, and die from this disease.[5-7] The emergence and spread of new variants and the resumption of routine social, commercial, and educational activities only amplifies the risks that COVID-19 poses to them.[8]

To improve vaccine coverage within poor communities and people of color, equity in vaccination is crucial. Unlike equality (the requirement that everyone be treated the same), equity entails recognizing different circumstances and compensating for them, so that all persons can reach an equal outcome.[9] Equity in vaccination, therefore, demands that the most marginalized, vulnerable individual in a community has the same ability to access vaccination as anyone else in that community. This means that the individual is aware of the vaccine's purpose and availability, understands the value of vaccination, has the means to get to a point of vaccination without worry of undue risk (eg, concerns about taking time off work, immigration status, poor treatment due to race or ethnicity), and is able to receive the vaccine if they choose to do so.[10]

Developing equity in COVID-19 vaccination—through, for example, adjustments in public health financing, workforce composition, and community partnerships—will also provide opportunities for communities, states, and the nation to advance equity in health more broadly. Currently, the United States trails other developed countries in healthcare access and health outcomes.[11] This lag is not due to a lack of technological

knowledge, but rather to longstanding structural inequalities that limit life choices and life chances in poor communities, especially poor communities of color. As jurisdictions continue their COVID-19 vaccination campaigns, advancing equity while improving vaccine coverage will help create opportunities for durable change that will benefit everyone moving forward.

Approach

In November 2020, the **CommuniVax Coalition** was formed for the purpose of strengthening COVID-19 vaccination efforts across the United States by putting communities of color at the center of these endeavors.[12] This alliance includes 6 local research teams, the Working Group on Equity in COVID-19 Vaccination, and national stakeholders that represent both the delivery and uptake sides of vaccination. Through national reports, webinars, and other activities, the coalition facilitates and supports the development of inclusive governance systems that enable improved health and wellness during the COVID-19 pandemic and into the future.

The research driving this report was derived from the efforts of local research teams working with Black and Hispanic/Latino communities in 6 distinct sites in Alabama, California, Idaho, Maryland (Baltimore and Prince George's County), and Virginia (Table 1; Table C1, Appendix C).

Building on their existing relationships in these communities, the local teams used rapid ethnographic methods including interviews, focus groups, and social mapping to collect data from community members and local government and public health officials. Each local team also completed an environmental scan to assess their local and state infrastructures, COVID-19 disease burdens, and COVID-19 vaccination policies and they coordinated community engagement activities (eg, town halls, human-centered design workshops) that contributed to their understandings of local circumstances during the pandemic and vaccine rollout.

Drawing from this research, the local teams generated reports specific to their communities' experiences and needs. The working group members reviewed these reports and, combined with their own expertise, made suggestions for crosscutting national recommendations via 2 virtual meetings and written comments. Based on working group feedback and deliberations, a core writing team developed a draft version of this report, which the full coalition reviewed. Their constructive comments were integrated into the subsequent version of this report, which was again circulated to the full coalition for further comment, revision, and sign off.

Table 1. Descriptions of Local Research Areas

Local Research Area	Urbanicity	Socioeconomic Description	COVID-19 Case Counts and Ratios[a]	Vaccination Counts and Ratios[a]
Alabama *Majority and minority Black communities in a 6-county area in West Central Alabama*	Ranges from rural to semiurban, but the majority of the research area is rural	• 16% to 35% live in poverty • Available work has shifted from agricultural production to heavy manufacturing and food processing	551,298[a] 21.5% were Black persons, 5.3%[b] lower than proportion of Black population	1,839,512[a] 29.2% were Black persons, 2.4%[b] higher than proportion of Black population
California *Majority Hispanic/Latino community in the South Region of San Diego County*	Urban	• 14.4% to 18.7% live in poverty • Unemployment ranges from 9% to 12.2% • Affordable housing is limited	282,582[c] 54.5% were Hispanic/Latino persons, 23.2%[b] higher than proportion of Hispanic/Latino population	2,833,418[c] 30.9% were Hispanic/Latino persons, 0.4%[b] lower than proportion of Hispanic/Latino population
Idaho *Minority Hispanic communities in a 2-county area of Southeast Idaho*	Rural	• 19% live in poverty • Economy based on agriculture, food processing, transportation, and warehousing	195,172[a] 18% were Hispanic persons, 5.2%[b] higher than proportion of Hispanic population	720,293[a] 5.9% were Hispanic persons, 6.9%[b] lower than proportion of Hispanic population
Maryland (Baltimore) *Minority Latino community in Baltimore City*	Ranges from semiurban to urban, majority urban	• 22.5% live in poverty • Latino individuals often work in service-related, construction, and maintenance positions • Affordable housing is limited	462,634[a] 15% were Latino persons, 4.4%[b] higher than proportion of Latino population	3,750,323[a] 9% were Latino persons, 1.6%[b] lower than proportion of Latino population
Maryland (Prince George's County) *Majority Black community in Prince George's County*	Ranges from rural to urban, majority suburban	• 8.7% live in poverty • On average incomes of Black households are lower than White households	85,578[b] 44% were Black persons, 19%[b] lower than proportion of Black population	459,311[b] 57.2% were Black persons, 5.8%[b] lower than proportion of Black population
Virginia *Minority Black communities in Southeastern Virginia*	Ranges from semiurban to urban, majority urban	• 13.8% live in poverty • On average incomes of Black households are lower than households of all other race/ethnic groups	681,194[a] 19% were Black persons, 0.9%[b] lower than proportion of Black population	5,065,779[a] 8.2% were Black persons, 11.7%[b] lower than proportion of Black population

[a] Statewide data, obtained from Alabama's COVID-19 Dashboard Hub,[13] Idaho Official Resources for the Novel Coronavirus,[14] Maryland COVID Dashboard,[15] and Virginia Department of Health COVID-19 Dashboard.[16]
[b] Ratios calculated by taking the difference between the percent of cases/vaccinations among Black or Hispanic/Latino persons and the proportion of these populations in the state or county of reference.
[c] County data, obtained from San Diego County COVID-19 Daily Update,[17] San Diego County COVID-19 Vaccinations Demographics,[18] Prince George's County COVID-19 Dashboard,[19] and Prince George's County COVID-19 Vaccine Dashboard.[20] All data are subject to local and state reporting standards; some data may be missing or incomplete (eg, in Alabama race was unreported for about 27% of cases). Data were current as of July 5, 2021.

Local Observations

Local research provided detailed information on how the COVID-19 pandemic was experienced by individuals and within communities; the unfolding of local and state vaccination programs, as recounted and experienced by community members and implementers; and factors that motivated, facilitated, dissuaded, and/or prevented Black and Hispanic/Latino individuals from receiving or not receiving COVID-19 vaccines. Evidenced by select quotes and narratives, the 3 primary insights below highlight key issues that communities, cities, states, and the nation must address to facilitate continued COVID-19 vaccination and opportunities for greater equity in health moving forward.

The observations outlined in this report are not the only findings from the local research (which is ongoing). Those data speak strongly to declining mental health due to surges in substance abuse, the pain of losing loved ones, and the guilt of exposing family members and friends, who later died, to the virus. Future reports will address these and other compelling findings.

① Naming vaccine hesitancy as "the problem" obscures a more complex set of realities

Vaccine hesitancy can be many different things

According to the World Health Organization, vaccine hesitancy is the "delay in acceptance or refusal of safe vaccines despite availability of vaccine services."[21] In public discourse, however, the term's meaning is more expansive and includes people's concerns about vaccination that may or may not keep them from being vaccinated. During the COVID-19 pandemic, observers frequently cite vaccine hesitancy as the cause for low vaccination rates in cities and states and within particular groups, such as young adults and persons of color.[22,23] However, calling vaccine hesitancy "the problem" often obscures a much more complicated picture.

First, vaccine hesitancy—as used in the public discourse—involves a range of concerns about vaccines that can vary in detail and severity from person to person.[24] In speaking with 10 people, for instance, it is possible to hear 10 very different types of concerns that, even when similar, differentially influence the decisions of the persons expressing them. Concerns noted in the local research included how quickly COVID-19 vaccines were developed; whether vaccines have significant side effects; why, if the vaccine is so good, people are being paid (in fishing licenses, lotteries, or other incentives) to take it; and how valid are rumors like the vaccines may cause infertility or result in some other type of population control (eg, microchips).

Second, hesitancy to accept COVID-19 vaccines can stem from beliefs about the disease itself and have nothing to do with vaccines. In this research, some respondents reported a lack of concern about COVID-19, noting that they were healthy, that others they knew

had only been slightly ill and recovered quickly, and that their own personal health practices were an effective defense against contracting the disease. Because of this, they also felt that vaccination was not necessary.

> *My personal theory on it is that I do believe that this virus is out, and it's killing people… making people sick. However, before the virus even came out, I take very great pride in being health conscious. So, I've always [taken] vitamins, [drank] alkaline water… I don't eat fast food… I exercise 5, 6 days a week…. So I've always looked at it like, even if like these viruses or sickness or illnesses and things are going out or whatever, it's not going to harm me and people like me because… [we are] very healthy.* (Unvaccinated respondent from Prince George's County, Maryland)

Finally, a third source of hesitancy identified in the local communities was a longstanding distrust of medicine, public health, and government. For decades, and in some cases centuries, communities of color have experienced poor care and/or purposeful mistreatment, been kept out of healthcare systems, had their concerns discounted or dismissed, and experienced discrimination in criminal justice, employment, housing, education, and political action.[25-33] Participants in Prince George's County, Maryland, for instance, often cited public health and government officials' inconsistent interest in their communities as an example of their distrust:

> *Why are you [the health system, government] so concerned with us now? Where were you when we needed help with type II diabetes, with heart disease, and access to care?*

In Alabama, participants referenced the Tuskegee Syphilis Study as a metonym for their mistrust the US healthcare system due to its historical and ongoing unequal treatment of Black individuals. The conviction that it is not a good idea to take any aspect of the healthcare system at face value strongly informed some participants' responses to the prospect of COVID-19 vaccination. Reluctance to trust the healthcare system to act for their benefit was reflected in their ready acceptance of narratives of carelessness (the Pfizer vaccines have been mishandled and are unsafe), incompetence (the vaccine might give you COVID-19), and/or malice (the government is using vaccines to install a monitoring chip).

In all 3 Hispanic/Latino communities in this study, distrust of the healthcare system was also associated with immigration status. Individuals in the United States without documentation, or those with family members in the country illegally, often reported being afraid of traveling to and/or visiting vaccination sites for fear of deportation:

> *So [the health department] started this campaign to get them [members of the Hispanic/Latino community] to go and get the vaccines. What happens? They are afraid. Why? Because they say, "I'm going to go, they're going to ask me for my information." They're not supposed to ask for Social Security…*

none of that [is] needed. But nevertheless, the fear of being deported was what was holding them back because they were saying, "OK I'm going to go there, they're going to be seeing me around, ICE [US Immigration and Customs Enforcement] is going to come by right away, they're going to report me, they're going to deport me." (Community health worker from California)

Even in situations where Hispanic/Latino individuals felt safe going to vaccination sites, some still stayed away out of fear and confusion over the Public Charge Rule, a Homeland Security rule expanded under the Trump administration—since blocked by the courts—that allowed immigrants' citizenship applications to be affected by applicants accessing health and other social services.[34]

Narrative[a]: Different types of hesitancy – Juliet's story (California)

Juliet[b] is a friendly 28-year-old *transfronteriza*. She crosses the border to stay in the San Diego area with her partner and his mother during the workweek, and returns to Tijuana, where she lives with her parents, on the weekends. Juliet is fully vaccinated because, as she said, "I just want to feel safer; like it makes me feel safer to know that I got it." However, many people close to Juliet have not been vaccinated, which saddens her.

One such person is Juliet's mother, who has expressed strong feelings against the COVID-19 vaccine. With self-professed embarrassment (and her interviewer's reassurance), Juliet confided that her mother obtains most of her information from social media like Facebook and believes in conspiracy theories like microchips or *nueva orden mundial* [literally, new world order; a secret, emerging, global totalitarian regime]. Exasperated, Juliet recounted beseeching her mother "check your sources, make sure they are doctors," and also "listen to the other side, not only to your side."

