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Strategies to Counter  
COVID-19 Vaccine Hesitancy  
and Mitigate Health Disparities  
in Minority Populations

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# STRATEGIES TO COUNTER COVID-19 VACCINE HESITANCY AND MITIGATE HEALTH DISPARITIES IN MINORITY POPULATIONS

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This white paper is intended to help state and local public health authorities devise equitable COVID-19 vaccine strategies, with a specific focus on how to overcome vaccine hesitancy within minority communities. This work is separate from, but a complement to, the research being conducted at the University at Albany at the direction of Gov. Andrew Cuomo to study minority health disparities in COVID-19 outcomes in New York. More information about that project is available at [www.albany.edu/mhd](http://www.albany.edu/mhd).

While aspects of this white paper may inform the final report of the NYS COVID-19 Minority Health Disparities Team, the authors offer it now in hopes that its recommendations may prove timely as public health authorities plan for the distribution of a COVID-19 vaccine.

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## ABSTRACT

Beyond the enormously complex logistical task of prioritizing, distributing and safely storing millions of doses of COVID-19 vaccine, state and local governments must simultaneously devise transparent plans to prevent the minority health disparities that defined the early stages of the COVID-19 pandemic from bleeding into the vaccination phase. Using insights gleaned from four focus groups conducted with health care professionals serving minority communities in New York as well as existing research on seasonal flu and H1N1 vaccination, we find that vaccine hesitancy – particularly within minority communities – may be a significant hurdle to achieving herd immunity through widespread acceptance of a newly developed COVID-19 vaccine. More concerning, this hesitancy may be especially damaging to communities of color that have already experienced the greatest loss during the pandemic. This hesitancy often arises from justified distrust among Blacks and Hispanics rooted in the legacies of systemic racism in the United States and historical mistreatment at the hands of the medical community. Overcoming this distrust will require a campaign that begins well in advance of vaccine delivery, acknowledges and addresses the historical injustices that drive distrust within communities of color, emphasizes understandable and culturally appropriate messages that directly address people's concerns about the vaccine-development process, and taps existing community infrastructure to make full use of trusted voices to deliver timely and accurate information about the vaccine. We recommend this process be led by community leaders and diverse representatives from state and local government healthcare agencies. The primary goals should be transparency, equity and building trust.

## Introduction

The COVID-19 pandemic so far has delivered many sobering lessons, but among the most pressing has been the need to confront disparities in COVID-19 outcomes in Black, Hispanic and other minority communities.<sup>a</sup> In spring 2020 we saw the tragic consequences of systemic and pervasive inequities in medical care and working, living, and environmental conditions in the disproportionate rates of infection and death from COVID-19 within communities of color in New York.<sup>b</sup> Socioeconomic position and the related social determinants of health – as opposed to biological or genetic factors – play a significant role in health outcomes. [1] While efforts in some states to contain COVID-19 have met with considerable success, the policies, institutions and cultural forces responsible for systemic racial-ethnic inequities continue and threaten to find new expression in the next phase of the COVID-19 pandemic. [2, 3]

Often regarded as the best hope for ultimate containment of the virus, a safe and effective vaccine appears achievable by early 2021. But because administering public health is a power reserved to states and local health departments, these governments must devise strategies for vaccine planning and distribution. These strategies must contend with considerable uncertainty on multiple fronts, including vaccine hesitancy, particularly within minority communities. On top of the enormously complex logistical task of prioritizing, distributing and safely storing millions of doses of vaccine, each state must simultaneously devise a transparent plan to prevent the unequal outcomes that defined the early stages of the pandemic from bleeding into the next phase. A review of existing research as well as focus group comments from health care professionals serving minority communities<sup>c</sup> offer a compelling argument that this effort must begin well in advance of vaccine production, be multi-faceted and prioritize community engagement.

## Understanding vaccine hesitancy

Hesitancy to receive vaccines is expressed by many demographic groups in America, but especially by minority groups, who also are more likely to experience the most devastating effects of COVID-19. As we now know, Black and Hispanic New Yorkers experienced COVID-19 fatality rates as high as four times greater than White New Yorkers. Thus a safe and effective vaccine has the potential to disproportionately benefit minority communities and to save many lives within them. [4] Public health authorities, however, must first overcome the legacies of historical and ongoing systemic racism in order to ensure equitable vaccine distribution and widespread acceptance, both of which are essential to stemming the spread of the virus and equitably preserving public health. This presents an enormous challenge for governments as they attempt to center equity in their vaccine strategies.

