From Equitable Crisis Response to Healthy Populace

CommuniVax Alabama – Final Local Report

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CommuniVax

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

THE UNIVERSITY OF
ALABAMA

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Executive Summary

In November 2020, the **CommuniVax Coalition** was formed for the purpose of strengthening COVID-19 vaccination efforts across the United States. The coalition's focus is on communities of color and the issues they face that impede vaccine access. These include issues surrounding health communication mode and content, effective policy development, intervention design and implementation, and inclusive service delivery practices. Alabama was chosen as a coalition member because it has a substantial minority population, and because, as a rural state, it faces particular public health challenges—a substantial poverty rate, limited transportation and technology access, and a shrinking healthcare infrastructure.

The 6 counties targeted in our study (Bibb, Greene, Hale, Perry, Pickens, and Tuscaloosa) exemplify these public health challenges. For example, Perry County has the lowest life expectancy in Alabama (72.3 years). It has a 35% poverty rate. There is no hospital, and its public health department is open 3 days per week. Only 40% of the county's African American population were vaccinated as of August 3, 2021. This compares favorably with the percentage of the White population vaccinated (34%) but is 27 percentage points below African American representation in the county population.

Vaccine hesitancy was identified as a major barrier to African Americans' vaccination before vaccine rollout began and continues to dominate narratives of low vaccine uptake among the African American population in Alabama and across the nation. While hesitancy is certainly a factor, the data we have collected in our interviews, focus groups, and other activities over the last 9 months paints a more complex picture.

We discovered that in the early days of the rollout, *access and hesitancy* were both substantial barriers to vaccination, with access being the larger barrier. Through the efforts of the health department, civic and community organizations and leaders, and state entities like the Alabama National Guard, the access barriers have been greatly diminished. Hesitancy continues to loom large. However, we have also learned from our participants—everyday Alabamians and civic, political, and community leaders—that underlying both access and hesitancy is a fundamental disconnect between underserved communities and state-level efforts to protect and preserve the public's health.

This disconnect resulted in an initial vaccine delivery plan that left communities that had no health department, no other local health service delivery providers, and many residents who had no means of transportation without a way to be vaccinated. It led to some counties initially being minimally served by the Federal Retail Pharmacy Program. It supported the launch of an internet-based vaccine information and appointment scheduling system, despite limited broadband access in the state's rural areas and a state literacy rate as low as 75%, according to some sources. Most importantly, these access barriers were addressed only after the communities and their advocates protested loudly, suggesting limited knowledge of conditions at the local level.

Vaccination rates have slowed markedly in Alabama over the last several months, tracking the dismantling of pandemic precautions by the governor's office between April and July, 2021. To characterize this slowdown in vaccination as hesitancy is accurate, but incomplete. The disconnect between institutional efforts and community needs that underlay access issues early on persists. It is observable in the lack of a locally based approach to vaccination that emphasizes multimodal communication and address of misinformation through dialogue—2 strategies our data suggest are effective. Finally, hesitancy's roots in the long-standing structural inequities that have made communities of color more vulnerable to the medical and nonmedical effects of the pandemic are notably absent from state recovery narratives. Our findings and recommendations, listed below, present evidence in support of the disconnect we have identified and suggest how it might be addressed.

Findings

① **Vaccine hesitancy among African American Alabamians is heterogeneous and is magnified by misinformation and limited access to primary care.**

Vaccine hesitancy varies in strength, from "skeptical but willing" to "adamantly opposed." The strength of hesitancy varies between subgroups of our population and can change over time. For example, male participants between 18 and 40 years old voiced the most resistance to vaccination in the interviews. However, a number of these people joined the ranks of the vaccinated over the course of our 2 to 4 months' contact with them. A key factor in combating misinformation appears to be multiple opportunities for one-on-one dialogue with a trusted individual. Since younger people are more likely to not have a primary care physician, there is a need for others in the community to fill this role.

② **Alabama needs a stellar public health ground game to equitably serve its entire populace.**

The disconnect we observed between community needs and state actions is analogous to the lack of a comprehensive offense in football—having a strong passing game and a weak ground game. An effective pandemic response, and public health in Alabama in general, requires a strong ground game—a way to regularly assess community circumstances and convey access needs, and a system of message and service delivery provision that is staffed by people known to the community and whose word they will trust and act on.

③ **Inclusive pandemic recovery will require addressing the social determinants of health—particularly education.**

The social determinants of health (eg, employment, housing, education, access to healthcare) play a substantial role in the higher prevalence of chronic disease and poor health and help to explain the disproportionate effects of the pandemic in our target communities. Recovery from the pandemic will not only require vaccination; it

will also require that these determinants be meaningfully addressed. Education is a key system in this regard. Our participants worry that educational "recovery"—return from nearly 2 years of emergency online education to a previously ailing traditional system—is unlikely *because* of the preexisting limitations. They see this lost learning as another form of "long COVID."

Recommendations

We addressed both the management of the current pandemic (Recommendations 1 and 2) and the long-term improvement of Alabama's community-level public health infrastructure and degree of human capital investment (Recommendations 3 and 4):

Management of the Current Crisis

Combat vaccination hesitancy with dialogue and access

Recommendation 1

Engage local communities in ongoing conversation about the effects of the pandemic on their lives. Listen to what the community members say and respond accordingly.

Recommendation 2

Invest substantively in public health infrastructure at the community level. Create a locally knowledgeable, trusted health education/promotion workforce in cooperation with existing state education, specialized health training, and healthcare service institutions.

Building for a Healthier Future

Promote and protect health now and in the future through investments in education and training

Recommendation 3

Partner with existing civic organizations to build a public-health responsive civic infrastructure. Support mayors and community leaders to attend the health leadership conference available in the region, and provide matching funds to support the initiatives communities devise.

Recommendation 4

Address the structural fissures magnified by COVID-19, beginning with education. Convene a statewide task force composed of relevant stakeholders from counties/districts with low educational success rates. Develop a long-term plan to improve educational outcomes, with appropriate interim benchmarks.

Introduction

The demographic, socioeconomic, and political diversity of Alabama is well-captured in the 6 counties targeted by CommuniVax Alabama. Geographically speaking, 4 of the counties (Bibb, Greene, Hale, Pickens) border Tuscaloosa County (home of the University of Alabama and the project team). All are in the West Central public health district (Figure 1). Of the 6 counties, 3 (Greene, Hale, and Perry) are in the area known as the Black Belt. We report here on vaccination efforts and uptake in these 6 counties.