Her mother's church, too, was at fault in Juliet's view. Rolling her eyes, she said it would make no difference if the Pope himself told believers to vaccinate. Given his stance on "LGBT [and similar issues … my mother's] like 'No, he's the Antichrist… he's not following the rules.'"

When Juliet received her own vaccine, "I got home and I'm like 'Mom I got vaccinated' and she said 'No! What?!?' She almost cried. Like 'NOOO' and was super scared but then she… forgot about it."

Juliet's father also is unvaccinated. This worries her, because, unlike her mother who stays at home, he has continued to travel across the border daily to work in San Diego, where he spends the day around other people. In contrast to her mother, Juliet believes that if her father was offered vaccination, he would take it. However, she and her family seemed unaware of how to access vaccines: she received hers at her job, so she did not have firsthand experience finding appointments or going to public vaccination sites.

Juliet's boyfriend is also unvaccinated. He is waiting to see how the vaccines affect people, although she would prefer that he hurry up. Juliet's boyfriend recently returned to work in person as a customer service employee at the zoo, where, Juliet says, management is not doing much to protect the staff because they let customers go mask-free. Further, "the gorillas got vaccinated and their employees didn't so that's like very, very messed up."

All of these decisions have occurred in the context of firsthand experience with COVID-19. Some of Juliet's extended family had the disease, and her great-aunt passed away because of it. Juliet described this as traumatic, not only due to the sadness of the death, but because "she had to be wrapped in plastic and looked crazy, I don't know. I feel like it takes away a little bit of your dignity as a person."

Juliet's parents had the disease as well. Her father developed symptoms first, due to his job Juliet suspects. "He was off work for a month," said Juliet, explaining with frustration that he didn't let her know that he had been ill with a fever for a few days before she came home for the weekend, and he did not tell her not to come, as he should have. Her mother was ill too, and still coughing after 2 months.

Juliet suggested that one way to help people come to the decision to vaccinate would be the provision of more public "resources of how to inform yourselves" or media literacy education "like how to verify." She also wondered how to make up for the negative impact of "gentrification," lamenting how the pandemic laid bare the "disparity of wages." At the start of the pandemic, when her boyfriend was laid off, he "started getting unemployment and he started making more money" than he did when employed: "that's a problem," Juliet declared.

[a] A narrative is a coherent account based on 1 person's actual experience. A composite narrative (used in some of the examples that follow) is a coherent account drawn from experiences of multiple persons and described as a single experience.

[b] All names of research participants used in this report are pseudonyms. The photos included with the narratives are stock photos, not photos of the actual research participants.

Access, not hesitancy, is the real issue in some areas

A myopic focus on hesitancy can conceal issues of access, including those due to structural racism.[33,35,36] Maryland's governor, for instance, publicly accused the Black community in Prince George's County of refusing vaccination.[37] The reality, however, was that most of the vaccines in this area were distributed to wealthier, White people from neighboring counties who were able to navigate the online registration system, travel to the vaccination sites in Prince George's County, and wait in line for hours. The issue was displacement, not hesitancy or resistance.

Since the beginning of the COVID-19 vaccine rollout, access to vaccines has been, and continues to be, a significant barrier for many marginalized groups.[36,37] The same socioeconomic and structural barriers that have contributed to the disparate impacts of COVID-19 by socioeconomic status and by race/ethnicity have also created barriers to accessing vaccines.[38]

Access issues identified in the local research included a lack of transportation to vaccination sites (especially in rural areas), the lack of funds to pay for transportation to vaccination sites, limited operating hours at vaccination sites, the inability to take time off work for vaccination appointments or to take time off if vaccination resulted in sickness, a lack of childcare and/or eldercare, a lack of access to computers and/or smart phones (to access online appointment registration portals or even information about when and where vaccines were available), limited or no internet access (another common problem in rural areas), and a lack of online literacy.

In Hispanic/Latino communities additional barriers included a lack of information in Spanish and/or indigenous languages, a lack of multilingual speakers at call centers and vaccination sites, and the need to show government identification before receiving vaccines. While some of these problems were later rectified, the early inability of the system to meet people's needs only exacerbated community members' feelings of not mattering.

> *I don't speak English that well, but I've been here in the US for many years. Sometimes people come here [to the United States] and they don't have information on how to do things, it's difficult for Latinos. It is a drastic change of culture, something difficult for Latinos. It's embarrassing and scary for Latinos to do things here.* (Respondent from Baltimore, Maryland)

In considering barriers that can prevent individuals from receiving COVID-19 vaccines, it is also important to recognize that many people face multiple barriers simultaneously—a fact that is often overlooked by system planners and operators who do not have personal experience facing multiple hurdles.

Composite narrative: The convergence of barriers – José's story (Baltimore, Maryland)

José came to Baltimore in 2010. Like many undocumented migrants, he came to earn money to support his family—a wife, 3 children, and 2 grandchildren—back home in El Salvador. He had hoped to be able to earn enough money to return home, but the expenses of living in Baltimore combined with the unsteady pay from his under-the-table, intermittent jobs as a handyman, painter, and landscaper have prevented him from doing so. With the exception of a complicated trip home for a few months in 2014, during which he was unsure if he would be able to return to the United States, he has spent the past 10 years in Baltimore away from his family.

To save as much money as he can, José lives with 5 other men in a 2-bedroom apartment. The apartment is run down and in a neighborhood that was particularly hard hit by the pandemic. Like José, many of the people in this poorer area of Baltimore work in the service sector and as manual laborers—"essential" workers with no option to work from home. Many people in José's neighborhood were exposed to COVID-19 through their work and, when they returned home, spread the disease to their housemates and family members.

Two of José's roommates were sick with COVID-19, but so far José has not experienced symptoms himself. He is very concerned about getting the disease, not because he feels it will kill him—José believes he is young enough and healthy enough to get through—but because he doesn't have the money to spend on hospital bills.

One of the men José works with had COVID-19 and ended up in the hospital. He told José that he was intubated, that he couldn't communicate with his family, and that hardly anyone spoke Spanish. He was scared and alone. Leaving the hospital was in some ways even worse. José's friend had missed a month of work, there was no money for rent, no money to send to his family in Mexico, and no money to pay the substantial hospital bills. The financial aspects of his friend's story terrified José the most. He couldn't afford not to work, his family in El Salvador need the money and he desperately wants to earn enough to go home for good.

José has heard about COVID-19 vaccines, largely from the Spanish radio station he listens to, but he doesn't know how to get one. Even if he knew where to go, he isn't sure he can take the time off from work. If he takes time off, he loses the entire day of pay and he needs the money. Additionally, the work isn't stable. José often waits at the home improvement store with many other daily laborers. If he's not there he could quickly be replaced by another man in line waiting for a job, and if he's replaced even once there's a chance his regular boss won't take him back.

José has also heard, from YouTube videos he watches on his phone, that some people died after being vaccinated. However, a friend from work who didn't want to get vaccinated, finally got the vaccine. This friend talked to José about this concern and explained that only a few people died from the 1-dose vaccine. He suggested José get the 2-dose vaccine instead.

José is actively considering this, especially if he could get a vaccine outside of work and somewhere close, or at least somewhere the bus goes. However, he also worries about having his identification checked and possibly being deported. It's enough of a risk that he isn't sure what he will do.

Vaccination decision making is a social, nonlinear, and often ongoing process

When considering vaccine decision making theoretically, it is easy to envision a straightforward process involving education, cues to action, and (if necessary) perseverance to overcome any existing barriers. In reality, vaccination decision making is ongoing, dynamic, and open-ended.[39,40]

In the local research, individuals routinely shared the dynamic nature of their decision making. Their assessments of vaccination changed over time as they were exposed to new information (accurate or not).

> *If I hadn't heard of the side effects, I'd be the first person to get the vaccine. But as the news came out, as we heard about different side effects… I'm just not there. I'm gonna stay away and be cautious. Johnson & Johnson drove it home even more. I was like, "Hello!" It made me furious. So I haven't gotten the shot and don't plan to.* (Unvaccinated respondent from Virginia)

For some individuals, their evaluation of COVID-19 vaccines continued even after they were vaccinated. Prompts for this reassessment included regret for receiving the Johnson & Johnson vaccine following the pause, renewed worry after being exposed to new rumors, and frustration at learning about breakthrough infection—the possibility that vaccinated persons could still contract COVID-19. The ongoing nature of evaluating COVID-19 vaccines even led some vaccinated individuals to state they plan to refuse booster doses. Most problematically, these individuals shared their newfound hesitancy with those around them.

Information sharing—regardless of being accurate, inaccurate, in favor of, or opposed to vaccination—is an important component of vaccine decision making.[39,41-43] While healthcare providers, the US Centers for Disease Control and Prevention (CDC) and World Health Organization websites, and other authoritative sources are available— at least to people with access to them—many people still primarily rely on trusted individuals in their personal networks for information and advice. Among those who lack access to more official sources of information, social networks are relied on almost exclusively. As an undergraduate student researcher in Idaho reported:

> *One of my aunts, she was kind of hesitant getting the vaccine and she knew that I was working on this project; and I had been talking to them about it and like relaying the information that I got back to them… And so, my aunt would come back to me, and she'd be like, "Wait. Is it safe?" Like she'd come to me for comfort and stuff, and I'd be like, "Yes, it's okay."*

This process of relying on others—who are, in turn, being exposed to a variety of sources and relying on yet other persons for additional information and advice— creates the diverse and multilayered social dynamics that underpin many vaccination decisions.[39,41,42]

Narrative: Iterative decision making – The story of a Black barber (Prince George's County, Maryland)

Gregory Cradle is a highly respected Black barber. For the past 35 years, he has owned and operated The BGC barber shop on the corner of Moment Street and Movement Drive in Capitol Heights, in Prince George's County, Maryland. Mr. Cradle is respected and his word is gold. Big-G, as he is known by his loyal clients, is an influencer with people in the community. When people have questions—ranging from finance to romance—they come to Big-G for guidance. But one day, it was Big-G who needed guidance. It was a rainy day in early April 2020. Big-G found a flyer stuck in the door of his barber shop when he arrived. Big-G read the oversize letters out loud: *"COVID IS A HOAX… DON'T TAKE THE TEST, DON'T TAKE THE VACCINE."*

The one page flyer had a lot of small text as well. It was a showcase of conspiracy theories (tracking chips, infertility poison), disinformation designed to confuse and misleading information designed to distract.

His confusion was natural, Big-G already had his own doubts about this new virus *"Is it real or is it man-made hype?"* The entire situation made him anxious and uncertain about the future of his livelihood. His mind kept racing with questions. *"Closing my shop? I got kids; I got a house. How can I get back to work if people are afraid of catching the virus in the shop? How can I get the money the government is handing out if I do close up? And most importantly, how do I keep myself safe? If I go down... the whole household goes down."* As far as Big-G was concerned, there was no way he was going to take any future COVID-19 vaccine. Big-G was in the "wait and see" camp. He was not going to be first in line.

Big-G decided to take his concerns to one of his clients, Dr. Thomas, a professor in the School of Public Health at the University of Maryland. For the past 9 years, Dr. Thomas had led a wellness program through barber shops and salons. Big-G shared the flyer with Dr. Thomas, explaining that he had realized that all the "junk" in the flyer was exactly what many of his clients were talking about in the chair.

Dr. Thomas said, "first things first, let's make sure you and the other barbers/stylists are not infected," and working with colleagues, he began a COVID-19 saliva testing service for barbers and stylists. Doing the tests increased Big-G's confidence in his ability to stay safe while he worked, and staying open meant opportunities to talk with his clients about COVID-19.

Often, Big-G would hear a steady stream of myths, conspiracy theories, and adamant refusals to consider the COVID-19 vaccine once it was available. Through many conversations with Dr. Thomas, Big-G began to see that severe COVID-19 infection could be prevented through vaccination. As days turned into weeks, and weeks into months, Big-G moved from "wait and see" to getting the vaccine for himself, his wife, and his kids. He is also using his influence to chip away at the misinformation held by his clients in the "hell no" group—who often refuse the vaccine for no reason.

