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Jasmine R Marcelin, *University of Nebraska Medical Center*
Talia H Swartz, *Icahn School of Medicine at Mount Sinai*
Fidelia Bernice, *University of Maryland, Baltimore*
Vladimir Berthaud, *Meharry Medical College*
Robbie Christian, *Our Lady of the Lake Regional Medical Center*
Christopher da Costa, *The Coalition for Epidemic Preparedness Innovations*
Nada Fadul, *University of Nebraska Medical Center*
Michelle Floris-Moore, *University of North Carolina*
Matifadza Hlatshwayo, *John Cochrane VA Medical Center*
Patrik Johansson, *Washington State University*

Only first 10 authors above; see publication for full author list.

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Addressing and Inspiring Vaccine Confidence in Black, Indigenous, and People of Color During the Coronavirus Disease 2019 Pandemic

Jasmine R. Marcelin,^{1,9} Talia H. Swartz,² Fidelia Bernice,³ Vladimir Berthaud,^{4,9} Robbie Christian,⁵ Christopher da Costa,⁶ Nada Fadul,¹ Michelle Floris-Moore,⁷ Matifadza Hlatshwayo,⁸ Patrik Johansson,⁹ Ravina Kullar,¹⁰ Kimberly Manning,¹¹ Edoabasi U. McGee,^{12,9} Christopher Medlin,¹³ Damani A. Piggott,¹⁴ Uzma Syed,¹⁵ Jessica Snowden,¹⁶ Tina Tan,¹⁷ and Jacinda C. Abdul-Mutakabbir,¹⁸ on behalf of the Infectious Diseases Society of America (IDSA) Inclusion, Diversity, Access, and Equity Taskforce, George Counts Interest Group, and Society of Infectious Diseases Pharmacists (SIDP) Diversity, Equity and Inclusion Taskforce

¹Division of Infectious Diseases, University of Nebraska Medical Center, Omaha Nebraska, USA, ²Division of Infectious Diseases, Icahn School of Medicine at Mount Sinai, New York, New York, USA, ³Department of Pharmacy, University of Maryland Medical Center, Baltimore, Maryland, USA, ⁴Division of Infectious Diseases, Meharry Medical College, Nashville, Tennessee, USA, ⁵Our Lady of the Lake Regional Medical Center, Baton Rouge, Louisiana, USA, ⁶The Coalition for Epidemic Preparedness Innovations, Washington, District of Columbia, USA, ⁷Division of Infectious Diseases, University of North Carolina School of Medicine, Chapel Hill, North Carolina, USA, ⁸Division of Infectious Diseases, John Cochrane VA Medical Center, St. Louis, Missouri, USA, ⁹Department of Medical Education and Clinical Sciences, Washington State University, Seattle, Washington, USA, ¹⁰Expert Stewardship Inc., Newport Beach, California, USA, ¹¹Division of General Medicine, Emory University School of Medicine, Atlanta, Georgia, USA, ¹²Philadelphia College of Osteopathic Medicine, School of Pharmacy, Suwanee, Georgia, USA, ¹³University of Texas at El Paso School of Pharmacy, El Paso, Texas, USA, ¹⁴Division of Infectious Diseases, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA, ¹⁵South Shore Infectious Disease & Travel Medicine Consultants, P.C., Bay Shore, New York, USA, ¹⁶Division of Pediatric Infectious Disease, University of Arkansas for Medical Sciences, Little Rock, Arkansas, USA, ¹⁷Northwestern University Feinberg School of Medicine and Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, Illinois, USA, ¹⁸Department of Pharmacy Practice, Loma Linda University School of Pharmacy, Loma Linda, California, USA

During the coronavirus disease 2019 (COVID-19) pandemic, we have witnessed profound health inequities suffered by Black, Indigenous, and People of Color (BIPOC). These manifested as differential access to testing early in the pandemic, rates of severe disease and death 2–3 times higher than white Americans, and, now, significantly lower vaccine uptake compared with their share of the population affected by COVID-19. This article explores the impact of these COVID-19 inequities (and the underlying cause, structural racism) on vaccine acceptance in BIPOC populations, ways to establish trustworthiness of healthcare institutions, increase vaccine access for BIPOC communities, and inspire confidence in COVID-19 vaccines.

Keywords. Black, Indigenous, People of Color (BIPOC); COVID-19; structural racism; vaccine confidence.