The Problem

Poverty is endemic to the Black Belt, at 25% to 30% of residents. One of our target counties, Perry County, has the highest poverty rate in Alabama, and an unemployment rate of 12.1%.[1]

Figure 1. Map of the West Central District (green).

Health outcomes for the 3 Black Belt counties in our target area are in the lowest quartile. For example, Perry County has the lowest life expectancy in Alabama (72.3 years).[2] The county's healthcare infrastructure is also sparse. There is no hospital, and its public health department is open 3 days per week. Moreover, a disjuncture often exists between community needs and state or regional service delivery.

One example of a disjuncture related to COVID-19 is the placement of a pop-up vaccination clinic in the Perry County town *with* a health department, while a similarly sized town 1 hour away was bypassed for this service even though it lacked health services of any kind. It was only through the efforts of vocal community advocates that the town without healthcare services was added to the list of pop-up clinic sites. Community advocates frequently find themselves in the role of petitioning the state to reconsider a course of action that may make sense logistically, but that leaves portions of the population unserved or underserved. The structural (rather than incidental) nature of these types of service delivery gaps is illustrated by the administrator of the Alabama Department of Public Health's West Central District in a December 2020 interview. When asked how the health department was involving the community in plans for the vaccine rollout, she stated that she "hadn't gotten to advisory boards" in her planning efforts. Rather, she was focused on hiring staff to deliver vaccinations— clearly an urgent need. But without attending to both on-the-ground service needs *and* ensuring enough providers to deliver the services, the result is the same—health promotion efforts that fall short of the goal. Data from the US Centers for Disease

Control and Prevention show that Alabama's vaccination efforts have fallen significantly short of the level needed for population immunity.

At this point in the pandemic, Alabama has the dubious distinction of the lowest vaccination rate in the United States—34.4 % of the eligible population has been fully vaccinated.[3] Vaccination rates have slowed markedly in Alabama over the last several months, tracking the dismantling of pandemic precautions by the governor's office between April and July. Nevertheless, vaccination rates have increased by 4 percentage points on average in our target Black Belt counties (from 31% to 35%), and by 6 percentage points on average in our target non-Black Belt counties (from 22% to 28%; see Appendix A) since early June. In June 2021, vaccination rates for African Americans in our target Black Belt counties and Tuscaloosa County was below their population proportion; over the past 8 weeks, this difference has decreased by between .2 and 1.8 percentage points.[4] Progress is slow, but there is progress.

While the most obvious explanation for these small positive changes in vaccination rates is the rapid spread of the highly contagious Delta variant (5 of the 6 counties in our target area have high community transmission rates—between 99 and 400 new cases in the preceding 7 days), the increase affirms that it is possible to move the needle on COVID-19 vaccination. We are especially encouraged by the examples of Pickens and Bibb counties, where the percentage of vaccinated African Americans rose from 19.4% and 29.9% to 32.8% and 35.6%, respectively, between early June and early August.[4] Moreover, we do not discount the effects of grassroots persuasion efforts, particularly within families and social networks, which our data suggest contributed meaningfully to the current vaccination numbers.

Seventeen months into the pandemic, Alabama faces public health and healthcare delivery challenges that are unmet, ongoing, and new. The challenge of mounting an effective response to the resurgence in COVID-19 cases because of the highly contagious Delta variant is unfolding alongside a campaign to promote vaccination and reasonable precaution observance that has been significantly hampered by misinformation, mistrust and concerted political resistance from its beginning. Public health in the state continues to suffer from understaffing, underfunding, and an entrenched set of practices that reduce public health's role to either crisis response or a logistically focused, rather than needs-focused, dissemination of information and services.

These challenges disproportionately affect communities of color, which are also more likely to experience the social determinants of health (eg, employment, education, housing, food security, civic infrastructure, history) as negative rather than positive effects. For many in our target communities, COVID-19 only worsened already precarious circumstances. While this report does not present comprehensive solutions to these challenges, we believe that its basis—the insights of everyday people and community leaders—makes it a valuable tool. It provides information concerning how the ongoing challenge of COVID-19 control might be met, and how the task of ensuring the conditions for healthy life going forward might be addressed holistically and equitably.

The Approach

In November 2020, the CommuniVax Coalition was formed for the purpose of strengthening COVID-19 vaccination efforts across the United States. The coalition's focus is on communities of color and the obstacles to health equity they face related to communication mode and content, policy development, intervention design and implementation, and inclusive service delivery practices in the context of the pandemic. This report is based on data collected by the Alabama research team for the initial environmental scan, interviews with individuals in 5 of the 6 target counties, follow-up activities with a subset of the interviewees (n = 13), 3 focus groups with essential workers, and 1 with community leaders (see Appendix B, Study Activities). Nearly all data collection activities were conducted by phone and/or online using videoconferencing software (ie, Zoom). The only exceptions were 2 essential worker focus groups in July, which were conducted in person. The study was approved by the University of Alabama's Institutional Review Board (21-01-4258), including an amendment to allow in person data collection approved in June.

The *environmental scan* included data from 11 key informant interviews, publicly available information about the target counties (including population distribution, employment rates, and health outcomes), mass media (Alabama radio, television, and broadband), healthcare providers, health-promoting organizations/institutions, and state plans for the vaccination rollout.

Interviewees were recruited through Facebook postings and electronic fliers distributed to community organizations, community leaders, and interested individuals. Some participants referred their friends or family members. Twenty-eight of the 34 interviewees phoned into Zoom for their interviews, so there was no video capture in those cases. Four interviews were conducted over the phone. Two interviews were conducted using Zoom's full conference capacity. The video file was deleted immediately after the interview ended in these cases. Thirty of the 34 interviews involved 3 people— an interviewer, a note taker, and the participant. The interviewees were asked about their individual and community experiences of COVID-19, attitudes toward pandemic precaution observance and vaccination, effects of the pandemic, and perceptions concerning what recovery from the pandemic would look like for their community.

Follow-up activities were conducted with 13 of the 34 interviewees. Nine of the 13 completed *5-minute follow-up interviews* every other week. Two interviewees completed only 2 of 3 planned follow-up interviews; 7 completed all 3 follow-up interviews. Follow-up interviews monitored change in the number of people the participants knew who were vaccinated or unvaccinated, asked about participants' perceptions of how vaccinated people and unvaccinated people differed from each other, and asked for 2 words describing their experience of the pandemic at that time point.

The *follow-up activities* included a *media diary study*. This activity assessed the sources from which the participant received information about the pandemic and vaccination in the course of a week. The diary was originally intended to be an online resource, but because of the challenges to broadband access in much of our target area, 2 members of

the study team developed a print version of the media diary (see Appendix C). Of the 5 participants who volunteered to complete the diary, only 3 (all women over 40 years old) returned their materials.