Vaccine hesitancy refers to delays in the acceptance of or outright refusal of vaccines. A now-common phenomenon, the reluctance to be vaccinated is context specific, with reasons that vary by vaccines and groups. [5] Hesitancy is generally heightened with new vaccines as already appears to be the case with COVID-19. [6] Recent conflicting federal guidance from trusted public health agencies has likely only fueled these anxieties. Often motivated by feelings of disconfirmation by government and other elites to the felt needs and concerns of the public and perceived infringement of personal choice, vaccine hesitancy can also stem from cultural suspicions within some religious, ethnic and racial groups as illustrated by resistance to measles, mumps, and rubella (MMR) immunization within ultra-Orthodox Jewish communities in New York. [7, 8] Blacks and Hispanics in the United States are more skeptical of MMR vaccine benefits and rate the risk of side effects higher than Whites. [9]

In Latin American immigrant communities, vaccine hesitancy and barriers have been linked to questioning the necessity of vaccinations, lack of guidance by health care providers, a lack of insurance or access to health care, and concerns about side effects and safety. [10] Within Black communities, vaccine hesitancy is associated with a longstanding and justified distrust of the medical community based on past experiments such as the Tuskegee syphilis study

It is also worth noting that vaccine hesitancy has persisted and thrived despite research establishing the effectiveness and safety of vaccines in general for the vast majority of recipients. Currently, a substantial anti-vaccination movement actively opposes vaccination in traditional and social media. Recently, leaders of that movement have made common cause with Black leaders to seed and amplify distrust of COVID-19 vaccination, adding the potential for

additional challenges for public health policymakers. [16]

Beyond distrust, we must recognize that practical and logistical factors also present substantial hurdles to vaccination in minority communities – including lack of health insurance and/or access to a regular source of care, difficulty with scheduling health care visits around employment or care-giving responsibilities, transportation, and language barriers. All

these barriers must be addressed in any large-scale COVID-19 vaccination campaign.

*“We have institutions that come into communities and kind of rain their benevolence down on the community instead of making the community a trusted, invested partner from the very beginning....I think you get the community involved early, often and make them invested in the process and invested in the success.”*

– BROOKLYN/QUEENS FOCUS GROUP PARTICIPANT

as well as contemporary inequities in access to health care and in health outcomes. [16] Underscoring the importance of this history, the Tuskegee experiments were spontaneously mentioned by participants in each of the four focus groups we conducted as an enduringly salient experience for Blacks. Part of this legacy is reflected in a recent Pew poll that found Black Americans are less likely than White Americans to have confidence in medical scientists to act in the best interest of the public and are more likely to be skeptical of experimental treatments – with 44 percent of Black respondents reporting they would not get a coronavirus vaccine if one were available today. [11]

Several national polls conducted in spring and summer 2020 report results similar to Pew with substantial numbers of Americans, particularly Blacks and Hispanics, unwilling to be vaccinated against COVID-19 if offered the opportunity. [12, 13, 14, 15] While the polls asked questions about vaccines in a variety of different formats and present data about communities of color in different ways, a relatively consistent one-quarter to one-third of Whites and nearly half of Blacks and Hispanics polled appear unwilling to be vaccinated against COVID-19.

## Interdependent Factors: Vaccine Hesitancy, Herd Immunity and Allocation Strategies

One of the principal goals of public health vaccination campaigns historically has been the creation of herd immunity, which exists when substantial numbers of individuals surviving the disease have immunity, or a sufficient proportion of the population has been vaccinated, or a combination of the two. What proportion of the population is needed to achieve herd immunity is estimated by epidemiologists to range from 60-70 percent. [17] However, vaccine hesitancy on the part of many, and particularly within minority communities, has led the leadership of the National Institute of Allergy and Infectious Diseases to predict that a COVID-19 vaccine with 70-75 percent effectiveness taken by only two-thirds of the population is unlikely to achieve herd immunity. [18] Initial planning suggests that at first insufficient amounts of vaccine will be produced quickly enough

<sup>a</sup> While we recognize that the terms used by members of different communities to refer to themselves vary, to simplify comparisons of COVID-19-related data to existing U.S. Census data, we use the term Black in this briefing in place of the full U.S. Census category “Black or African American alone”, and we use the term Hispanic to refer to the full Census category “Hispanic or Latino.” For the same reason, we use the term White to refer to individuals identified in the Census as “White alone, not Hispanic or Latino.”