Big-G's approach is to push information, not the vaccine. Big-G said, *"when you take time to listen and provide good sound information, people will naturally gravitate toward saving their own lives and the lives of those they love."* The approach seems to be working. More and more of his clients have moved from "hell no" to "maybe" and then from "maybe" to "where can I get the shot?" Big-G called this progress "Changing hearts and minds, one by one, in the chair."

It is also important to recognize that COVID-19 vaccination decision making is occurring during a pandemic in which many individuals are simultaneously experiencing job loss, food insecurity, housing instability, and the death of loved ones.[44,45] For many Hispanic/Latino individuals additional difficulties include managing multinational family obligations, including sending money and/or traveling to other countries to care for sick

loved ones.[46] Individually or in combination, these stressful situations can take a high priority for those who experience them, while vaccination takes a low priority.[47]

> *I have a sister now who is battling with [COVID-19…] and it's not getting any better. But COVID really… COVID changed my whole life and I had it, I hate it…. After COVID came and whenever COVID leaves, my life will still not be the same because I lost the biggest and the most important person in my life [my mother…] to COVID.* (Unvaccinated respondent from Alabama)

To address these issues, dialogues and especially one-on-one conversations have the potential to significantly influence vaccine acceptance. While national messaging campaigns and education on the technical aspects of COVID-19 and COVID-19 vaccines can influence individuals' decisions, the importance of trusted voices and the underlying social networks of information that produce widely held opinions cannot be overlooked.[48]

② | Assuming communities of color are homogeneous is a critical error

It may be tempting to imagine that groups, including communities of color, are the same within a single location and also across geographic areas (eg, all Black persons living in Prince George's County face similar challenges or Hispanic/Latino communities in Idaho face the same situations as those in San Diego). However, just as no single message can reach all White individuals, no single messaging campaign is sufficient to reach all Black or Hispanic/Latino individuals in the United States. The same holds true for all other demographic groups. Even tailored, locally appropriate messaging campaigns that reach some or most members of specific communities will not reach everyone.

Common experiences exist…

Economic inequality is a longstanding issue within many communities of color in the United States. In Virginia, for example, 90% of low-income housing residents are Black, although Black persons account for only 19.2% of the state's population.[49] In Idaho, 19% of Hispanic residents live below the poverty line compared to 10% of non-Hispanic White individuals.[50] Even in Prince George's County, the most affluent Black-majority county in the United States, the median income for Black residents is still 8% lower than that of White residents.[51]

Economic inequality, in turn, is strongly associated with a lack of access to healthcare, food and housing insecurity, and other harmful factors. In most cases, the pandemic has worsened these inequalities. Across the United States, Black and Hispanic/Latino individuals have lost their jobs at a higher rate than White individuals and are more likely to have experienced food and housing insecurity as a result.[52]

Similarly, racial inequality—ranging from structural racism (eg, redlining; high rates of policing, prosecution, and conviction of crimes in minority communities; lack of non-English language materials) to overt, interpersonal racism (eg, racial slurs, racial profiling)—continues to harm persons of color.[53,54] In Baltimore, for example, the lack of Spanish-language material limited Latino individuals' abilities to access COVID-19 vaccines. Latino individuals in this area also reported hesitation to attend vaccination events or travel to vaccination sites because of the potential exposure to questions about their immigration status.

Narratives: Racism and COVID-19 vaccination – The stories of Alice, Madison, and ShuWei (Alabama)

Structural racism – "Them's that Got Shall Get"
Alice, a 70-year-old Black woman living alone in a rural Alabama, wanted to be vaccinated. Some of her friends and extended family had contracted COVID-19 and a few of them had died. Her grandson also had the disease, but his case was mild and he recovered quickly. However, the grandson was much younger and healthier than Alice.

The difficult part of getting a vaccine was knowing where to go and making an appointment. The state had put all of this information online, but Alice didn't have a computer and internet reception in the area she lived was spotty at best. Alice was able to learn about the vaccines and vaccine clinic opportunities at church—younger members of her community had pushed for this information to be shared in newspapers, churches, and other forms of communication commonly used in the area—but Alice still needed to sign up for a vaccination appointment using the state's online portal. Her neighbor's niece was finally able to do that. The niece lived in Birmingham and had collected a list of names from her aunt—all people living in that rural area of Alabama that needed vaccination appointments.

In contrast to Alice's experience, the White neighbor of one of the principal investigators shared that she had been told by a family member that vaccination would open up for her age category (60 years and above) in 2 weeks. She then explained how she had immediately gotten online and made vaccination appointments for herself and her spouse. This involved "camping out" on the appointment portal and refreshing her connection at regular intervals until she was able to schedule the appointments.

> *While there was no deliberate attempt to withhold vaccination information from Black residents—who were more likely to live in rural areas and lack online access—the fact that the primary means of communication was closed to them is a product of structural racism, especially when the common characterization of population of color as "hard to reach" is considered. If the means of communication chosen is one that is unavailable to a group because of a lack of resources, knowledge/skill level, or both, then the term "hard to reach" is not only inaccurate, it puts the responsibility for being informed on the audience rather than the communicator. Structural racism considers circumstances of difference as due to the nature of the "others" and posits the "overcoming" of otherness as an extra burden that is secondary to what is "normally" done. The effect, in this case, was unequal vaccine access.*

Overt racism – Policing the line for (some) violators

Madison, a Black University of Alabama graduate student, was eligible to receive COVID-19 vaccines in February/March due to her teaching responsibilities. When she went to receive her vaccine she was explicitly asked "how are you eligible?" After responding she was a graduate teaching assistant (GTA) she was then asked to verify this by showing her student identification. ShuWei, a Taiwanese GTA, had a similar experience. He was asked to prove his status as a student, but his student identification was not enough. The nurse insisted that ShuWei have his supervisor call her to verify his eligibility.

Grace, a White University of Alabama graduate student, did not experience the same gatekeeping behavior when she went to the same site as Madison and ShuWei:

> *I had found out from a source in my department that GTAs were considered eligible... for the vaccine early in February/March. Though I was no longer a teaching assistant, I signed up through the DCH website for the soonest appointment available, February 11. At this time, only those in older age categories and those with underlying conditions were considered eligible, at least that was public knowledge at the time. As I approached the first nurse to check in, they handed me a paper to fill out which asked for basic demographic information and eligibility... it (the form) was not read over or checked or verified by any other staff member after this point.*

> *For eligibility, I circled "K-12 Educator" as it was the only option that was semicorrect... my cohort of coworkers had said that they also checked off the same eligibility tab, though it was not technically true for them either. We did work in education, but at the university, which at the time was not listed.*

> *While waiting in line to receive my vaccine, I struck up conversation with a nurse. I sheepishly disclosed that I felt like I was "cutting the line" after watching an older woman (who I later was told was 90 years old) get turned away for not having made an appointment. The nurse then joked that I was smart to have jumped (at) the chance of getting the vaccine, regardless of my eligibility.*

For reflection

A critical/skeptical reader might ask, What's the big deal? These are not the accounts of people being denied vaccination. Madison and ShuWei might have had to answer a few more questions, provide a bit more information, or wait a little longer, but they all got vaccinated. By highlighting these instances, you are making a minor inconvenience into a major issue. Best to let this go and keep our eyes on the prize of population immunity. The problem with this attitude, however, is that it minimizes the experiences of Madison and ShuWei and at the same time perpetuates behavior that undermines the trust of communities of color.

In the case of COVID-19 vaccination specifically, this type of racially informed gatekeeping behavior and the structural racism described earlier are barriers that can deter people from being vaccinated and/or strengthen their sense of hesitancy.

> Consider this: How many people who lack broadband access, internet skills, or community members to advocate for more accessible vaccination information stopped pursuing vaccination before word of the no-appointment clinics reached their communities? How many who sought out the no-appointment clinics were deterred by the long lines that were in part comprised of "vaccine tourists"? And, how often did race-informed gatekeeping behavior allow people who were ineligible to be vaccinated because their appearance made them less subject to scrutiny? Or, conversely, how many eligible people were deterred from vaccination by gatekeeping behavior?

Communities were also similar based on their degree of urbanicity. Rural areas in this research (Alabama and Idaho) were further characterized by a lack of employment options, a lack of local infrastructure including mass transportation systems (making travel to vaccination sites problematic), limited primary care services (making vaccination sites more spread out), and, sometimes, a lack of local CBOs.

> *It's difficult for people around here. Not having the ability to get people to drive into town. I had to hire somebody to bring me to town. Some people died because someone transported them, and they got it [COVID]…It's just a lot.* (Respondent from rural Alabama)

On the other hand, rural communities were also more likely to be close knit, where residents tended to know and look out for one another and have a greater sense of shared values (eg, hard work, independence, religious affiliation).

…HOWEVER, differences between and within local communities make them unique

Despite these similarities, important differences also exist between and within communities. Racism, for example, has been experienced in very different ways within Black and Hispanic/Latino communities. In Alabama, Maryland, and Virginia, 400 years of racial hierarchy and systemic deprivation were strong themes. Distrust, rooted in this mistreatment, consequently had significant impacts on people's perceptions of COVID-19 and COVID-19 vaccines (eg, "I don't want to be a guinea pig"). The same sentiments were largely absent from the Hispanic/Latino communities. Instead, language barriers, stigma associated with immigration status, and fear of deportation were commonplace.

Within individual communities, important variations also existed. In Prince George's County, significant economic disparities within the Black population affected where and how people lived, how or if they accessed healthcare, and what information they received about COVID-19 and COVID-19 vaccines (eg, access or no access to online sources of information, different trusted sources of information, and different social networks where diverse opinions were shared). In Idaho, the amount of time spent in the United States led to distinct differences in English proficiency, education, and understanding of the US health system between recent immigrants, immigrants of longer US residence, and the US-born children and grandchildren of both these groups.

In essence, while local participants in this research may have all been Black or Hispanic/Latino persons living in particular geographic areas, they had significantly different characteristics including age, gender, political identity, religious identity, education, and socioeconomic status.


Composite narrative: Generational experiences with COVID-19 – The Martinez family story (Idaho)

It had been such a weird time, probably the longest school year ever, thought Rosa. Her own life hadn't changed much, at least at first. As a senior in college, just about to complete her bachelor's degree in nursing, Rosa was busy with classes and clinical rotations. Most of her classes had been moved online, but the hands-on work in the hospital was still in person. That had been difficult. The ICU was a nightmare. At first, Rosa had been thrilled with the idea of getting vaccinated, being taught how to put on the protective equipment, how to issue the meds—all of it was new and exciting. It remained so until the little local hospital started getting COVID-19 cases. They just kept coming. Some days Rosa worked extra hours. Even though she was still a student, there was so much to be done.

Rosa's mom Ana worked at the local grocery store. There was only one in their small farming town. Every Monday through Friday (and sometimes on the weekends) she'd get up, get Rosa's little brothers and sisters settled, and make sure her oldest son was ready for his online classes. That was a hassle. In addition to managing a sleepy teenager, the internet kept going on and off especially when the wind blew or it was snowing. Afterwards, Ana bundled up, told the kids to study and not fight, and then drove 5 miles to the grocery store where she stood at the cash register for the next 8 hours.

At her work, customers came and went but only a few ever wore masks. Ana was nervous. She became sick around Christmas with COVID-19 and was home all through the holidays, drinking tea, and trying to keep the house together. Then feelings of breathlessness came, usually at night. Her coughing became relentless. She called the local clinic, which was nearly 20 miles away, but they told her to call back if she couldn't breathe at all. So Ana stayed home. If she survived, she swore to herself, she'd get the vaccine the first opportunity she had. Her husband made fun of her for this—"It's just the flu, you'll feel better soon," he told her. What would he know, Ana thought. He was out driving trucks or working in the big garage at the potato plant. His employer said he had to get the vaccine, so he did, but he kept grumbling about it, even so.