The third *follow-up activity* involved *social mapping*. Participants were mailed a Google map in 2 views—the area within 5 miles of their address and the area within 2 miles of their address. They were asked to mark the places they go in the area for healthcare services and supplies on the map. They were given a separate sheet to list the places they visited for healthcare-related needs that were outside the mapped area. Five women over 40 years old volunteered for this activity; 3 people completed it (see Appendix D for an example).

We conducted 3 *focus groups* with essential workers. The first group comprised 4 female Head Start teachers aged 24 to 60 years, all of whom were vaccinated. The second group of 5 was made up of vaccinated and unvaccinated men aged 19 to 40 years. The third group of 6 unvaccinated men and women ranged in age from 18 to 29 years.

We conducted 1 focus group with community leaders. The spheres of operation for this group of 6 people included local civic and political leadership, university-based specialists in community engagement, key staff in community-based organizations, and self-described "concerned citizens." These men and women ranged in age from 35 to 72 years.

Local Observations

The United States has not experienced an infectious disease outbreak of similar breadth and severity to the COVID-19 pandemic since polio swept the country in the mid-20th century.[5] Part of our struggle with this pandemic is that many Americans have no experience with population-wide infectious disease control measures, including universal vaccination. However, our Alabama data indicate that the challenges we face around vaccine hesitancy, virus resurgence, and pandemic recovery are neither novel, nor even particularly rare. Rather, they result from:

- Long-standing systemic inequity.
- Health, transportation, and communication service delivery policies and practices that do not serve all groups equally well.
- An information environment that can recycle misinformation as easily as it can promote verifiable health information.
- A health information environment that views inclusive communication as exceptional rather than standard practice.

The recognition that the pandemic is unfolding in this broader context shapes the participants' perspectives on the virus, vaccination, and expectations for pandemic recovery. We have summarized these perspectives in 3 observations, namely: (1) vaccine hesitancy among African American Alabamians is heterogeneous *and* is magnified by misinformation and limited access to primary care, (2) Alabama needs a stellar health promotion ground game to equitably serve populations throughout the state, and (3) pandemic recovery that is inclusive of race and class requires address of the social determinants of health—particularly education. We present these arguments in more detail, and with supporting examples, below.

① "Vaccine hesitancy" among African American Alabamians is heterogeneous and is magnified by misinformation and limited access to primary care.

Reasons not to be vaccinated differ among our study participants. Their hesitancy varies in strength from "I am skeptical, but … okay," to "I would like to, but…, " to "I am considering it, and I have concerns," to "I have no intention of being vaccinated." The strength of hesitancy changes over time. Among our interview participants, hesitancy *decreased* among our participants through the early months of vaccination rollout to the point that 14 of the 21 (67%) who were originally hesitant had gotten 1 or more doses or were planning to by early June (see Table 1). However, the decision to be vaccinated should not be taken as a sign that hesitancy was erased for all those participants. These "hesitant but vaccinated" participants were younger (aged 18 to 45 years), and those who worked outside the home were employed in the industrial or service sectors. Their jobs frequently involved manual labor. Despite their vaccinated status, they questioned the vaccines' efficacy, citing the recent, highly publicized instances of breakthrough

infection. They wondered whether the vaccines' protection outweighed the risk of side effects:

> *I had the questions of . . . like he said, it's people that took it and still got it afterwards, you know. So I was like, you know, I don't have much faith in this shot thing, whatever, but . . . and like he said, with the, with the, um, allergic reaction, I know people that had that. Like I know somebody who took it and she was like out of it for like almost 2 weeks or whatever. (19-year-old African American man, vaccinated)*

Other "hesitant but vaccinated" participants had questions about what was in the vaccines and how they came to be produced so quickly, even as they expressed a degree of faith in their protective effects:

> *But because I went on and got it, I still feel a little safer with it. However, I don't know what was injected in, you know? What was injected in me. So I'm hoping it was [the vaccine]. I just would like to know what was used to create it and how was it created so quickly. You know, my brother and I laugh about it. He said they can be putting water in your body! You don't, you don't know! (49-year-old African American woman, vaccinated)*

The perceptions that the vaccines are not that effective or that they are as dangerous as the virus can increase hesitancy and shift decisional balance away from vaccination. A steady stream of social media misinformation and mistrust fostered by personal experience and historical knowledge of unequal treatment in the healthcare delivery system can further feed resistance to vaccination. This was the case for many of our participants under 40 years old. Fortunately for the cause of population immunity, older participants took it upon themselves to encourage their family, friends, and coworkers to be vaccinated. They rejected the argument that their unknown ingredients made the vaccines dangerous:

> *Uh, well some people said they're not because the, the medicine came out too fast and they're not going to put anything in them that they don't know anything about. But that's just common, you know like some things ... we don't know when we get a blood pressure pill, we don't know what's in that, but we take those, and all this other medicine the doctor give us. But when we go to the doctor, we take what ... most of us take what they give us, unless it, it don't make us feel so well. But in order for us to feel better, we got to give the medication a try. (60-year-old female Head Start teacher, vaccinated)*

This comment highlights the insufficiently acknowledged efforts of African American family and community members in promoting vaccination, and the magnitude of the task taken on by those like the Head Start teacher who are "preaching and teaching and

trying to encourage them to go ahead and get vaccinated." People without a regular doctor are less likely to have the experience of agreeing to try a treatment on the advice of that doctor. This is important because our data shows that having a trusted physician express confidence in the vaccine helped overcome people's concerns. In the words of one 66-year-old vaccinated male participant: "You know, they (the doctors) was not hesitant as far as taking it … all of them was down with it."

Between 2002 and 2015, the younger Americans got, the less likely they were to receive care from a primary care physician. In addition to younger age, factors associated with decreased likelihood of having primary care included male sex, racial/ethnic minority status (African American, Latinx, or Asian), not having health insurance, and residing in the Southern US Census Bureau region.[6] Our participants who voiced the most resistance to being vaccinated fit this profile well. One could argue that these participants were preconditioned to hesitancy—or at least to circumstances that make hesitancy difficult to overcome. This may be why their older relatives' persuasion efforts aren't working as well as everyone would like, and why traditional messaging does not appear to be improving vaccination uptake.