<sup>b</sup> See NYS COVID-19 Minority Health Disparities Team Issue Brief #1: *Understanding and eliminating minority health disparities in a 21st-century pandemic.*

<sup>c</sup> In August 2020, UAlbany MHD COVID-19 project leaders, in collaboration with the Healthcare Association of New York State (HANYS), assembled four focus groups comprised of health care professionals working in four New York locations (Long Island, Brooklyn/Queens, Syracuse and Buffalo) to discuss attitudes on the part of the individuals they served about potential COVID-19 vaccines. The participants, and the communities they served, were characterized by substantial racial-ethnic diversity as well as by immigrant and refugee residents. We feature quotations from participants at relevant points in this briefing to illustrate perspectives from these locations.

to satisfy those immediately willing to be vaccinated, and allocation will need to be prioritized. As a result, state and local public health officials will need to develop vaccine allocation strategies. Some national guidance is provided by public health organizations that are currently deliberating potential vaccine allocation policies and their implications. The Advisory Committee on Immunization Practices (ACIP), which advises the Centers for Disease Control and Prevention (CDC), has considered whether to prioritize race and ethnicity in light of disparities in COVID-19 infection and fatality, with some contending that vaccine priority is a way of redressing recent inequalities. [19] Recent updates from the CDC lay out the potential phasing of vaccine distribution under initial conditions of limited supply and a related strategy for allocating the vaccine. [20]

An ad hoc committee of the National Academies of Sciences, Engineering, and Medicine (NAEM) co-sponsored by the National Institutes of Health (NIH) and the CDC was convened in August 2020 to create an overarching framework for vaccine allocation to assist policymakers in planning for equitable allocation.<sup>d</sup> The committee's report issued in October 2020 proposes criteria for allocation along with four allocation phases. Phase 1 would prioritize high-risk workers in healthcare facilities, first responders, people of all ages with the highest risk from comorbidities, and older adults residing in congregate living conditions. Phase 2 would prioritize workers in industries essential to society who are at substantial risk of exposure, teachers and school staff, people with conditions that put them at moderately high risk, all older adults, people in homeless shelters

and similar settings, and people in prisons, jails and similar institutions. To ensure equity, the committee recommended that vaccine access in geographic areas be prioritized within the four phases using CDC's Social Vulnerability Index, or a comparable index, to identify high-risk areas based on social and economic demographic criteria. The committee further recognized the substantial challenges of building transparency and trust to help overcome vaccine hesitancy in minority and disadvantaged communities and the need for rapid research to advance understanding of COVID-19 vaccine hesitance. Findings from our focus groups underscore these issues and call for research, highlighting how perceptions of a "rushed" vaccine interact with minority communities' experiences of historical and ongoing inequities in health care as well as contemporary movements for racial justice.

While the purpose of this paper is not to suggest the goals or priorities of a states' vaccination strategies, we are able to offer insight on how consideration of social inequities that drive minority health disparities ought to factor into them, especially as it pertains to overcoming vaccine hesitancy within some minority communities.

*"It almost seems like, you know, the blame is placed on the ... marginalized community for not believing in medicine, when in actuality it's been the medical industry that has mistreated them."*

– SYRACUSE FOCUS GROUP PARTICIPANT

### H1N1 as a Guide

For the purposes of understanding and responding to vaccine hesitancy with COVID-19, the 2009 H1N1 pandemic as well as recent flu seasons offer insights into the challenges that New York, as one example state, may be facing – as well as potential

solutions. In New York, as well as nationally, Black Americans have the lowest baseline seasonal influenza vaccination rates, while Whites have the highest.<sup>e</sup> In recent flu seasons, vaccination rates among Hispanics in New York have been similar to or slightly higher than Whites, although nationally the rate among Hispanics falls below that for Whites.<sup>f</sup> It appears that seasonal influenza vaccination rates are a good

predictor of pandemic flu vaccination rates. A survey conducted during the 2009 H1N1 influenza epidemic found that having received recent seasonal flu vaccines was strongly associated with having received the H1N1 vaccine. [21]