It was his family in northern Mexico that was having a really hard time. Grandparents, uncles, and aunts got sick and couldn't work. They asked their relatives in Idaho to send money. The military wouldn't let them leave their houses, they said, and there wasn't any work, and they really needed food and medicine. Ana and her husband tried to keep the details of these calls from their younger children, but it was like they were living in 2 countries at the same time. They felt helpless.
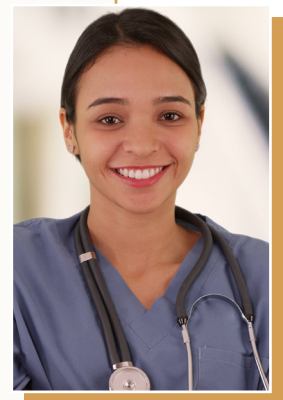
Everyone, except for Rosa's abuela, that is. Grandma had come to Idaho after Rosa's mom and dad had moved there. She only spoke Spanish. She enjoyed Spanish radio and was devoutly religious. Whenever Rosa got depressed, she would sneak into abuela's room at the back of the trailer her family lived in and tell her what she'd seen at the hospital that day. Grandma would listen then reassure Rosa that God would watch over her. Then grandma would brush Rosa's hair like she used to when Rosa was little.

It must have been late March when Rosa noticed her grandma wasn't doing well. She had a cough that you could hear through the whole trailer. Rosa had gone in early that morning to see her grandma before she left for a clinical rotation at the hospital. "Call the ambulance!" she'd shrieked to her mom. She climbed into the back of the rig with her grandma as the paramedics loaded her in, she knew them and they said it was ok. Nearly an hour later, the ambulance finally arrived at the hospital. Rosa was left in the waiting room, waiting for her family to make it over the icy roads. She wasn't sure if her grandma would make it and couldn't imagine what life would be like if she didn't.

It is also important to note that in most communities multiple racial/ethnic groups are present. This can be problematic when the most populous minority group receives the most attention. In California, for example, where Hispanic/Latino persons were the majority, the local health department was very aware of the need for communications in Spanish. Their entire website was available in Spanish prior to the pandemic, and they had multilingual staff on hand to handle Spanish-language communication efforts when the pandemic began.

In Baltimore, however, where Latinos account for only 5.5% of the local population,[55] the city health department was ill-equipped to engage Latino residents. No materials (online or print) were available in Spanish prior to the pandemic and only 2 Spanish-speaking persons were employed by the health department. It was only through the efforts of community-based organizations, including Centro SOL (the Center for Salud/Health Opportunities for Latinos), that Spanish-language health communications were made available.

3 Hyperlocal responses to the pandemic result in better health outcomes

Seven months into the vaccine rollout, most adults who were receptive to national messaging campaigns have been reached. Remaining pockets of hesitancy and issues of access are now best addressed at local levels, where experiences with COVID-19, concerns about COVID-19 vaccines, and the impact of socioeconomic and cultural variables can be properly understood and acted upon in context using locally feasible solutions from trusted sources.

Community led, organized, and advocated measures have closed COVID-19 response gaps

Community partnerships have been used with great success throughout the pandemic. In the Mission District of San Francisco, for example, the Latino Task Force was instrumental in organizing a community hub for food distribution and other wraparound services.[56] In an alliance with Unidos en Salud, the University of California San Francisco, and the public health department, representatives of these organizations went door-to-door to promote COVID-19 testing, which resulted in 4,200 COVID-19 tests conducted in 4 days, with 70,000 tests overall, and provided a platform for the community's eventual vaccination efforts.[57,58] By late June, 67% of the Hispanic/Latino population in San Francisco had been vaccinated.[59]

Similar efforts have taken place in the CommuniVax research areas. In Alabama, the local team became concerned with the implementation of the Federal Retail Pharmacy Program and what reliance on partnerships with Walmart, and later CVS, would mean in poor, rural counties with sparse retail infrastructure. To address this issue, the local CommuniVax team produced GIS maps showing the concentration of partner pharmacy locations with respect to the proportion of Black residents in each county. The maps, which provided a clear picture of sparse vaccine access in rural, predominantly Black communities, were then shared with a concerned and influential community advocate, who leveraged his political and social capital to encourage state leadership to take a proactive approach to access issue. As a result, the state utilized the National Guard to distribute vaccines in areas the maps indicated had few pharmacy locations.

In Idaho, team members worked closely with the district-level health department, meeting with them every 2 weeks. This communication was essential to producing quick solutions to problems like distrust of the vaccination process on the part of undocumented individuals. In relation to this specific concern, once the local team explained this issue, the health department immediately revised its messaging to assure community members that documentation status would not be requested when individuals came to vaccination appointments. Further, the health department developed a partnership with Idaho State University—the state's designated lead institution in health professions. This community–university partnership significantly strengthened the region's ability to respond to the pandemic and distribute vaccines despite a severely underfunded public health system.

Of course, without continuous funding to support community-led efforts, such efforts are merely temporary solutions for gaps in public health funding. They are limited to the funding period or to the length of a leader's involvement.[60] The ebb and flow of community partnerships, and the lack of consistency in public health funding generally, has led to the situations that have eroded trust within the communities of color in this research, as well as other communities across the United States.[61]

Vaccination moves at the speed of public trust

For many communities of color in the United States today trust is the key to public health engagement.[62,63] Education campaigns, national messaging efforts, and pleas from public officials are of limited use when trust in the information, the messengers, and/or the system is lacking.

In the scope of the CommuniVax project, some communities and individuals were willing to engage with vaccination efforts, when they would not otherwise have done so, because they trusted the individuals involved—like the barbers and hair stylists in Prince George's County and the *promotores* in Idaho and California. These persons were local, or had longstanding local connections, and had shown themselves to be reliable and respectful—traits needed for individuals and organizations involved in local efforts to promote COVID-19 vaccination.

Narrative: Genuine Community Engagement – A View from the Virginia Team Lead, Andy Plunk

Since 2016, our team of Black and non-Hispanic White researchers has collaborated on several projects with a community advisory board (CAB) comprised of Black

low-income housing residents from Norfolk, Virginia. During that time, I experienced what doing genuine community engagement and being a trustworthy collaborator entail.

Early in the pandemic, the team realized that COVID-19 would disrupt our community engagement activities. We wanted to move the meetings online but recognized most members of our CAB did not have personal computers. We quickly ordered tablet computers with webcams and unlimited data. Once our virtual meetings began it was clear a digital divide still existed, so we refined our approach and provided basic digital literacy training to everyone who worked with us.

This investment in our partners—a first step to community capacity building—paid off. We tripled the size of the CAB and expanded it to include low-income housing residents from each of the 7 cities in our region. The CAB also became an important barometer for the community impacts of COVID-19. We found out about emerging issues before they were reported in the news media or captured in opinion polls.

Our community partners trusted us, but this trust was fragile. The Johnson & Johnson vaccine pause was enough to damage it. Even before the pause, our CAB members were unwilling to discuss COVID-19 vaccines as a group. Consequently we had introduced breakout sessions where people were split into "pro," "hesitant," and "anti" vaccine groups. The number of participants in each group were almost equal at that time. After the pause the "hesitant" and "anti" groups merged, and several CAB members reported cancelling their vaccination appointments.

But this was not the only effect. Our community partners in the CAB had been willing to work with us to promote vaccination in their communities, even when they were personally more ambivalent about the vaccines, and even when they considered other issues, like the emerging mental health crisis, as far more pressing. They had trusted us, and we had trusted the science. We had not appreciated what a leap of faith this required on our partners' parts. The pause validated their initial concerned. They felt betrayed. And our relationship began to erode.

To stop the damage, we chose to have a frank discussion about our goals and be transparent about what we knew and what we did not. As the academic team leader, I reiterated that one of my goals is to increase vaccine coverage in their communities. I also told them we remain deeply committed to addressing other health inequities and asked whether they were willing to partner with us to address all these issues. The CAB emphatically agreed. Since then, we no longer discuss COVID-19 at every meeting and give equal attention to other community concerns. When we do bring up vaccination, everyone makes a good faith effort to participate and willingly gives feedback. Our relationship with the CAB has never been stronger.

Recommendations

The research findings mentioned present a frontline view of the dynamic COVID-19 vaccination campaign—one that continues to evolve and include new challenges like expanding vaccination to children and potentially providing booster doses to already vaccinated individuals. Drawing from these insights and looking ahead, we recommend 2 differently paced streams of activity for local, state, and federal officials, with the theme of community trust braiding them together. *Urgent actions*, to be taken immediately, can facilitate broader COVID-19 vaccine coverage in Black and Hispanic/Latino communities. *Essential actions*, to be executed steadily, can drive systems-level changes that lead to greater health equity ([Table 2](#)).

Table 2. Summary of CommuniVax Recommendations to Carry Equity in COVID-19 Vaccination Forward (July 2021)

URGENT ACTIONS – *Immediately* improve vaccine coverage in underserved communities		
1. Humanize Delivery and Communication Strategies for COVID-19 Vaccines		
Actors	Actions	Outcomes/Impacts
Hospitals/Health Systems STLT Health Departments	**Let CBOs, FBOs, and CHWs lead** in diagnosing low vaccine coverage and developing interventions; simultaneously develop individuals' skills and organizational capacities. Prioritize the local use of ARPA and other emergency response funds for this purpose. Employ CHWs for regular community health needs assessments. Commit to co-creating health activities beyond COVID-19 (eg, curbing high rates of diabetes, heart disease, obesity).	• Broader vaccine coverage in groups with high rates of COVID-19 cases, hospitalizations, and deaths. • Ongoing, consistent delivery of services that improve the health and wellbeing of underserved populations. • Repair for structural and interpersonal racism experienced with medical, public health, and governmental systems.
	Bring vaccines to the people thus removing major access barriers. Conduct door-to-door vaccination, stage mobile clinics, offer vaccines at workplaces, and use community locations that people feel are familiar, convenient, and safe.	
	Put personal choice in its social context, aware that individuals do not make decisions alone. Prompt community conversations via culturally relevant, multilingual vaccine communications – go in person,	

	on air, and on screen. Offer options: people may refuse a specific vaccine and still want to get vaccinated with another.	

2. Anchor COVID-19 Vaccination for Hard-Hit Areas in a Holistic Recovery Process

Actors/Sectors	Actions	Outcomes/Impacts
Governor/County Executive/ Mayor Public Health Mental Health Emergency Management Public Safety Primary Care Community Health Social Services Economic Development Education Business/Financial Leaders VOAD Nonprofit/Civic Organizations CBOs/FBOs Media	**Enable the recovery of whole persons** by providing vaccinations alongside other critically needed goods and services. Co-design vaccination sites as resource "hubs" with FBOs, CBOs, and CHWs to meet other human needs and multiply benefits of every vaccination encounter. Motivate hospitals to provide community benefit beyond COVID-19 response and partner broadly for preparedness. **Stand up a long-term recovery and community resilience organization**, applying a "health-in-all policies" approach. Engage existing data-driven coordinating bodies that already facilitate long-range planning (eg, disaster recovery, economic development). Consult diverse stakeholders and communicate broadly about pandemic recovery so those with the greatest losses can take part in decision making that is relevant to their lives.	• Enhanced health and wellness among the worst-off survivors of the pandemic. • More trust in health and governmental systems that prove themselves as trustworthy by caring about whole persons, not just vaccination rates. • Advances in the social determinants of health, that enhance the quality of life and strengthen community resilience to extreme events.

ESSENTIAL ACTIONS – *Steadily* drive systems-level changes that advance health equity

3. Develop a National Immunization Program to Protect People Throughout the Life Course

Actors	Actions	Outcomes/Impacts
Congress HHS/CMS/CDC State Legislatures STLT Health Departments	Capitalize on the COVID-19 vaccination moment to **develop a national immunization program to protect people throughout the life course**. Reconfigure funding systems to support a life-course (versus childhood-only) approach to immunization, integrate adult immunization with other health systems and priorities, and develop systems to monitor progress and impacts.	• Broader coverage for COVID-19 vaccines and 13 other vaccines urged for some or all adults. • Improved immunization rates for adults of color now trailing those for White adults.