However, the fact that younger age may be a proxy for a set of life experiences and circumstances that almost make vaccine hesitancy a default position does not mean that vaccination promotion efforts focused on younger African Americans are in vain. Again, among our participants, a substantial number of people who were initially hesitant changed their minds and got vaccinated (Table 1), and the state vaccination counts rose between early June and early August. This improvement leads us to consider how local, regional, and state-level public health agencies might support local communities' ongoing efforts at vaccination persuasion.

Table 1. Vaccine Status, by Initial Hesitancy

Vaccine Status	Not Hesitant Initially	Hesitant Initially
Not vaccinated	-----	7
Not yet but planning to	-----	4
First dose	2	5
Fully vaccinated	10	5
Total	12 (36%)	21 (64%)

② Alabama needs a stellar health promotion ground game to equitably serve its populace.

I think it's gonna take more than, than campaigns, that it's gonna take more than, you know, nice targeted marketing to kind of get through this. This is maybe sounds (like) a bit of a broken record here, but this is one-on-one influencing, where we are now … and the infrastructure to support that is what (we need). You know, I think campaigns are fine in terms of, you know, messaging and those sorts of things, but this is, you know, this is ground game 101. (Community leader focus group participant, vaccinated)

Because this is Alabama, and because of the tactics undertaken and not undertaken by the state in responding to the pandemic, the football analogy of a comprehensive offense —an effective passing game and an effective ground game—is both accurate and meaningful when applied to the efforts to roll out the COVID-19 vaccines. Alabama led with its passing game—distribution of vaccine by public health departments, selected Federal Retail Pharmacy Program partners, select federally qualified health centers and national guard mobile units. The early days of distribution can be viewed as a series of successful passes to strategically placed receivers. Among a subgroup of African American Alabamians, this passing game worked well—particularly the mobilization of the national guard units to operate mobile clinics. Our vaccinated interviewees were aware of the national guard effort and reported getting vaccinated through those clinics or knowing someone who had been vaccinated there. Moreover, there was a consensus among our June community leader focus group that "everyone who wants the vaccine has gotten it." Viewed in terms of degrees of hesitancy, it seems that Alabama's vaccine passing game connected with the "willing" and the "willing hesitant," especially after community activists and advocates provided feedback about how the early, primarily online approach to information sharing and vaccination scheduling might be expanded to improve access for older, rural residents:

[B]ecause she had a cousin to call her [to say] that her mom wanted it. And . . . they didn't know how to go about getting it. So my daughter signed the mom up before she signed me up because she wanted it first.... And the young lady called all of the mayors in this county and told them that there were people who wanted to get the vaccine, and did not know how to go about getting it and it would help them help the people that wanted it if the mayors would make a conscious effort of putting something in the paper, or putting announcements in the church (bulletin)... doing anything that they could to help these people get it now. (62-year-old African American woman, vaccinated)

The preceding quote points to at least 1 important lesson to be taken from these early passing game successes, and at least 1 of the remaining challenges to population immunity. Both involve cultivating a robust community health ground game, the first element of which is health information distributed through local channels, with locally relevant content, delivered by trusted messengers. The early reliance on state and federal websites for information meant that many people did not get the information, and some of those who got it didn't see it as a dependable guide for their vaccination decisions:

I think the lack of publicity is the problem to convince people. I just think they have not put enough in, and it's not going to be from somebody coming into Hale County telling me, but it has to be someone from in Hale County to tell me. I don't trust nobody coming into Hale County to tell me (who) I don't know.... And I just think lack of publicity locally, not on a national level, just local mom pop

This quote suggests that timing and fit are important for effective health promotion. This participant could not access, or did not attend to, the more generic messaging encouraging vaccination that circulated during the early days of the rollout. While our data cannot tell us how much an information campaign that was a better local fit might have affected vaccination rates in our target communities, it makes sense to think that beginning with an approach to vaccination messaging that included local voices might have improved vaccination rates.

A participant who expressed greater fear of the vaccine than the virus when she was interviewed in May received her first vaccine dose on July 15, 2021. She also completed the 7-day diary documenting the information she encountered concerning COVID-19 vaccination between July 14 and July 20. She notes receiving vaccination information on her job as an auto factory worker and through her interaction with a healthcare professional at the Veterans Affairs hospital. She reported information she received about the Delta variant and the effectiveness of the "2-shot vaccine" through social media and at her local grocery store. On diary Day 6 she recorded the statement, "it's better to be vaccinated than not vaccinated at all" as being something she heard from "associates." Her entry on Day 7 was the day and time of the appointment for her second shot.

This participant's journey from hesitant to vaccinated occurred over 2 months. Her interview and diary study bookmark her positions—hesitant in early May and on the way to being fully vaccinated by mid-July—and indicate that change is possible, but that it may be gradual rather than instantaneous. Multiple information encounters at multiple levels (eg, media, one-to-one conversation, social endorsement) were half of that change process; ready access to the vaccine through her work was the other half. This participant's experience suggests that efforts to vaccinate beyond those who have already decided they want it can pay off. As the quote from the community leader at the beginning of this segment indicates, communities already know that this type of *persistence*, enacted as communication and access, is the key to success in the current phase of the rollout. The more coordinated and systematic approach to this persistence that is implied by "ground game" is the appropriate place to apply state, regional, and federal resources in support of these local efforts.

③ Inclusive pandemic recovery will require addressing the social determinants of health—particularly education.

COVID-19 has disproportionately affected communities of color in terms of severe disease, hospitalization, and death. These negative effects are attributable in part, to higher rates of chronic disease and overall poor health in these communities. But the social determinants of health (eg, employment, housing, education, access to healthcare) play a substantial role in the higher prevalence of chronic disease and poor

health and help to explain the disproportionate effects of the pandemic in these communities. Recovery from the pandemic will not only require vaccination; it will also require that these determinants be meaningfully addressed.

For example, research sponsored by the National Community Reinvestment Coalition has demonstrated that the worst health and economic effects of the pandemic are more likely to occur in formerly redlined neighborhoods compared with neighborhoods not subjected to this discriminatory housing/development practice.[7] The association makes sense when you consider that once-redlined neighborhoods are areas of long-term, systematic disinvestment and inadequate resource provision. Most residents in these neighborhoods are poor, few own the properties where they live, the retail and service infrastructures are sparse, employment opportunities are limited, and education tends to be of poor quality. Poor health outcomes are more likely to occur under such living conditions, and new diseases are more likely to negatively affect those already in poor health.