Disparities also exist in vaccine coverage across communities. In addition to helping us understand the spread of disease, this spatial clustering is useful for identifying opportunities for targeted outreach, education and vaccine distribution. For example, a

*"There's a distrust about the vaccines and no matter what happens, or how much outreach is done, unless we can get a clear message across that the vaccines are tested, [that] they're worthwhile, it's not going to work. And this mad rush to get a vaccine in right away is not going to help."*

– BROOKLYN/QUEENS FOCUS GROUP PARTICIPANT

2016-17 study of Medicare beneficiaries found flu vaccination coverage rates in much of Manhattan outside of Harlem between 34 and 78 percent, whereas those in Harlem, much of Brooklyn and the Bronx were between 0.5 and 14 percent. [22] Racial segregation of nursing homes likely linked to socioeconomic factors also shapes vaccination rates such that nursing homes with more Black residents typically have lower vaccination rates. [23, 24, 25]

There is also evidence that seasonal flu vaccine disparities are larger in periods when vaccines are in shorter supply. [26, 27] Racial-ethnic disparities in H1N1 vaccination rates are similar to seasonal flu vaccination rates, with roughly 20 percent of Whites and Hispanics receiving an H1N1 vaccination compared to just 14 percent of Blacks. [28]

Health department employees involved in H1N1 vaccine campaigns in Los Angeles reported lower vaccine uptake in minority communities. [29] Writing about the H1N1 campaign in Los Angeles, researchers described substantial challenges based on underlying distrust of government and community-generated informal messaging that framed H1N1

vaccines as a conspiracy to harm minority community members. In offering lessons learned from the Los Angeles campaign, they concluded, "The key to a successful emergency response relies on trust building and collaboration with community partners in the preparedness phase...." If public health authorities do not make "significant efforts to understand and address the issues of trust and disparities that exist at baseline," they continued, "inequities will continue in the context of an emergency response." [29]

The participants in each of our focus groups agreed enthusiastically with the need to collaborate early and establish trust with communities. One participant from Brooklyn/Queens reflected this sentiment in her understanding of community involvement. "We have institutions that come into communities and kind

of rain their benevolence down on the community instead of making the community a trusted, invested partner from the very beginning," the participant noted. "I think you get the community involved early, often and make them invested in the process and invested in the success." Another participant from Long Island emphasized the importance of early, systematic education of key constituencies about the vaccine-development process to build trust in the outcome: "[Don't] just come to me with, 'Hey a vaccine and it's ready', but educate me along the way so that I can have buy-in to it.... Because if you wait until you get a vaccine, forget about it. They don't trust the process."

### Addressing Vaccine Hesitancy Through Interventions

Public health scholars have much to say about the kind of information that is most likely to address specific reasons for vaccine hesitancy.<sup>g</sup> For those whose hesitancy is a matter of complacency, the most helpful information is that which addresses the risks of the disease to oneself as well as to others in the family or community who are at greater risk.

<sup>d</sup> <https://www.nap.edu/catalog/25917/framework-for-equitable-allocation-of-covid-19-vaccine>

<sup>e</sup> <https://www.cdc.gov/flu/fluview/coverage-1819estimates.htm>

<sup>f</sup> <https://www.cdc.gov/flu/fluview/reportsthtml/reporti1819/reportii/index.html>

<https://www.cdc.gov/flu/fluview/reportsthtml/reporti1718/reportii/index.html>

<sup>g</sup> [https://www.who.int/immunization/sage/meetings/2014/october/1\\_Report\\_WORKING\\_GROUP\\_vaccine\\_hesitancy\\_final.pdf](https://www.who.int/immunization/sage/meetings/2014/october/1_Report_WORKING_GROUP_vaccine_hesitancy_final.pdf)

For those whose hesitancy stems from issues of convenience, information about distribution plans, scheduling, and reminders are of greatest importance. These kinds of interventions might use new media such as text message reminders that allow direct linking to a scheduling interface. [30, 31] For those whose hesitancy is a matter of confidence in the efficacy of vaccines, issues of safety, and distrust in the interests and competency of the parties involved in the vaccine process, the information that is most helpful in reducing hesitancy is less straightforward.