4. Rebuild the Public Health Infrastructure, Properly Staffing It for Community Engagement

Actors	Actions	Outcomes/Impacts
Congress HHS/CDC State Legislatures STLT Health Departments STLT Human Resource Systems	**Level out "boom and bust" funding** of the public health system. Transition to strategy of core federal support of $4.5 billion per year for a public health infrastructure fund, complemented by sustained and sufficient state and local funding for their own public health agencies.	• Capacity to respond to emergencies and to address prevalent health challenges (eg, diabetes) affecting communities of color in greater numbers. • Innovations in practice, culturally competent services, and strategies for social determinants. • Capacity to practice authentic community engagement and demonstrate trustworthiness.
	Mirror the communities being served by promoting equity among all ranks of the public health workforce, including state and local departments as well as boards of health.	
	Strengthen human-centric competencies. Develop and sustain a social and community proficient workforce—eg, health educators and promoters, risk communication specialists, language translators, social media strategists, social and behavioral researchers.	

5. Stabilize the Community Health System as the Backbone for Equity and Resilience

Actors	Actions	Outcomes/Impacts
Congress HHS/CMS/CDC State Legislatures State Medicaid Administrators STLT Health Departments STLT Human Resource Systems	**Formalize and finance the community health workforce.** Develop and sustainably fund the CHW workforce via Medicaid benefits, increased FMAP, competency-based training, good career path, competitive job packages, certification or registry processes. Establish new, fully fledged and funded local community health departments.	• Prioritization of disease prevention and health promotion, leading to better health outcomes. • Improvements in the social conditions of health and the eradication of racist policies and practices. • Communities' control over the trajectories of their own health and wellness.
	Grant funds to CBOs, FBOs, and CHW-led organizations directly to acknowledge their deep social assets and community organizing abilities. Adapt funding processes and eligibility criteria to create an environment where communities with the greatest need benefit from funding first.	

Abbreviations: ARPA, American Rescue Plan Act; CBO, community-based organization; CDC, US Centers for Disease Control and Prevention; CHW, community health worker; CMS, Centers for Medicare and Medicaid Services; FBO, faith-based organization; FMAP, Federal Medical Assistance Percentages; HHS, US Department of Health and Human Services; STLT, state, territorial, local and tribal; VOAD, Voluntary Organizations Active in Disaster.

1 Humanize delivery and communication strategies for COVID-19 vaccines

To reverse the COVID-19 vaccination campaign's current slowdown and persistent unevenness in vaccine coverage, it should incorporate more peer-led and neighborhood-based opportunities for community conversation and for convenient vaccine access, as epitomized by Mr. Greg Cradle's barber shop. Further gains in vaccine coverage, especially within Black and Hispanic/Latino communities, require that COVID-19 vaccination implementers reset expectations about campaign objectives, how to achieve them, and by what deadline. The initial strategy of using mass media messages and mass vaccination sites to achieve population immunity as quickly as possible had limited success among persons of color, especially those with limited means. Vaccine communication and delivery strategies to obtain expedient results must now give way to those capable of generating enduring community trust.

Let CBOs, FBOs, and CHWs co-lead diagnosing low vaccine coverage and developing interventions

Health systems and health departments should develop and/or strengthen their collaborations with CBOs, FBOs, and CHW groups, and importantly, commit to these relationships so they are sustained even after the COVID-19 pandemic ends. Due to common roots and longstanding trusted relationships in communities, these groups are uniquely able to identify concerns, design workarounds for access barriers, and point out neighborhood locations that can give vaccination a more trusted presence.

An appropriate local use of American Rescue Plan Act dollars is to employ community health organizations and workers to co-develop appropriate "diagnostics" to determine reasons for low vaccine uptake and develop protocols to address problems identified. This critical knowledge could inform the co-development of novel systems to advance vaccination coverage well beyond the pandemic.

At the same time, this activity could build on an existing, or jumpstart a new, community health needs assessment (CHNA)—an accreditation requirement for local public health agencies and an Affordable Care Act mandate for critical access hospitals, which is conducted every 3 years.[64] Typically, after a CHNA is completed, an implementation or improvement plan is enacted to address unmet community needs. The CHNA should be integrated into the community's general/comprehensive plan and referenced in the hazard mitigation and safety elements of the general plan. This would assure an explicit link into the daily planning of the jurisdiction and protect against the isolation of critical public health and community health matters.

Moreover, because COVID-19 vaccination coverage within marginalized populations is an immediate need, all hospitals, regardless where they are in the 3-year CHNA cycle, should reset the planning clock. In collaboration with community partners, they should immediately and urgently renew their CHNA, incorporating actions outlined in the report.

When co-developing a ground-level COVID-19 vaccination campaign with CBOs, FBOs, and CHWs, health departments and health systems should simultaneously work to strengthen individual and community capacity over the long run. Supporting CHW skills development in computing and online facilitation, for instance, could enable the co-creation of innovative health communication strategies that can complement traditional communication channels like in-person meetings.[65] As the team working with Hampton Roads (Virginia) residents can affirm, genuine community engagement involves actions, not just words; the team proved themselves as trustworthy partners by investing in community-held technology, sharing knowledge of vaccine science, and prioritizing the community's own concerns.

CBOs, FBOs, and CHWs have insights into community issues that political leaders, health officials, and hospital executives may not be aware of. The current administration and US Immigration and Customs Enforcement, for instance, have officially stated that enforcement activities will not occur at or near vaccine distribution sites or clinics.[66] Yet, regardless of policy pronouncements, deportation fears still run deep, as the California, Idaho, and Maryland teams' data show. To create a vaccination encounter that feels safe, trusted Hispanic/Latino-serving organizations could co-host a vaccine clinic with a hospital, pharmacy, and/or health agency and employ *promotores* to reassure people that proof of identification is not a requirement.

Bring vaccines to the people

Hospitals, health systems, health departments, pharmacies, and other COVID-19 vaccination campaign implementers should leave their facilities and/or centralized clinics and prepare to deliver vaccines at local sites that CBOs, FBOs, and CHWs identify and help staff. Such places should be familiar, convenient, and feel safe to underserved populations—including places where they live, work, shop, play, and worship.[67]

Access to COVID-19 vaccines remains one of the primary reasons for low vaccine coverage in the United States, especially where poverty is prevalent or critical infrastructure like transportation, broadband access, and public health staffing is lacking. Though less noticeable, this is also true for impoverished individuals living in more affluent areas.

A person's lack of vaccination is often an external reality, rather than a perceived "moral failure" of being hesitant or noncompliant. Less obvious access barriers include the inability to access vaccination clinic business hours due to employment obligations or to travel to a vaccination site due to a lack of reliable transportation.

Meeting people where they are—meaning, understanding their context and circumstances and adapting public health interventions accordingly—can solve these kinds of problems. Solutions to make vaccines more accessible can take many forms including door-to-door vaccination efforts, mobile clinics, vaccination sites in locations community members often frequent (eg, places of worship, barber shops, grocery stores, community centers), and workplaces.

In Idaho, migrant farm workers were able to receive COVID-19 vaccines at the farms that employed them. The agricultural work often took place 6 or 7 days a week for most of the day, preventing farm workers from accessing vaccines at any other place. Recognizing this issue, local clinics, pharmacies, the region's university, and the local health department partnered with the farmers to bring vaccines to the farms themselves, leading to high rates of vaccination among the farm worker population in the area.

Put personal choice in its social context

Groups and people communicating about COVID-19 vaccination should target as many social settings as possible—in person, on air, and on screen—to create multiple opportunities that prompt peer-to-peer conversations about vaccines. Local data show that individuals do not make decisions on their own, even if they make the final decision about getting the vaccine.

Vaccination decision making is highly interpersonal: people want to talk about vaccines with people whom they trust, ask questions in their own language, and feel as if they are being listened to rather than judged. They also prefer to engage in dialogue rather than sit for a lecture, check in with the other people in their lives, and take the time they need to weigh information, some of it potentially competing or conflicting. Social relationships, too, are not confined by geographic proximity. Many individuals in Idaho, for example, rely on family members and friends in Mexico to get information and to help them make choices about vaccination.

It is also important to consider the issue of vaccine choice. Seven months into a highly scrutinized vaccination campaign, many individuals have strong preferences for or against certain vaccines. Some Black residents in Prince George's County, Maryland, and in Hampton Roads, Virginia, for instance, rebuffed the Johnson & Johnson vaccine largely because the single-dose countermeasure—billed as good for "hard to reach" populations—demeaned people like them. Similarly, early public health talk about using leftover vaccines to avoid waste left the impression in some Hispanic/Latino communities, for example, that the quality of the leftovers might be less.

To facilitate uptake, it is best to accommodate concerns about a specific vaccine by offering vaccine options. This will prevent missed vaccination opportunities due to someone refusing a vaccine because of the type offered, not because they are wholly opposed to being vaccinated. Given their ongoing community conversations, CHWs can serve as a feedback loop to health authorities on such preferences and serve as a trusted local source of information on all vaccine types to undecided individuals.

2 | Anchor COVID-19 vaccination for hard-hit areas in a holistic recovery process

With COVID-19 vaccination as a first step, leaders should launch a deliberate process for recovery from this pandemic that has disproportionately harmed vulnerable communities and individuals.

Vaccines are often presented as the way to restart the economy and get back to "normal." However, a normal life for many Black and Hispanic/Latino individuals, especially those considered essential workers, is what put them at particular risk from COVID-19's economic, physical, and psychological effects in the first place.

> *What is normal, like, you know? [M]y student debt is still active, even though it's been suspended. And if COVID ends tomorrow I'm still owing that money. And there's people who still owe months of rent; they just can't get evicted. It's just like, what is normal? [T]here's so much focus and emphasis on going back to normal.... And I don't want normal to be something that we kind of had struggles in our community and just kind of like accepting them.... [We can't] just accept certain disparities and stuff like that just for the sake of feeling, you know, just for the sake of forgetting that COVID happened.* (Respondent from California)

This acute situation demands moving beyond conventional approaches to vaccination to include a deliberate focus on, and plan for, recovery. Immunization against the SARS-CoV-2 virus, for example, does not provide protection against future disasters for many of the Hispanic farm laborers in southeastern Idaho who have few options for obtaining health insurance, especially if they are undocumented.

Apply a whole person model of recovery

Public agencies, hospitals and health systems, nonprofit social service providers, CBOs, FBOs, and CHWs should align themselves around a "whole person" model of recovery to meet underserved communities' self-identified needs and to multiply the benefits of each vaccination encounter.[68,69] Vaccines cannot stand on their own as an intervention to stop COVID-19's direct and indirect effects.

Despite a spotlight on low vaccine coverage, many Black and Hispanic/Latino persons require comprehensive support to help their recovery. COVID-19 vaccinations and/or culturally and linguistically appropriate information about them, should be provided alongside other critical goods and services, such as food, housing, and job opportunities.[67] This type of wraparound service approach provides the sense of safety and security that is essential for informed health decision making. Vaccination sites could be resource centers, or hubs, in partnership with CBO and FBO staff to provide holistic support.

As part of any clinical vaccination visit, practitioners should link underserved individuals to other parts of the healthcare and social service systems that could benefit them, such as chronic disease follow up. CHWs can be an integral part of this support. Care for the whole person, for example, is precisely what the partnership between Idaho State University's Bengal Pharmacy and the Idaho Vaccination Coalition intends to provide. Over the next 2 years, they will bring single-dose COVID-19 vaccines to 2,000 people in underserved groups along with screenings for other diseases and health education opportunities.