The disproportionate burden of COVID-19 among African American Alabamians has likewise been shaped by inequitable economic, housing, transportation, educational, and healthcare access opportunities that have existed over the past 156 years. Our participants did not separate their experiences of the pandemic from the fundamental issues that plague their communities: the lack of well-paying jobs in the local area, which in turn affects availability of local services like grocery stores and public transportation. Underemployment can make reliable private transportation unaffordable, and the lack of transportation makes it difficult to find better-paying jobs that come with health benefits. The Medicaid threshold is so low in Alabama (ie, income cannot exceed $1,094 per month for an individual, $1,472 per month for a couple)[8] that many working poor are not eligible. Participants provided other examples, such as free school meals being delivered to children on school buses because the family was unable to get into town to pick up the food, and the plight of elderly people who wanted to be vaccinated but had no way to get to sites that administered vaccinations. They described resource availability during the pandemic as similar to the way things were before the pandemic, or worse.

Our participants made it clear that the challenges to leading a healthy life in rural Alabama are multiple and interconnected. In our target communities, COVID-19 is just the latest in a plethora of health issues rooted in long-standing structural inequality. Thus, "pandemic recovery" for many in our target communities means a continuation of perennially difficult circumstances—just without the difficulties that attend the risk of contracting a serious infectious disease and/or passing that disease to others. The structural inequities that underlie COVID-19's disproportionate toll on our target communities makes future-oriented concepts like "recovery" and "return to normal" conditional at best. Whether the future is a hopeful one depends greatly on what steps are taken to address the harm wreaked by the pandemic *on systems that inadequately served the community before COVID-19.*

Education is a key system in this regard. Limited employment opportunities, a high proportion of rental housing, and limited technology access translates to community-

wide education challenges—inadequate funding, staffing deficits, and lack of teaching and learning materials. Our participants worried that educational "recovery"—return from nearly 2 years of emergency online education to an already ailing system—is unlikely *because* of preexisting limitations in the local education systems. They consistently spoke of the pandemic's effects on education as something their children have lost and might never recover if these losses are not addressed in a timely and targeted manner.

Lost Learning—Another Form of "Long COVID"

Most US families with children have been challenged by having to supervise their children's education during a pandemic. However, families in poor communities and communities of color have faced unique challenges. According to our participants, virtual learning meant children were learning on their own if their parents' jobs did not allow them to work from home and participate in their children's education. Not all homes have broadband internet service, so virtual learning was cobbled together through several local venues, including local after-school programs, broadband-equipped buses, and school parking lots (while schools were closed). There were reports of students being driven to a broadband access site where they did their schoolwork in the car. Students with home access to broadband internet often had 1 teacher for all their subjects, which raised parental concerns about instructional quality, especially for middle and high school students. For some students, "virtual learning" consisted of emailed worksheets that they were expected to complete on their own. Children who lacked familiarity with the computer hardware and software that is essential for virtual education were left to their own devices if their parents were unable to help them. Such circumstances, many participants felt, resulted in skill and knowledge deficits that were unlikely to be rectified postpandemic:

> *I think many of our youth, from an education and social standpoint, may not recover from what has happened this year. I've seen their education. We are already in an education system that is hurting … kids were failing school. Online learning pushed (more) responsibility (onto the kids) and what happened is the education gap has increased. Will our kids have the resiliency or initiative to overcome that gap? They will have missed a year and a half, maybe even 2 years of education. But they still graduate at 17, 18. Whether you learned what you needed to, it doesn't make a difference. So when do you catch up? Because the world has already accelerated in knowledge anyway. The use of technology now, some people who were already down are now (even) further behind. (44-year-old African American man, vaccinated)*

> *I think that the children are going to be way, way way behind, especially those that has not been going into the classroom. You know, because … everybody don't have knowledge about you know, the knowledge stuff. Computer, you know, they're not computer savvy, you know, some of these parents and stuff are not. And I was talking*

to a little boy, just Sunday. And he ... I said, "Are you ready for school?" He was attending, you know, this is Greene County, and they're just going back to school, you know, into the classroom. And he said, "Yes, ma'am." He said, "I'm ready to go," he said, "because I don't know how to do my work that good on the computer." He said, "I do my work better on the paper." And that's what the boy told me. He was like 9, 10 years old. So I think that they're gonna have a lot of catching up to do and they're gonna need a lot of remediation. (50-year-old African American woman, vaccinated)

Some participants were grandparents of school-aged children and reported taking an active role in their grandchildren's education, including creating structure for the virtual school day and designing outdoor learning sessions. While these participants expressed their satisfaction with helping to fill some of the support gaps created by the sudden shift to virtual education, they also recounted instances when they, as grandparent helpers, identified content and process issues with virtual learning that were not adequately addressed:

But with me having grandchildren, I had one to come in to stay with us... now when this first started, she was at home. And it was her mom (overseeing her schoolwork). And her grades dropped drastically. And it was because there were things that she didn't understand about using the computer and didn't log in and was not dressed and just didn't do anything right. And so after her grades dropped, and I talked to my daughter about it, we agreed that she would come and stay with me, the second semester ... she came, and she stayed. And every class she had, I sat in on it. And I took notes.... And then on the test my grandbabies would have, I found errors on them. She (my granddaughter) would call and tell me, "Grammy, I don't see an answer here." Well, I took notes of what was wrong with the test and of course, I told my daughter. We had conferences on Fridays when she came in and I told her, I says, "You need to get in contact with this teacher." This happened more than 1 time, and with more than 1 teacher, and I think they resented it. (62-year-old African American female, vaccinated)

These examples are not meant to be an indictment of individual teachers or endorsement of the idea that pandemic recovery is primarily a matter of "pulling yourself up by your bootstraps." These participants' statements demonstrate their insight into how the pandemic increased vulnerability for those who were said to be least vulnerable to the virus itself. They document the dedication and skill demonstrated by grandparents' efforts to support their families. They also reveal how underresourced schools in vulnerable communities also need a pandemic recovery plan if the students who attend those schools are to receive a decent education. Reducing the infection rate so that masks and social distancing are no longer needed will not be nearly enough.