Research based primarily on flu vaccine hesitancy in the U.S. links hesitancy to the perception that vaccines are ineffective or unsafe, that the severity or one's risk from flu is low, and distrust of government or the health care industry typically related to personal experiences or a history of one's community being mistreated by them. [21, 32, 33, 34, 35, 36, 37] All these issues warrant careful consideration about where and how best to focus intervention efforts. Looking at hesitancy as a continuum from generalized acceptance of vaccines to complete refusal, as the

World Health Organization has done,<sup>h</sup> can help in this regard. Some people do not need convincing, some may be impossible to convince, and many may be encouraged to take a vaccine with appropriate messages and access. [38, 39] These are the people government may wish to target. For those who might be persuaded, the European Union's Centers for Disease Prevention and Control (ECDC) identifies increasing transparency as critical to building trust—particularly in the context of a pandemic with high uncertainty, such as the one we now face. [6] The ECDC emphasizes three general areas where transparency should be improved: 1) basic information about how vaccines work, 2) the procedures for testing and licensing, as well efficacy and side effects of particular vaccines, and 3) conflicts of interest/trust in motives. These three areas align

well with the responses from our New York-based focus groups.

**Basic information:** Some people hesitate to vaccinate because of misunderstandings or misconceptions about how vaccines work. This could be addressed with more basic information about vaccines presented at various education levels to accommodate varying levels of literacy in some communities. For example, focusing specifically on flu in the U.S., a 2004 survey found that Black and Hispanic Americans were more likely to believe that the influenza vaccine could cause influenza, suggesting this was a particularly important point to clarify in messaging. [40] The current situation with COVID-19 is rife with seemingly contradictory information about what is necessary to produce a safe and effective vaccine, particularly with respect to the speed of vaccine development. The resulting confusion is reflected in the comments of one focus group participant from Long Island: “We’re getting saturated and inundated with information. Misinformation, correct information, who knows

*“... We have such a long history in this country being experimented on unwillingly or without informed consent, and I know that we are all taught that and it's ... almost embedded in our culture. We all know about Tuskegee, we all know what happened to the slaves. We're not taught that in school but taught that by our own. And so when you talk about vaccines and when you talk about getting them, someone always brings it up. And so there's an inherent mistrust.”*

– LONG ISLAND FOCUS GROUP PARTICIPANT

what kind of information. You don't know what is what. So you hear that it takes 18 months to do a vaccine. And now you're hearing that, poof, a vaccine can be done in less than that and ... it's like, who's gonna get to the finish line first? I'm not sure if the one who get[s] to the finish line first is going to be

the most effective one because it should have taken 18 months...” The confusion and uncertainty sown by the conflicting information about how long it should take to develop a safe vaccine is compounded by the political context in which it is being developed: a national election in which the federal government's handling of the pandemic and the near-term prospects for an effective vaccine have been major points of contention. That the quest for a safe and effective vaccine has also become a political issue is unlikely to make members of historically marginalized and vulnerable communities trust the process more.

**Testing/licensing and efficacy/side effects:**

The ECDC emphasizes the importance of clear communication on these points. Communication about procedures for testing and licensing a COVID-19 vaccine that goes to market in the U.S. may be particularly important given the current media attention on the speed of vaccine testing. Participants in our focus groups emphasized the special need to create trust about the issue of testing, as indicated by this participant from Brooklyn/Queens: “There's a distrust about the vaccines and no matter what happens, or how much outreach is done, unless we can get a clear message across that the vaccines are tested, [that] they're worthwhile, it's not going to work. And this mad rush to get a vaccine in right away is not going to help.” Involving minority communities in vaccine trials and vaccine preparation work would help foster trust within those communities that the vaccine's effectiveness and potential side effects on them have been adequately studied. This is an important step in countering hesitancy. Transparency about efficacy and risk is challenging, but there are several relevant recommendations from the ECDC. These recommendations include emphasizing that 1) “there is no ‘perfect’ vaccine that protects everyone who receives it and is entirely safe for everyone”, 2) “effective vaccines may produce some undesirable side effects that are mostly mild and clear up quickly”, and 3) “it is not possible to predict every individual who might have a mild or serious reaction to a vaccine, although there are a few contraindications to some vaccines.”<sup>i</sup>

Terms like “safe” can be particularly problematic as the scientific community often interprets “safe” to mean low rates of severe side effects, whereas many in the public might interpret it to mean no side effects. If side effects later emerge (particularly those that

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may not have been initially anticipated), this can lead to vaccine scares. One important message that may help combat complacency is that the benefit that an effective vaccine offers in protection from a serious disease far outweighs the risks of low/minor side effects. [6] It will be critical to emphasize the protection vaccines provide to those with comorbid conditions or who are immune-compromised. This is especially true with COVID-19 as the long-term effects of the disease are still not well understood, which makes avoiding infection vitally important.