Apart from the kind of recovery support provided and by whom, it is crucial to identify where such support will take place. Policymakers at all levels should foster health systems' willingness to adopt an extension model, that is, to make longer-term and relatively low-cost investments of consistent time in community sites (eg, churches, barber shops, neighborhood grocery stores). There, providers could address chronic diseases, make flu vaccines available, provide stress management resources, make referrals to mental health services, and promote disaster resilience. This extension work could fulfill the Internal Revenue Service's requirement for nonprofit hospitals to provide community benefit.[70]

Moreover, the Emergency Preparedness Rule issued from the Centers for Medicare & Medicaid Services (CMS) requires all CMS providers and suppliers to meet specific preparedness criteria, including working in collaboration with other community partners.[71] If funding is associated with the CMS preparedness rule that requires community engagement, then mechanisms could be explored that share the incentive with the community, or the CMS conditions of participation for healthcare entities could be used to incentivize more outreach to community partners.[72]

Stand up a long-term recovery and community resilience organization

State and local jurisdictions should immediately take steps to plan for a process of short-, intermediate-, and long-term recovery and community resilience. The COVID-19 pandemic—which has revealed deficiencies in public health capacity, healthcare delivery, the social safety net, and other core community functions—is an opportunity for visionary leadership, goal setting, and transformation.[73] After a disaster, quickly returning to normal is a common impulse; however, it should be tempered by the aspiration for more community safety, equity, and quality of life.[74,75]

Political leaders should convene a cross-sector council of stakeholders—including Black and Hispanic/Latino leaders and community organizations—who can apply a whole-of-community, whole-of-government approach for managing the pandemic's recovery phase.[62,76] These leaders should also include existing data-driven coordinating bodies that facilitate disaster recovery and other long-range planning (eg, economic development, community development).[77] In planning for pandemic recovery and community resilience, state and local jurisdictions do not need to start from nothing; they should draw on policy guidance, toolkits, case examples, sample plans, and governance frameworks from groups that include the Federal Emergency Management

Agency, US Environmental Protection Agency, United Way, National Voluntary Organizations Active in Disaster, and American Planning Association.[78-82]

Consulting diverse stakeholders and communicating broadly about pandemic recovery is essential so that city and state residents—especially those who have suffered the greatest losses—can take part in decision making that is relevant to their lives. Based on best practices in disaster recovery planning, elements of an effective organization for pandemic recovery include an authorizing and approving body; planning leadership in the form of a lead planning agency or official and a planning task force; planning development enabled by specialists in planning, information and data management, and communication and public involvement; and public and stakeholder involvement.[77]

A health-in-all-policies approach is also needed, first to identify and then to plan for how to address the pandemic's myriad impacts including psychological trauma, lingering medical needs, economic displacement, housing uncertainty, food insecurity, and disrupted educations. Among sectors to include are public health, mental health, emergency management, public safety, primary care, social services, community health, economic development, kindergarten through grade 12 education, colleges and universities, and private industry. Second, a health-in-all-policies approach will ensure that the diverse entities with responsibility for the social determinants of health can work together on strategies to strengthen resilience among communities of color and prevent disproportionate losses in future health crises.

For the foreseeable future, an organizing question for major projects at local and state levels should be, "How do these activities contribute to making the communities and individuals affected by COVID-19 whole?" In Idaho, a pandemic recovery/community revitalization process that closes public transportation gaps could ensure better access to all services, not just those related to vaccines. In Virginia, a national high-speed internet infrastructure that provides free access to all could be the foundation for systems that regularly connect residents with health systems and health departments. It could also provide critical digital resources that expand the classroom environment and improve access to educational opportunities.

③ | Develop a national immunization program to protect people throughout the life course

COVID-19 vaccination provides an ideal opportunity to develop a national immunization program that would not only bolster coverage of COVID-19 vaccines but also the 13 other vaccines recommended for some or all adults by the Advisory Committee on Immunization Practices. For most vaccines, immunization rates for racial/ethnic adults are far below those of White adults.[83]

A clear precedent for establishing a national immunization program while attempting to control an epidemic exists: the Vaccines for Children Program.[84]

Efforts to Eliminate Measles Led to the Establishment of the US National Childhood Immunization Program, but an Infrastructure Gap for Adults Remains

Measles elimination efforts were initiated in the 1960s, shortly after the establishment of the CDC's Public Health Service Section 317 Immunization Grants Program ("Act 317") provided funding for state and local immunization efforts.[84] This initiative combined the provision of robust routine vaccination in infants and school-aged children with other interventions, such as epidemic control and surveillance. While the visibility and success of these initial efforts fluctuated over the next decades, the measles elimination program jumpstarted a national program to support immunization for *all* childhood vaccines, rather than measles alone.

By the early 1990s, discussions about achieving measles elimination led to creation of the National Vaccine Program, which formalized national immunization efforts for children at the federal level and laid out the infrastructure needed to support it. Congress-enabled funds from Act 317 were allocated to the national program to support vaccine delivery, expand insurance coverage of childhood vaccines, bolster the use of immunization coalitions at the state and local levels to foster policy advocacy, and establish standards of practice. To bolster the vulnerable systems financing the national immunization program, the Vaccines for Children (VFC) Program was created.

Funded by Medicaid, the VFC program covered the cost of childhood vaccines for approximately 40% of the birth cohort who otherwise would not have received free immunizations at their primary care providers' offices, thus ensuring that vaccine access was equitable and would reach children at all income levels. Furthermore, medical practices participating in the VFC network agreed to annual visits by VFC representatives. This built an effective interface between providers and public health officials. By supporting surveys that assess immunization coverage in children nationwide, the program also ensured that critical benchmarks of coverage were met.

Without a national immunization program for adults, the ability for adults to get vaccinated free of charge can vary widely according to each state's Medicaid program, and no single system exists to monitor adult immunization coverage or support progress. State Medicaid programs provide some level of adult immunization coverage, but only about 43% cover all 13 Advisory Committee on Immunization Practices-recommended vaccines for adults.[85] Even with the Affordable Care Act, major gaps still exist in what vaccines are covered and what level of compensation providers are given, making the provision of certain vaccines—especially newer, more expensive ones—less financially sustainable. There are also gaps in how Act 317 funds can be used for privately insured individuals or for undocumented migrants hesitant to reveal their insurance status.[86] Adults are covered under the National Vaccine Injury Compensation program, but only for vaccines also administered to children.

While individuals need vaccination throughout their lives, routine immunization in the United States centers largely around children, and generally, vaccination coverage of adults is much lower.[87,88] Barriers that have hindered adult immunization coverage include no clear funding channel to support equitable access, a fragmented adult healthcare system, a lack of integration of adult immunization with other health priorities, the absence of methods and infrastructure to monitor the progress and

impact of adult vaccination efforts, limited evidence quantifying the benefits and impacts of adult immunization, hesitancy and lack of awareness, and access issues in the adult population.[89]

A national immunization program to protect people throughout the life course would support disease prevention, particularly COVID-19, influenza, and pneumococcal disease,[90,91] throughout the US population. Establishing such a program will require clear, objective benchmarks and indicators; accountability mechanisms to maintain transparency, ensure equitable progress, sustain political support, and address vaccine safety concerns; and activities that promote vaccination's benefits across the life course and the need to protect self and others, thus normalizing the need for vaccination into adulthood. Moreover, a firewall between systems that gather health information and systems that enforce immigration policies—and broad public communication of this arrangement—will be needed to help counteract the fear of deportation, which can impede access to health services like immunization.

4 Rebuild the public health infrastructure, properly staffing it for community engagement

To have the greatest impact on community health, the public health workforce should be sustainably resourced, demographically representative, and practiced at authentic community engagement. A scarcity of Spanish-speaking contact tracers and operators for the 211-based COVID-19 hotline in Baltimore—where the Latino community has been the fastest growing ethnic group in the city for decades—is a clear example of the deficits in the US public health system. In this case, community groups were able to bridge the language and cultural gaps. The Baltimore city health department is now partnering with these organizations. Collaborations like these—where the health department's mission and the community group's goals merge—can be very powerful.

Level out "boom and bust" funding

Political leaders at all levels—local, state, and federal—should allocate steady core funding for the public health infrastructure, sustaining its capacity to respond effectively to future emergencies and to address prevalent health challenges like diabetes, heart disease, and asthma that affect communities of color in greater numbers.[92-94]

Prior to the COVID-19 pandemic, the public health workforce was already in crisis due to chronic underfunding and reliance on project- and grant-based funding to compensate for dwindling or stagnant core support from state budgets, including those under both Republican and Democrat control.[95-97] In the wake of the 2008 recession, local and state health departments lost more than 20% of their workforce capacity.[98] From 2009 to 2012, at least 4 out of every 10 local health departments reported lower budgets compared to the previous year.[99] In fiscal year 2020, 7 state health departments reduced public health funding, despite the advent of a "once-in-a-century" pandemic.[100] While the United States spent $3.8 trillion on health in 2019, only 2.9% was targeted to public health and prevention.[100]

Congress should facilitate the nation's investment in a mandatory $4.5 billion-per-year public health infrastructure fund to ensure a predictable minimum capacity at local, territorial, state, and tribal levels.[92-94] This dependable core support will ensure the ability of public health agencies to provide effective services during steady state periods and to coordinate their jurisdictions' effective response to emergencies.

This ongoing, fundamental support should quickly follow short-term investments made through the COVID-19 emergency supplemental funding. If it is not provided, then the feared and well-established "neglect-panic-repeat" cycle of support for the public health infrastructure will continue and trust, particularly within racial/ethnic communities will erode even further.[97,100,101]

> In the 25 years I've worked in public health, there have now been 3 instances where a chronically underfunded and underresourced public health system, all of a sudden, just has money being thrown at it. Like more money than we can reasonably spend in an appropriate way. And that was after the anthrax and terrorist threats in 2001, it was H1N1 in 2009 and now.
>
> But the reality is our resources are so stretched in the 'in-between times' that we [...] I would love to have a public health nurse and a community health worker in every office, but we don't have the resources for that. So, "Roberta" covers 2 offices, plus our nurse manager. "Shayna" is covering multiple offices and helping to administer big contracts like our title 10 contract.
>
> So, I think being able to put into place personnel resources that are there consistently to build that trust especially in smaller communities but also those people that we put into place reflect the population. (Public health official, Idaho)

At the same time, state and local officials should fulfill their responsibility to provide steadfast support to the agencies that protect the health of their populations. They should fully and consistently fund their health departments, disavowing short-sighted budget cuts that have previously diminished core organizational capacities, often beginning with community engagement.[60-102] Prince George's County's investment in health and human services, for instance, has been deficient historically, especially for a county that has a majority–minority composition (ie, a large racial/ethnic population) and that is second only to Baltimore city in health disparities.[51]

State and local authorities, too, should sustain support the emergency preparedness and response function of public health, which, in certain cases, has been cut with the rationale that federal grant funding can make up shortfalls in jurisdictional budgets and/or that emergency preparedness and response is less of a priority than other public health functions.[103,104]

Mirror the communities being served

To improve health in low-income communities, it is essential that health departments commit to the strategic goal of promoting equity in their ranks at every level, including its board of health.

As a meaningful first step, public health agencies should implement a workforce development strategy to assess diversity within their labor force, address recruitment and retention issues that disproportionately affect people of color, and provide workplace training in cultural competency to foster a supportive work environment.[105-107] An increasingly diverse nation with persistent health disparities urgently requires greater parity in public health workforce composition.[105] A public health workforce composed of people with diverse experiences and perspectives creates the right conditions for innovations in practice, culturally competent services, and an equity lens that elevates the need to address the social determinants of health.[105-108]

Unless deliberate steps are taken, the public health workforce and the rest of the nation will be out of sync. The US Census Bureau projects that the non-Hispanic White population will shrink over coming decades, from 199 million in 2020 to 179 million people in 2060, although the US population will continue to grow.[109] Based on these projections, the nation will become "minority White" (49.7%) in 2045.[110] A 2017 snapshot indicates that racial/ethnic populations comprise 42% of the governmental public health workforce, with variations across federal (45%), state (36%), and local (42%) levels that ranged from 68% in big city health departments to 36% in other local health departments.[105]

In tandem with issues of representativeness, however, is the matter of authority. At state and local health departments, people of color hold a majority of clerical and administrative positions. Non-Hispanic White individuals hold a disproportionate number of public health science positions in state and big city health departments, as well as supervisory, managerial, or executive positions.[106] Public health leaders, most of whom are also non-Hispanic White individuals, make resource allocation decisions, influence stakeholder engagement, and determine whether and how community-based input is used.[111] This type of leadership composition is one factor that facilitates health departments overlooking key and critical issues facing racial/ethnic populations.