It is no accident that vaccine skepticism among African American Alabamians is highest in the 18 to 40 year age range. This is the age group whose grade school education was completed as the hard-won benefits of desegregation for African Americans were being rolled back through judicial decisions and legislative changes, between 1990 and 2011.[9] Although the high school graduation rate for African American Alabamians rose nearly 20 percentage points between 2012 and 2019, only 55.6% of African American students have earned one of the state's college or career readiness credentials, compared with 80.4% of White students.[10] This difference has implications for graduates' employability and earning potential, and by extension for housing options, school quality, and access to health insurance. It also raises concerns about science literacy, including the ability to critically evaluate social media messages for plausibility and credibility. These concerns are affirmed by unvaccinated participants' mistaken ideas about the *curative,* rather than the preventative nature of vaccination and the mistaken belief that the COVID-19 vaccines were developed too quickly to be safe:

> *'Cause, it take years of research or something before you can just make a vaccine. They didn't just come up with the flu shot in 8 months … they didn't come up with the bird flu, cure that in 8 months. So, how you just going to come out, say you going to give me 2 shots and gone stop this. So, that's just common sense. That why Black folks ain't getting it. (31-year-old African American man, unvaccinated)*

A 2019 study by the Pew Research Center reports that on average, 61% of the US population shares a common understanding of science facts and processes. For African Americans, the mean is only around 34%, lower than that of Americans with a high school education or less (50%).[11] When these findings, the statements of our unvaccinated participants, and the educational inequities experienced in our target communities are taken together, it becomes clear that recovery from this pandemic, readiness for the next public health emergency, and better population health in general require a commitment to educational parity.

Recommendations

Our primary observations are threefold: vaccine hesitancy exists on a continuum that is rooted in inequity; there is a need to grow Alabama's health promotion ground game; and, for practical purposes, structural parity is a more appropriate post-COVID-19 goal than "going back to normal." We base these observations on conversations about the pandemic response with everyday citizens, community leaders, civic organizations, and public health officials conducted over the past 9 months. In this section of the report, we present 4 recommendations for action informed by our observations.

Table 2, below, presents those recommendation. The first 2 address management of the current pandemic, and the next 2 address improvements to Alabama's community-level infrastructure and human capital investment for more effective routine operation and crisis response in public health. All 4 recommendations foreground working in partnership with communities and promoting a bidirectional relationship between communities and public health officials.

Table 2. Summary of CommuniVax Alabama's Recommendations: From Equitable Crisis Response to Healthy Populace

Management of the current crisis: Combat vaccination hesitancy with dialogue and access		
1. **Engage local communities in ongoing conversation about the effects of the pandemic on their lives. Listen to what they say and respond accordingly**		
Actors	*Actions*	*Outcomes*
State and regional health departments in partnership with community leaders and community organizations	**Cohost** listening sessions in communities with low vaccination rates. Come prepared to listen as much or more than you "educate." Plan who will address any concerns raised, what kinds of things each partner is prepared to take on, and what resources are available to support these efforts.	• Assess community concerns and communicate sincere interest in those concerns
	Identify and employ communication modes preferred by younger, male, and working-class people.	• Increase likelihood of reaching an unvaccinated audience
	Make respected local leaders the face of communication efforts	• Greater credibility
	Reassess regularly to **keep the conversation going.** Hire trained community health workers to conduct these follow-up assessments.	• Build trust
	Use the information gained in the conversations and reassessments to inform vaccine access plans.	• Minimize time between decision to vaccinate and vaccination by making access to vaccination convenient

2. Invest substantively in public health infrastructure at the community level

Actors	Actions	Outcomes
Area Health Education Centers, federally qualified health centers, community colleges, and public health districts in partnership	**Recruit, train, and place** community health workers throughout the state **Develop roles for community health workers** as regional liaisons between public health departments, providers, and communities	• Create locally knowledgeable, trusted health education/promotion workforce • Improve responsiveness of regional public health to community needs; more effective messaging and intervention campaigns; more relevant and effective public policy

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Build for a healthier future: Direct resources to education and training that empowers communities

3. Partner with existing civic organizations to build a public-health responsive civic infrastructure

Actors	Actions	Outcomes
Municipalities, Alabama Conference of Black Mayors, Health Leadership Initiative, other civic development organizations	Mayors and community leaders **attend Alabama Conference of Black Mayor's annual health leadership conference** conducted in partnership with Morehouse School of Medicine **Provide state matching funds to support the initiatives** the communities devise	• Local civic leaders and organizations are better prepared to include public health concerns in their strategic planning and represent their communities' health needs to regional and state officials

4. Address the structural fissures revealed and magnified by COVID-19, beginning with education

Actors	Actions	Outcomes
Students, parents, teachers, local school officials, business leaders, state legislators, education advocates	**Convene a statewide task force** consisting of all the named actors from counties/districts with low educational success rates **Develop a 10-year plan** to improve educational outcomes, with benchmarks at the 3, 7, and 10-year mark	• Parity between students of color and White students in rate of earning one of the state's college or career readiness credentials Target: 80.4%

Conclusion

Crises show us what we're made of. They call forth our strengths, illuminate our weaknesses, and challenge our compassion, courage, flexibility, and resilience. Effective crisis response always involves the questions, "how ready were we?" and "how can we do better?" These after-the-fact questions are particularly important to the issue of equity in crisis response and recovery. How our state answers these questions now could mark the COVID-19 pandemic as just another crisis to be managed in the usual way, or as the point at which we took on the work of making public health in Alabama more inclusive, responsive, effective, and trustworthy.

In the early days of the vaccine rollout, Alabama health officials and medical providers made substantial, successful efforts to assure access to those who actively sought vaccination and to those more amenable to persuasion. The tactics employed to vaccinate the willing and the readily persuadable will not work for Alabamians whose hesitancy is fortified by mistrust and fed by misinformation. However, such barriers are not insurmountable. Ongoing, multimodal communication (eg, media, one-on-one conversation, social endorsement) coupled with convenient access to vaccination at retail outlets, worksites, and public gatherings) are key to moving more people from mistrust to vaccination.

The communication-access combination that we see as essential to overcoming hesitancy will be most effective if carried out by community-level health workers. Alabama does not have a sizable cohort of such workers. Therefore, building a public health infrastructure comprised of these workers and the training, placement, reporting, and reimbursement systems that support their work is necessary. Such a workforce will not only contribute to ending the current pandemic, but will also help to answer the question, "how can we do better?" at multiple levels and in ways that promote health equity as an essential element of pandemic recovery.

An effective community health workforce works hand in hand with a responsive civic infrastructure. Partnerships with political, business, and service leaders who understand that public health should have a seat at the table in all decisions that affect living conditions in the community are critically important to ensuring that public policy and planning also promote health. Encouraging and supporting these leaders to take advantage of health leadership training opportunities in the region will assist communities to include health in their strategic planning and improve civic readiness to respond to public health emergencies in the future.