**Conflicts of interest/motives/trust:** The ECDC emphasizes the need to communicate about conflicts of interest, especially concerns arising from the profit motives of pharmaceutical companies. In the context of U.S. race relations there will likely need to be new, and somewhat untested, efforts to build trust in medicine and vaccines for minority, immigrant and disadvantaged communities. Minority status and high levels of distrust are also associated with wider acceptance of conspiracy theories—a key element in vaccine scares. [36, 41] This was underscored in strong terms by one of our focus group participants from Long Island: “For the simple fact that we have such a long history in this country being experimented on unwillingly or without informed consent, and I know that we are all taught that and it's ... almost embedded in our culture. We all know about Tuskegee, we all know what happened to the slaves. We're not taught that in school but taught

<sup>h</sup> [https://www.who.int/immunization/sage/meetings/2014/october/1\\_Report\\_WORKING\\_GROUP\\_vaccine\\_hesitancy\\_final.pdf](https://www.who.int/immunization/sage/meetings/2014/october/1_Report_WORKING_GROUP_vaccine_hesitancy_final.pdf), p. 9.

<sup>i</sup> [https://www.who.int/vaccine\\_safety/initiative/detection/AEFI/en/](https://www.who.int/vaccine_safety/initiative/detection/AEFI/en/)

that by our own. And so when you talk about vaccines and when you talk about getting them, someone always brings it up. And so there's an inherent mistrust." The participant went on to describe the strong reaction within the Black community to the suggestion that Black students might be among the first to return to school, adding: "Why [are] we always the first one[s] that they want to experiment on? Then it goes back to, 'Because our lives don't matter.' And so with the Black Lives Matter movement ... building momentum now and COVID hitting at the same time... I think the numbers willing to take the vaccine will even be lower than the polls say." In short, people want to know that sources they trust endorse the vaccine. These sources may be inside or outside of the healthcare system and could take the form of community health workers, educators, patient advocates, community leaders, pharmacists, neighbors, health departments and even trusted voices on social media. Good information delivered by trusted sources empowers members of the public to advocate for themselves and their loved ones. A participant from Brooklyn/Queens echoed the sentiment that understanding and responding to the "historical narrative" will be critical to building successful vaccination messages that resonate in Black and other minority communities: "When we talk about vaccination, the idea of being a guinea pig is quite important ... This is how we have to approach vaccination, in particular the Black community, but I think there's also additional ripple effects into other minority groups as well."

Despite the fact that generalized trust in broader society and institutions is lower in minority communities, most people, regardless of race or ethnicity, trust people they know and have a history with — an esteemed member of their community or their own doctor—more than abstract bureaucracies like government health authorities and pharmaceutical companies. [41, 42] This suggests community-engaged vaccination strategies for COVID-19 may be essential to moving the needle on vaccination attitudes in minority communities and preventing the inequities that defined the early phases of the pandemic from also defining the next. As one participant from the Syracuse focus group put it, there needs to be "an honest open conversation that's held in communities across the state about the disparities in health care and acknowledging ... what has gone wrong, what this moment has shown us has gone wrong." This conversation, the

Syracuse participant noted, is especially relevant amid the broader social reckoning highlighted by the Black Lives Matter protests during summer 2020 and the heightened awareness around not blaming marginalized communities for their circumstances or individual decisions that are themselves byproducts of the persistent effects of our country's systemic racism. "There's oftentimes a dismissal or lack of awareness that wants to be addressed [of] how or why they got there," the participant said. "It almost seems like, you know, the blame is placed on the ... marginalized community for not believing in medicine, when in actuality it's been the medical industry that has mistreated them."