Strengthen human-centric competencies

When rebuilding the public health infrastructure, it is critical to develop and sustain support for a workforce of social and community proficient professionals, such as health educators and promoters, risk communication specialists, language translators, social media strategists, and social and behavioral researchers. Their numbers and compensation should be commensurate with their critical contributions to the health of low-income communities of color. Fortunately, many schools of public health already have both community health and health resource management education tracks. It is important that the attributes expressed here be incorporated in the composition and training of future public health practitioners.

When genuinely engaged with community members, public health and safety authorities see themselves as working *with*, rather than *on behalf of* populations. They also confer upon community members both respect and responsibility as collaborators who are charge of their own wellbeing.[112,113] The local health departments most able to ensure that their approaches to health emergency management are attuned to local conditions, are culturally competent, and are considered socially acceptable share certain organizational traits. Those traits include top leadership that elevates community collaboration and supports a formal policy of community engagement; a professional culture that affirms collaborating with the community as a constant practice and not a "one-off" activity; and, a cohort of skilled staff who can expend steadily the face time and follow through necessary to foster trusting relationships with grassroots organizations and underserved groups.[60,102,114,115]

Strengthening the numbers of public health positions that employ human-centric perspectives and people-oriented skills, including those developed through strong health education and promotion training, will be as equally critical to updating the public health workforce as will be recruiting for positions that use data-driven skills such as informatics, epidemiology, and laboratory science.

5 | Stabilize the community health system as the backbone for equity and resilience

Racial disparities in rates of COVID-19 infection and deaths have brought renewed awareness of glaring health inequities in the United States, and in the labor force uniquely suited to help repair both: CHWs.[65,116,117] Federal, state, and local leaders should take steps to fortify the country's community health system that is constituted by CHWs and the community organizations that typically employ them. Currently, this system is vastly underdeveloped due to funding systems that prioritize curative services over disease prevention and health promotion, mainstream health models that disaggregate individual illness from social determinants, and hierarchies that elevate professional and medical authority over community voices.[118] This must change.

Formalize and finance the community health workforce

With roots in the communities they serve, CHWs—like the *promotores* in Idaho and California—have the capacity to harness shared experiences to build trust with community members, navigate health and human services systems, bridge client and provider cultures to adapt service delivery, and advocate on behalf of community members for systemic changes in policies and practices that inhibit their access to care and overall health.[119]

CHWs are now involved in testing for COVID-19, tracing contacts, providing vaccinations, and addressing food insecurity; some are supported through the American Rescue Plan while others are supported by state and local health departments.[120] Whether their distinctive contributions will be treated as a temporary measure in the

current crisis or more fully integrated with medical, public health, and social service systems is an open question.

Another important question yet to be answered is how existing systems will integrate CHWs. There is no shortage of CHW models available. If CHWs are absorbed into primary care and public health systems, they may be relegated to tasks that serve, rather than transform, those systems. CHW work was founded on principles of advocacy and community engagement. With structural forces as they are, it is too easy to allow their work to become case management and patient compliance.

As the National Association of Community Health Workers (NACHW) observes, "Despite nearly 60 years of research on CHW effectiveness, 2 decades of public health recognition, landmark workforce development studies, and a national labor classification, CHWs and allies are still building a national identity, state-level policies and models for sustainable funding."[121] That identity, however, should not be eclipsed by the demands of payers and other structural forces.

In consultation with local/regional CHW networks and NACHW, policymakers should take immediate steps to develop and sustainably fund the CHW workforce:

- To ensure that states include CHW services as a basic component of their pandemic recovery and long-term resilience strategies, the US government should add CHW services as an optional benefit in Medicaid and increase Federal Medical Assistance Percentages for these services.[122]

- Private payer systems should include CHWs as a reimbursable expense so that institutions and clinics can contract more as bridges to the community connecting people to services for early prevention and intervention.

- State legislators should create sustainable financing strategies, including reimbursement of CHW services through state Medicaid programs, and should authorize a CHW workforce development plan that includes competency-based training and a registry or certification process.[119,122-124] CHWs should be involved in the development of this process, especially this last decision, so that the final registry or certification process does not harm or create hurdles for the very CHW models that are instrumental to community partnerships with public health.

- To generate opportunities and a career ladder for CHWs, public health leaders can work with state human resources systems to establish positions at varying levels of experience and define a clear scope of CHW practice[125] and, in particular, correctly compensate mid-level practitioners.

- City/county officials should establish "community health" as a complete and fully funded local government department with an emergency responder designation equivalent (if not senior) to law enforcement and fire service sworn officials. This configuration will enable the full integration of healthcare, public health, and community health while also preserving the unique principles, providers, and practices of community health.

Grant funds to CBOs, FBOs, and CHW-led organizations directly

Every community has groups capable of grassroots and grasstops organizing: they give voice to communal needs, facilitate mutual aid, connect people with basic services, build up a sense of identity, foster social cohesion, and serve many other functions.[126] Cultural centers, neighborhood groups, fraternal organizations, faith communities, social welfare nonprofits, local advocacy organizations, and other civic-minded associations have assets (ie, leadership structures, communication networks, volunteer rolls, place-based knowledge, and/or meeting places) that can be mobilized as part of a community's larger readiness, response, and recovery system.[126,127]

CBOs and FBOs deeply rooted in Black and Hispanic/Latino communities and other underserved groups can channel the public health response and recovery in ways that do not recreate discriminatory systems and perpetuate inequities in the middle of a crisis.[63] Support for a "bottom-up" approach to public health emergency management has sometimes flowed from health departments to grassroots partners in the form of mini-grants; however, this form of trickle-down funding has not been substantial, predictable, or flexible as a function of larger issues with the Public Health Emergency Preparedness cooperative grant program.[60-102]

In the present model, too, when large institutions (eg, universities that receive National Institutes of Health support) engage CBOs for collaborations, these organizations may still work within racist structures that do not enable genuine partnerships in either strategy or tactics. These bureaucratically administered institutions, for example, may expect CBOs to adapt to their processes (eg, long, complex reimbursement cycles; a 60-day waiting period). A better partnership model is needed to operate collaborative efforts according to shared terms with CBOs, rather than the terms of the institution alone.

To promote equity in preparedness and response, leaders in Congress and state and local government should take the following measures.[92,95,100]

- Direct targeted resources—during the COVID-19 pandemic and ongoing appropriations—to CBOs and other community health networks focused explicitly on the health and wellbeing of Black, Hispanic/Latino and other communities at risk of disproportionate impacts from health disasters

- Make long-term investments that benefit from advances made by CDC's National Initiative to Address COVID-19 Health Disparities Among Populations at High-Risk and Underserved, Racial and Ethnic Minority Populations and Rural Communities grant

- Adapt grant-making practices, eligibility criteria (eg, disease burden, social context), and evaluation criteria to create a funding environment where communities with the greatest health needs can benefit from competitive grant mechanisms and to offset any potential bias toward organizations with the means to prepare better applications

- Provide the least restrictive funding to achieve the impacts that are the most relevant for the community and implement longer performance periods and flexibility in programming that allow communities to decide the trajectory of their own public health solutions

Conclusion

Practicing equity in COVID-19 vaccination and carrying it forward, using the recommended steps provided, will produce tremendous gains.

Humanizing delivery and communication strategies for COVID-19 vaccines will result in broader vaccine coverage in groups with high rates of COVID-19 cases, hospitalizations, and deaths; jumpstart ongoing and consistent delivery of services that improve the health and wellbeing of underserved populations; and begin the work of repairing the structural and interpersonal racism experienced with medical, public health, and governmental systems.

Anchoring COVID-19 vaccination for hard-hit areas in a holistic recovery process will enhance health and wellness among the worst-off survivors of the pandemic now; generate trust in health and governmental systems that prove themselves as trustworthy by caring about whole persons not just vaccination rates; and prompt advances in the social determinants of health that strengthen quality of life as well as community resilience to extreme events.

Developing a national immunization program to protect people throughout the life course will enable broader coverage for COVID-19 vaccines and the 13 other vaccines urged for some or all adults and it will raise immunization rates for racial/ethnic minority adults whose vaccination rates trail those of White adults.

A rebuilt public health infrastructure that is sustainably resourced and equitably staffed will have the capacity to respond to emergencies and address prevalent health challenges (eg, diabetes) affecting communities of color in greater numbers; lead to innovations in practice, culturally competent services, and strategies for social determinants; and demonstrate trustworthiness and practice authentic community engagement.

The effects of stabilizing the community health system as the foundation for equity and resilience will include the prioritization of disease prevention and health promotion that will lead to better health outcomes, improvements in the social conditions of health, the eradication of racist policies and practices, and communities having control over the trajectories of their own health and wellness.

The country needs to seize this moment to achieve widespread and lasting COVID-19 vaccine coverage, including among the most vulnerable groups, and to develop locally appropriate mechanisms that advance equity in health.

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Appendix A. Glossary

Community-based organizations (CBO): Public or private nonprofit organizations that are representative of a community and provide services to individuals in that community.[1]

Community engagement: The participation of community members in the generation, implementation, and evaluation of policies and practices that affect their lives. Authorities achieve collaboration with a community through dialogue, power-sharing, joint decision making, and synergistic activities.[2]

Community health worker (CHW): An individual who serves as trusted intermediary between community members—with whom they share roots and experiences—and health and social service systems. By increasing health knowledge and self-sufficiency, a CHW builds individual and community capacity via outreach, community education, informal counseling, social support, and advocacy.[3]

Equity vs. equality: With equality, everyone is treated similarly (ie, if someone receives a certain amount of resource, then everyone else receives the same). With equity, individuals' circumstances are considered and then differences are made up so that everyone can achieve the same outcomes (ie, people receive different amounts of resources depending on their needs).[4]

Faith-based organizations (FBO): Nonprofit organizations associated with or inspired by religion or religious beliefs that provide social services to a community.[5]

Hispanic vs. Latino: *Hispanic* typically refers to people with a Spanish-language background, and *Latino* to persons with a Central and/or South American lineage. The report uses *Hispanic/Latino* generally and more specific terms (Hispanic or Latino) when referring to specific communities based on the preference of the members of those communities.[6]

Overt racism: Racism that is observable and operates in unconcealed, unapologetic forms of ethnocentrism and racial discrimination.[7]

Structural racism: Perpetuation of racial inequities by societal norms, institutional practices, and public policies. Even though an individual may not explicitly intend it, discrimination on the basis of race still occurs, as a result of a system's design. Under structural racism, people of color experience disadvantages in areas such as health, housing, employment, and criminal justice.[8]

Vaccine equity: The conditions that enable even the most marginalized, vulnerable individual in a community to access vaccination: ie, being aware of the vaccine, understanding the value of vaccination, and having the means to get to a point of vaccination without worry of undue risk (eg, concerns about taking time off work, immigration status, or poor treatment due to race or ethnicity).[9]

Vaccine hesitancy: Technically, a delay in acceptance or refusal of vaccination despite availability of vaccination services. A more popular meaning is any concern that causes persons to question vaccination regardless of whether they accept vaccines or not.[10]

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Appendix B. US COVID-19 Vaccination Timeline

The timeline below traces the evolution of US public opinion on COVID-19 vaccines over time, highlighting specific events, public health measures, and policies that have shaped vaccine confidence, hesitancy, and coverage among target populations, particularly people of color and other underserved communities.