Finally, the COVID-19 pandemic has brought long-standing economic, resource, and service inequities to the fore. Our data demonstrate how intersecting inequities are affecting hard-hit communities in profound ways. Full pandemic recovery for Alabama requires that these communities' unmet needs regarding the conditions for healthy life be addressed, starting with education. The inability to discern between misinformation and valid information is costing lives and livelihoods in Alabama every day. Because learning is the ability to tell the difference between one thing and another, it is not choice itself, but the ability to choose judiciously, that is the essential ingredient of

successful self-governance and community wellbeing. Improvements in education quality and intersectoral relationships are crucial to building resilience at the community level and to increasing readiness for the next health crisis that threatens society.

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Appendix A. Percentage Fully Vaccinated by Race

Percentage fully vaccinated by race (Black/White) in target counties, June 6, 2021.

County	Population	Fully Vaccinated (%)	Population African American (%)	% Vaccinated who are African American		% Vaccinated relative to population share, African American	% Vaccinated who are White	% Vaccinated relative to population share, White	% African American who are vaccinated	% White who are vaccinated	Relative Black: White %	Race not reported (%)
Black Belt		μ_{vax} = 31.0%										
Greene	8,111	27.7	79.9	66.8		-13.1	13.9	-4.5	32.4	29.4	+3.0	13.1
Hale	14,651	32.6	58.0	52.0		-6.0	31.3	-9.4	36.1	30.9	+5.2	10.7
Perry	8,923	32.3	67.9	62.2		-5.7	23.5	-6.6	37.8	32.1	+5.7	7.8
Non-Black Belt		μ_{vax} = 22.0%										
Bibb	22,394	20.2	21.3	21.5		+0.2	65.9	-16.4	29.9	25.5	+4.4	6.5
Pickens	19,930	20.4	40.0	40.5		+0.5	42.0	-16.2	19.4	22.0	- 2.6	9.0
Tuscaloosa	209,355	25.6	32.4	18.8		-13.6	42.6	-21.7	29.4	20.9	+8.5	17.9

Percentage fully vaccinated by race (Black/White) in target counties, August 3, 2021.

County	Population	Fully vaccinated (%)	Population African American (%)	% Vaccinated who are African American	% Vaccinated relative to population share, African American	% Vaccinated who are White	% Vaccinated relative to population share, White	% African American who are vaccinated	% White who are vaccinated (%)	Relative Black: White (%)	Race not reported (%)
Black Belt		μ_{vax} = 35.0%									
Greene	8,111	32.2	79.9	67.0	-12.9	13.4	-5.0	35.5	30.7	+4.8	13.03
Hale	14,651	37.1	58.0	53.2	-4.8	30.9	-9.8	40.2	33.2	+7.0	9.78
Perry	8,923	36.0	67.9	64.0	-3.9	22.85	-7.25	42.7	34.2	+8.5	6.85
Non-Black Belt		μ_{vax} = 28.0%									
Bibb	22,394	28.7	21.3	22.6	+1.3	64.2	-18.1	35.6	28	+7.6	5.86
Pickens	19,930	24.4	40.0	41.3	+1.3	41.2	-16.9	32.8	22.6	+ 10.2	8.21
Tuscaloosa	209,355	31.0	32.4	20.4	-12.0	42.4	-21.9	23.1	24.2	-1.1	16.5

Appendix B. Table of Study Activities

Study Activity	# of Participants	Target County
Interview	34	Greene, Hale, Perry, Pickens, Tuscaloosa
Interview follow up activities	13	" "
5-minute interviews	9	" "
Social mapping	5 (3 completed)	" "
Media diary study	5 (2 completed)	" "
Focus group		
Essential worker (female, Head Start staff)	6 signed up; 4 completed	Perry
Essential worker (male, vaccinated and unvaccinated)	5 signed up; 5 completed	Perry
Essential worker (mixed gender, unvaccinated)	6 signed up; 6 completed	Perry
Community leader (mixed gender, vaccinated and unvaccinated)	8 signed up; 5 completed	Hale, Tuscaloosa, Pickens, Perry, Madison (advisory board member with Black Belt roots)

Appendix C. Media Diary

ID# _____

7-Day Diary – COVID-19 vaccination in the media

Start Date _____/_____/_____

End Date _____/_____/_____

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

Thank you for participating in this COVID-19 diary study. Please record any information you **see** or **hear** about **COVID-19 vaccination** for 7 consecutive days. Please be sure to record:

- What you hear or see?
- Where the information comes from?
- What you think about the information?

Record all of your information in this notebook.

This entire process should take you 5-10 minutes per day or 35-70 minutes over the course of the week.

In recognition of your time, you will receive a **$25 gift card** when your diary is completed and mailed back to us in the prepaid envelope.

Feel free to contact Levi Ross by phone (205)540-1414 or email lross2@ches.ua.edu with any questions.

2

Day 1   Date: ___/___/___
                    Month Day Year

① What information did you see?

_____
_____
_____
_____
_____

② What information did you hear?

_____
_____
_____
_____
_____

3

③ Where/who did this information come from?

_____

_____

_____

④ Did you seek out this information or did it just come to you?

_____

_____

⑤ What do you think about this information?

_____

_____

_____

_____

4

Day 2   Date: ___/___/___
                    Month Day Year

① What information did you see?

_____

_____

_____

_____

_____

② What information did you hear?

_____

_____

_____

_____

_____

5

③ Where/who did this information come from?

_____

_____

_____

④ Did you seek out this information or did it just come to you?

_____

_____

⑤ What do you think about this information?

_____

_____

_____

_____

6

Day 3 Date: ___ / ___ / ___
Month Day Year

① What information did you see?

_____
_____
_____
_____
_____

② What information did you hear?

_____
_____
_____
_____
_____

7

③ Where/who did this information come from?

_____
_____
_____

④ Did you seek out this information or did it just come to you?

_____
_____

⑤ What do you think about this information?

_____
_____
_____
_____

8

Day 4 Date: ___ / ___ / ___
Month Day Year

① What information did you see?

_____
_____
_____
_____
_____

② What information did you hear?

_____
_____
_____
_____
_____

9

③ **Where/who did this information come from?**

_____

_____

_____

④ **Did you seek out this information or did it just come to you?**

_____

_____

⑤ **What do you think about this information?**

_____

_____

_____

10

Day 5   Date: ___/___/___
                  Month Day Year

① **What information did you see?**

_____

_____

_____

_____

_____

② **What information did you hear?**

_____

_____

_____

_____

_____

11

---

③ **Where/who did this information come from?**

_____

_____

_____

④ **Did you seek out this information or did it just come to you?**

_____

_____

⑤ **What do you think about this information?**

_____

_____

_____

12

Day 6 Date: ___/___/___
Month Day Year

① What information did you see?

_____
_____
_____
_____
_____

② What information did you hear?