### Recommendations

While uncertainties remain about the medical characteristics of the vaccine(s) to come, existing polls and research on vaccine hesitancy suggest there are substantial challenges ahead in persuading a doubtful public of vaccine efficacy and achieving herd immunity. These challenges will persist regardless of whether there is broad scientific confidence in a safe and effective COVID-19 vaccine. Further, at the same time that public health policymakers must attempt to overcome a justified distrust within communities of color that threatens to reduce the social benefits of vaccination, many of those same communities continue to struggle with the disproportionate effects of systemic racism that have fueled the Black Lives Matter movement. Thus, we suggest the need to move cautiously and with great sensitivity. Toward these ends, we offer the following recommendations for how to center equity and reduce minority health disparities as states develop their vaccine strategies for COVID-19. While these insights are most directly informed by New York's experience with the virus to date, we believe these recommendations have some degree of universal application. Above all else, states' efforts to counter vaccine hesitancy in minority communities must begin well in advance of the vaccine distribution program, they must be multi-faceted, and they must prioritize community engagement.

First, we recommend that states **establish coalitions or task forces populated by community leaders from across the state or region and diverse representatives from relevant healthcare agencies to prioritize input from minority and socially vulnerable populations.** Such coalitions

could be standalone entities, a working group of existing state COVID-19 vaccine task forces, or something similar. Their primary goal should be to facilitate collaboration between minority and socially vulnerable communities and state/local government to design strategies that reduce vaccine hesitancy, promote equitable vaccine distribution and remove logistical and practical barriers to access. This collaboration should begin as soon as possible. Given current uncertainty around a COVID-19 vaccine (e.g., efficacy, required doses, side effects), these collaborative efforts should plan for multiple scenarios in developing information campaigns.

Such coalitions should **capitalize on existing community structures** and consider emulating or using existing local/neighborhood infrastructure, such as New York's local Census Complete Count committees, federally qualified health centers, community health workers and faith communities. It is particularly important to learn from community partners. Early engagement is critical to understanding the concerns of members of vulnerable communities and avoiding the misperception that these communities are being unfairly targeted for a new, untested vaccine. Materials should focus on key populations and be easy to understand, explain and available with or without access to technology.

Second, **states should develop vaccination take-up campaigns that address their unique and complex public health and social justice contexts.** Such campaigns might begin by **incorporating best practices in public health message design**, providing basic information about how vaccines work and their safety, using linguistically and culturally appropriate messages translated into multiple languages, and involving trusted members of communities as community role models (e.g., church leaders, business owners, sports figures, grassroots activists) to communicate about and encourage vaccination.

These campaigns must also **provide COVID-19 vaccine information that directly addresses public concerns.** Special attention should be paid to the atypical speed with which a COVID-19 vaccine is being developed, testing/licensing procedures, minority participation in clinical trials, why one (or more) vaccine over others was selected, and side effects. Clear and consistent information is essential. The campaign might consider targeting healthcare professionals first and providing toolkits for them to educate their patients.

It will be important to **diversify communication channels** according to the diversity of the community. A variety of venues and media should be employed to distribute pro-vaccine messages, including community meetings, ethnic media (radio, TV, newspapers, podcasts, etc.) and social media (especially Facebook, Twitter, Instagram, WhatsApp and TikTok). These campaigns should be prepared to counter anti-vaccination dis- and mis-information, especially on social media. "Influencers" should be recruited to post in favor of vaccination, and the owners of social media platforms could be asked to assist in vaccine promotion (e.g., to identify anti-COVID-19 vaccination messages, find and disable bots, and curb the spread of false information).

Many states will find it crucial to **recognize and address social justice issues in these campaigns.** The unequal burdens of the pandemic borne by minority communities, along with disparities in early access to testing and health care more generally, are likely to shape confidence in a future COVID-19 vaccine within communities of color. Recognizing these inequities and clarifying how the state's policies seek to overcome past disparities and attain equity will help build trust.

Third, and finally, we recommend that a vaccine take-up campaign **transparently publicize the goals of the state's vaccine policy.** The development of state policies will be guided of course by national/international vaccine policy recommendations. To center equity, the recent proposal by the National Academies of Science, Engineering, and Medicine, mentioned earlier, warrants careful consideration as it recommends a two-tiered strategy in which primary vaccine prioritization is based on occupational and age groups, with further priority assigned to individuals within those groups living in socially vulnerable communities (as indicated by CDC's SVI ratings). [43] Focusing on social vulnerability and the related COVID-19 risk factors will help avoid the appearance, and the distrust that comes with it, of targeting vaccine prioritization on the basis of race and ethnicity. Regardless of the strategy adopted, it will be important, in partnership with the community, to broadly and transparently communicate the prioritization schema and the goals that drive it.

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