Table B1. US COVID-19 Vaccination Timeline

Month	Polling	Rollout Inequities	Notable Events and Policies
January 2021	• 66% of the American public was optimistic about the rollout; respondents were either very confident (16%) or somewhat confident (49%) that vaccines would be distributed fairly.[1] • Fewer than half of Black adults believed that distribution efforts accounted for the specific needs of Black communities.[1] • The majority of Black, Latino, and low-income adults reported not having enough information about how to obtain a vaccination.[1]	• The CDC reported that among the 6.7 million vaccine recipients who disclosed their race or ethnicity, 60.4% were White, 11.5% were Hispanic/Latino, 6% were Asian, 5.4% were Black, 2% were American Indian/Alaska Native, and 0.3% were Native Hawaiian/Pacific Islander.[2]	• The US Department of Health and Human Services announced $22 billion in funding to support vaccine distribution.[3] • President-elect Joseph R. Biden announced that he planned to release most available doses, a reversal of Trump Administration policies.[4]
February 2021	• 18% of US adults had received at least 1 dose (18%) or wanted one as soon as possible (37%).[5] • Half of Black adults and 35% of Hispanic adults expressed skepticism that the vaccines had been adequately tested for safety and effectiveness within their respective racial/ethnic groups.[5]	• Special access codes intended to help hard-hit Black and Latino communities in California schedule vaccination appointments were co-opted by outsiders.[6]	• The Biden Administration announced that 50 million vaccine doses had been administered since Inauguration Day.[7] • The FDA granted an emergency use authorization to Johnson & Johnson for its single-dose vaccine.[8]

March 2021	• 55% of Black adults surveyed either got vaccinated or wished to do so as soon as possible, up from 41% in February.[9]	• The CDC reported that 90.3% of non-Hispanic White adults completed their recommended dosing regimens, compared to 83.7% of American Indian/Alaska Native adults, 88.8% of Black adults, and 87% of Hispanic adults.[10]	• President Biden announced that the United States would manufacture enough vaccines for every adult in the country by the end of May, invoking the Defense Production Act.[11]
	• 24% of Black adults were more likely than White adults (16%) to say they would "wait and see" before getting vaccinated.[9]		
	• 50% of Black adults and 52% of Hispanic adults were concerned about contracting COVID-19 from the vaccine, compared to only 33% of White adults.[9]		
	• 38% of Black adults and 27% of Hispanic adults worried about not being able to get vaccinated at a trusted site.[9]		
	• 20% of Black adults and 22% of Hispanic adults expressed concerns about traveling to vaccination sites.[9]		
April 2021	• Nationally, vaccine demand began plateauing slightly, with only modest gains in the number of adults who had received at least 1 dose of vaccine or soon intended to (61% in March vs. 64% in April).[12]	• A CDC analysis of willingness to receive a vaccination among incarcerated or detained individuals in 4 states showed that fewer than half (45%) of these individuals were willing to be vaccinated, with the lowest levels of willingness reported among Black participants (36.7%).[13]	• All US adults became eligible for vaccination.[14]
	• 55% of Black adults and 64% of Hispanic adults expressed concerns about having to miss work due to vaccination-associated side effects, compared to only 41% of White adults.[12]		• Concurrently, many states reported vaccine surpluses amid diminishing demand.[15]
			• Federal health officials announced that some recipients of the Johnson & Johnson vaccine developed thrombosis with thrombocytopenia syndrome.[12]
	• Doubts about vaccine safety figured prominently among Black adults (75%), Hispanic adults (72%), and White adults (70%) alike.[12]		• The CDC and FDA recommended pausing the Johnson & Johnson vaccine pending further investigation. The Advisory Committee on Immunization Practices later cleared the vaccine for continued use.[16]

	• Only 46% of US adults were at least somewhat confident that the Johnson & Johnson vaccines were safe.[12]		
May 2021	• 41% of parents of adolescents aged 12 to 17 years either received a dose or planned to do so as soon as possible. Only 8% of unvaccinated parents said they would get their child vaccinated "right away," compared to 46% of vaccinated parents.[17] • The percentage of individuals receiving at least 1 dose increased slightly from the previous month, with a 5% gain among Black adults, 10% among Hispanic adults, and 5% among White adults.[17]	• Of the roughly 24.8 million vaccinees who reported their race or ethnicity, 70.7% were White, 7.6% were non-Hispanic Black, 6.2% were non-Hispanic multiracial, 6.7% were Hispanic, 3.5% were non-Hispanic Asian, 0.8% were non-Hispanic American Indian or Alaskan Native, and 0.2% were Native Hawaiian or other Pacific Islander.[18] • Vaccination coverage was lower in rural counties (38.9%) than in urban counties (45.7%).[19]	• FDA announced that Pfizer-BioNTech's vaccine had been authorized for use among adolescents aged 12 to 15 years in the United States.[20]
June 2021	• Just over half of unvaccinated people reported that they would prefer to be vaccinated at their doctor's office, with only minor variations by race.[21] • 27% of Black and 22% of Native American respondents reported that fear of discrimination by medical providers would disincentivize them from seeking a COVID-19 vaccination, compared to 13% of White individuals.[21]	• As of June 7, the percentage of White individuals across 41 states who received at least one dose of vaccine was 1.4 and 1.3 times higher than that of Black and Hispanic individuals, respectively.[22] • Upticks in vaccination rates among Black and Hispanic individuals (1.9% and 2.8%, respectively) suggest that the racial gap is narrowing.[22] • In Washington, DC, Black residents—who make up 45% of the city's population—accounted for more than 80% of new COVID-19 cases reported in late May.[23] Similarly, Hispanic residents—who make up 40% of California's population—account for 63% of cases.[22]	• Novavax reported that its COVID-19 vaccine candidate demonstrated 90% efficacy against laboratory-confirmed symptomatic infection in Phase III clinical trials.[24] • As of June 13, providers were administering roughly 1.1 million doses per day, a nearly 67% decrease from April 13, when daily dosing rates peaked at 3.38 million.[25]

Abbreviations: CDC US Centers for Disease Control and Prevention; FDA, US Food and Drug Administration.

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Appendix C. Local Team Research Methodology

Research Sites

Alabama

The Alabama local research team collected data from Black communities in 6 rural counties. Three of these counties, which are majority Black, are located in the state's Black Belt region—an area named for its rich, dark soil. Over the past 50 years, agricultural production in these counties has steadily shifted to heavy manufacturing and food-processing industries, however, poverty remains high, affecting 25% to 30% of county residents. Health outcomes in all 3 Black Belt counties are in the lowest quartile of all counties in Alabama. In contrast, the 3 non-Black Belt counties, which are majority White, are more economically diverse and rank in first or second quartiles in health outcomes.

California

The California local research team centered their work in the south region of San Diego County—an area where 61.3% of residents are Hispanic/Latino. While economic opportunities are plentiful in this urban area, residents face a high cost of living that only worsened with the onset of the COVID-19 pandemic. This circumstance has resulted in many Hispanic/Latino persons in the research area to live in overcrowded households (ie, roommates, extended families, multigenerational families). Unemployment in the south region ranges from 9% to 12.2%; employed Hispanic/Latino individuals are overrepresented in jobs where there is a greater risk of being exposed to COVID-19.

Idaho

The Idaho local research team focused data collection efforts in and around 2 rural towns: American Falls and Aberdeen. The economy of the area is based on agricultural production. The Hispanic population makes up 31% of the research area's residents, with 19% living below the federal poverty level. Due to the rural location, there are health professional shortages in primary care, dental care, and mental health services generally. Access to care is further limited by a lack of health insurance among many residents, including most migrant Hispanic workers.

Maryland – Baltimore

The Baltimore local research team gathered data from Latino persons living in Baltimore City, an area that has seen a steady increase in the Hispanic/Latino immigration over the past 2 decades. Hispanic individuals living in Baltimore are mostly foreign-born and have low educational attainment and limited English proficiency. An estimated 20% live below the federal poverty level. The combination of high poverty rates, high housing prices, and a lack of low-income housing has resulted in a disproportionate number of Latino persons living in crowded living situations.

Maryland – Prince George's County

Prince George's County's population is 63% Black, 16% Latino, and 14% White. It is also the most affluent Black majority county in the United States. However, racial makeup and economic prosperity varies widely within the county. The local research team focused their research efforts in 2 urban neighborhoods with high proportions of Black residents. While plentiful health resources exist in the county, many Black residents have experienced stark, historic disparities in access to health and hospital services.

Virginia

The Virginia local research team centered data collection on public housing residents in the Hampton Roads region that encompasses 7 major cities in southeast Virginia: Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, Suffolk, and Virginia Beach. Black residents make up 31% of this area's population, although geographic segregation by race contributes to higher concentration of Black residents in select cities. Within public housing, 90% of residents identify as Black. The economy of the area is largely based on the US military, commercial ports, and tourism. Residents of public housing have incomes well below the federal poverty level and 50% to 80% below the median incomes in each city.

Data Collection

The primary data collection method used by local teams was semistructured interviews. These interviews allowed teams to collect vital insights on individuals' experiences with COVID-19, factors affecting their ability and/or willingness to accept COVID-19 vaccines, and their perspectives on equity and recovery. As of July 2021, the 6 local research teams had conducted a total of 194 interviews (Table C1). Other data collection methods used by local research teams included: follow-up interviews, focus groups, and social mapping. The research protocol was approved by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board, and for the Alabama, California, and Virginia teams approval was also granted by the institution review boards from the University of Alabama, San Diego State University, and Eastern Virginia Medical School, respectively.

Table C1. Interview Participant Demographics and COVID-19 Vaccination Status by Area

	Alabama	California	Idaho	Maryland: Baltimore	Maryland: Prince George's County	Virginia	TOTAL
Gender							
Female	19 (59%)	28 (72%)	24 (59%)	13 (59%)	15 (68%)	27 (71%)	126 (65%)
Male	13 (41%)	11 (28%)	17 (41%)	9 (41%)	6 (27%)	11 (29%)	67 (35%)
Nonbinary	–	–	–	–	1 (5%)	–	1 (1%)
Total	32	39	41	22	22	38	194
COVID-19 Vaccination Status							
Vaccinated	21 (66%)	33 (85%)	16 (41%)	3 (14%)	16 (76%)	28 (74%)	117 (61%)
Not Vaccinated	11 (34%)	6 (15%)	23 (59%)	19 (86%)	5 (24%)	10 (26%)	74 (39%)
Total	32	39	39	22	21	38	191

Source: Unpublished local research team reports, May 28, 2021. Note: All data collection figures are as of May 28, 2021.

Each local team also completed an environmental scan of their research area. This scan included demographic details of the area as well as assessments of community resources, health assets, community relations with public health and health care sectors, vaccination trends and current efforts, and local COVID-19 impacts and responses. Data for the scans was collected using a combination of publicly available data and key informant interviews with immunization officers, public health information officers, public health emergency preparedness coordinators, social service providers, political officials, and leaders of community organizations.

These efforts were facilitated by the long-term relationships local team members had established prior to this project. The research was also facilitated by the community engagement activities the local teams coordinated. These efforts brought together researchers, community members, and other relevant stakeholders in a bid to address community concerns and bolster public health outcomes in both the short- and long-term. Community engagement activities included vaccine promotion events (or vaccine promotion at events), assisting with vaccination clinics, disseminating COVID-19 and COVID-19 vaccine information, working with partners for data collection recruitment, sharing preliminary local research findings, and collaborating with local health systems.

Data Analysis

Interview and other qualitative texts were analyzed for this report using the principles of thematic analysis. This process involved generating a preliminary codebook (largely informed by the interview protocol, the personal expertise of the core research team, and extant literature); testing this codebook against sample interviews; providing a revised version of the codebook to the local teams; and then within the local teams,

iteratively coding interview and other texts and refining the coding scheme to reflect local realities more accurately.

To maintain a cohesive coding structure across the entire project, local teams submitted revisions and suggestions for the shared codebook via a weekly, online survey as well as a one-time submission of coded, anonymized data, which was subsequently reviewed by a research committee (comprised of a subset of the Working Group on Equity in COVID-19 Vaccination) and used to further refine the group coding list. The research committee also used this data to identify 3 code families—COVID-19 vaccine perceptions and experiences, vaccine access, and equity—as most pertinent to generating the national report. Local teams then used this final codebook to analyze their remaining data and write the local reports that were subsequently used to inform this national report.