_____
_____
_____
_____
_____

13

③ Where/who did this information come from?

_____
_____
_____

④ Did you seek out this information or did it just come to you?

_____
_____

⑤ What do you think about this information?

_____
_____
_____
_____

14

Day 7 Date: ___/___/___
Month Day Year

① What information did you see?

_____
_____
_____
_____
_____

② What information did you hear?

_____
_____
_____
_____
_____

15

③ Where/who did this information come from?

_____

_____

_____

④ Did you seek out this information or did it just come to you?

_____

_____

⑤ What do you think about this information?

_____

_____

_____

_____

Thank you for your participation. Please return your completed 7-day diary in the prepaid envelope.

CommuniVax

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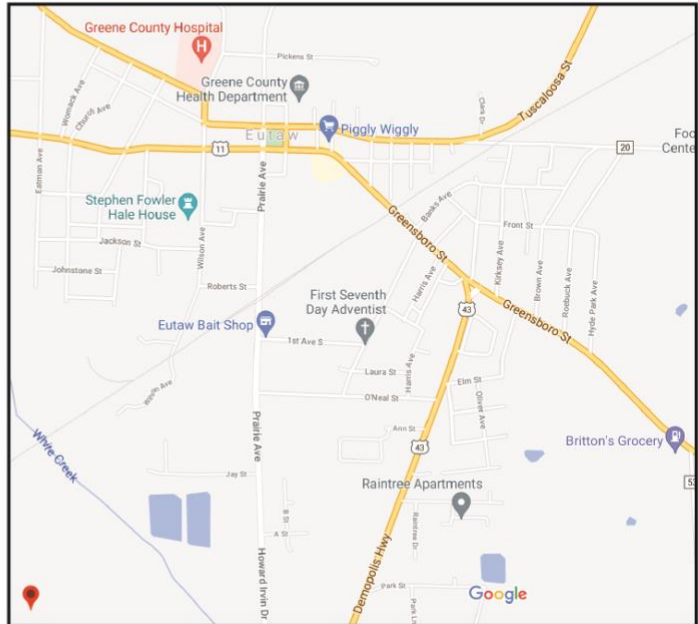
Appendix D. Social Mapping Activity Protocol

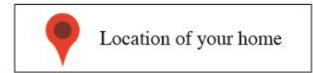**CommuniVax**
A Coalition to Strengthen the Community's Role in an Equitable COVID-19 Vaccination Campaign

Social Mapping Activity

Case ID: 035

Date completed:

Location of your home

Map 1. Five mile radius of your home

Map 2. Zoom of the area of your town within five miles of your home

CommuniVax Social Mapping Protocol

Hello. I am [INSERT NAME] and I am from [INSERT INSTITUTION]. I'm meeting with you today about the social mapping activity you agreed to participate in.

This activity involves the map you received in the mail from us a few days ago. It should take about half an hour. I will ask you to mark the places you go for health care or health care supplies on the map, and then I will ask you some questions about those places. With your permission I will audio record our discussion and take notes so that we have an accurate record of what was said. We will also ask you to mail the map back to us using the stamped envelope we will provide you with.

We will identify your map and your answers to our questions by your study number. Your personal information, including your name and contact information, will not be linked to your map or your responses. We will do our best to keep your responses safe on computers with password protection and our national research group will do the same. To further protect your privacy I suggest that, if possible, you do this activity in a room/area where you cannot be overheard by others. I will be doing the same.

Just as before, you are free to choose to participate or not to participate. If you participate, you can choose to stop your participation at any time. There will not be any direct benefit to you from participation in this additional research. Your participation, however, would help us better understand where healthcare resources are in your community and where vaccination sites may be located. We will let you and the community know about the results of the study.

You will need two of the items that came in the envelope to complete this activity - the map on the large sheet of paper and the separate sheet of paper with blank lines. Please get those out now and let me know when you have them.

Interviewer: Open your copy of the map and verbally orient the participant to the map by:
- o *Making sure the map is turned the right way (CommuniVax insignia should be in the upper left corner; Map 1 is on the left; map 2 is on the right.*
- o *Verify that their address on the map is correct*
- o *Ask them if they recognize any of the landmarks named on either map (highways and natural features on map 1; locations/destinations on map 1)*

Instructions for CommuniVax Staff

*Ask the participant to mark health care locations they utilize on the map (health care locations include provider offices, hospitals and clinics, and locations for purchasing medicines, equipment, or supplies). Make sure to explain that if needed they can write down places that are off the map on the provided sheet of paper. Once respondents have finished marking areas on the map ask the probing questions **for each identified location.** Ask questions 1 and 2 about a given location before going on to the next location.*

1. How many locations did you mark on the map?
2. What is the name of the (1st, 2nd, 3rd, etc.) location?
    o   What kind of place is that?
    o   What kind of care (or support or materials) do you get there?
    o   How much do you usually spend there? **(People may not be comfortable with this question. A possible substitute is, 'does your insurance cover your purchases here, or do you pay out of pocket? Does the way you pay for the things you get here affect how often you go?')**
    o   How did it happen that you started to go to (name of place) for (kind of care, support, materials)?
    o   How comfortable are you going there?

    Other probing questions for 1:
    o   What other places might you go to for your or your family's healthcare needs? Pharmacies? Dental offices? Vision care? Traditional healers?
    o   If you need to find somewhere new to go— if the place you have been going to closes or you have a new health need—how would you decide where to go?
    o   Are there any boundaries in your local area that you will not cross or parts of town that you steer clear of?

2. Please indicate on the map all of the locations where you and your family members would feel comfortable going to receive COVID-19 vaccines. If you would like to include a location that is not on the map, please mark that on the sheet of paper that you used to list the health care locations that are not on the map.
    o   What kind of place is that?
    o   What about that location makes you feel comfortable going there?
    o   Does this location already offer health care/vaccines?

    Additional probing questions for 2:
    o   What other places might you feel comfortable going to for COVID-19 vaccinations?
    o   Are there any locations you would not feel comfortable going for COVID-19 vaccines?
    o   If an area other than what you selected was chosen as a COVID-19 vaccination site what would make you go there for COVID-19 vaccines? What would make you stay away?

Thank you for taking part in this activity.

Please sign your name on the gift card receipt that was included in the envelope we mailed to you. Then, place the map, the sheet of paper with health care locations that aren't on the map, and the signed receipt in the self-addressed, stamped envelope we provided, seal the envelope, and place it in the mail. We look forward to receiving your information.

Once we receive your materials, we will mail you your $25 gift card.