The disproportionate coronavirus disease 2019 (COVID-19) mortality among Black, Indigenous, and People of color (BIPOC) communities is driven by inequities created by structural racism, including higher poverty rates, lower wage (essential worker) employment, and crowded living situations. Inequitable distribution of these social determinants of health influence risk factors for comorbidities, access to care, and delivery of care to different racial/ethnic groups [1–5]. Although the COVID-19 pandemic has amplified these racial and ethnic inequities, it has also highlighted the historical and current factors contributing to distrust of healthcare institutions by

BIPOC communities. This legacy includes a history of involuntary medical treatment and experimentation, including the sustained ethical breach of 1932 US Public Health Service-funded study of untreated syphilis in Black men at the Tuskegee Institute, in which penicillin was intentionally withheld from Black study participants without their knowledge for decades after it was known to be an effective therapy for syphilis [6]. It also includes a history of forced sterilization practices exerted on women in Indigenous communities without informed consent at the hands of Indian Health Services (IHS) physicians [7]. Furthermore, American Indian/Alaska Native (AI/AN) communities are familiar with the devastating impacts of infectious diseases on their communities, having experienced significant population reduction after introduction of diseases such as smallpox, measles, and influenza by European colonizers [8]. According to Desi Rodriguez-Lonebear, a social demographer at the University of Arizona and citizen of the Northern Cheyenne tribe in Montana, “More than any other population in the country, the shared experience of surviving a pandemic is in our blood, it’s not historic, it’s current for American Indians, it’s our reality. We took it seriously because we had to” [9].

A further long documented history of segregated and substandard healthcare delivery has left a foundation of deep

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Correspondence: Jasmine Riviere Marcelin, MD, FACP, FIDSA, Assistant Professor, Infectious Diseases, Associate Medical Director, Antimicrobial Stewardship Program, Co-Director, Digital Innovation & Social Media Strategy, Division of Infectious Diseases, University of Nebraska Medical Center, 985400 Nebraska Medical Center, Omaha, NE 68198-5400, USA (jmarcelin@unmc.edu)

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wounds that persist today [10]. The propagation of beliefs reifying race as a biological factor can have devastating outcomes for minoritized people [11]. Black, Hispanic, American Indian/Alaska Native, and Native Hawaiian/Pacific Islander patients receive lower-quality care than white patients for 30%–40% of quality measures assessed by the Agency for Healthcare Research and Quality [12]. Although there have been steps taken to address historical wrongdoing, chronic underfunding and underresourcing of healthcare institutions primarily caring for minoritized communities limit the longevity of these gains. For example, the majority of AI/AN obtain care through a fragmented system dominated by the IHS, a chronically underfunded federal agency that suffers from a widespread shortage of providers [13]. As a result, healthcare facilities serving this population may be at greater risk of being overwhelmed by the crisis than other US clinical facilities.

Furthermore, there is a dearth of healthcare professionals from BIPOC communities [14] and significant gaps in pay, advancement, and opportunity [15]. Most importantly, patient care is impacted by the lack of cultural diversity among healthcare professionals. For example, studies have demonstrated that Black patients experience poorer quality of communication and reduced shared decision-making compared with white patients, and racial concordance is clearly associated with better communication [16]. Therefore, racially concordant public health messaging can have a significant impact in establishing trust in healthcare entities among BIPOC communities [17].

Consequently, the combination of historical events and contemporaneous inequities impacting BIPOC people attributed to structural racism has justifiably rendered healthcare institutions untrustworthy in the eyes of minoritized people. Herein lies the challenge faced during this pandemic where we now have vaccines proven effective at preventing severe disease and death: BIPOC communities are experiencing the worst morbidity and mortality of COVID-19 [18–25] yet Black and Hispanic populations are some of the least vaccinated groups in the United States [26–28].

An approach to increasing vaccine confidence and uptake in BIPOC communities must be creative, flexible, and nimble, addressing the heterogeneous concerns and barriers to vaccine access that people may have. In this study, we describe the nuances of vaccine confidence in BIPOC communities, explore issues with vaccine access, and suggest that BIPOC healthcare professionals are well positioned to provide insight into promoting vaccine uptake in minoritized populations.

CORONAVIRUS DISEASE 2019 AND BLACK, INDIGENOUS AND PEOPLE OF COLOR COMMUNITIES

The COVID-19 pandemic has resulted in more than 170 million infections and 3.5 million deaths worldwide [29]. The United States accounts for approximately one fifth of the global burden,

with more than 33 million infections and almost 600 000 deaths as of June 1, 2021 [29]. The transmission and disease severity trends have highlighted key disparities in BIPOC communities, which have been overrepresented in COVID-19 infections, hospitalizations, and deaths [30–32]. Social determinants of health underlie the disparate impact of COVID-19 on BIPOC communities. These social determinants arise from long-standing systemic racism and health inequity, including disparities in healthcare access, employment and work conditions, transportation, incarceration, and housing circumstances [30–32]. These factors increase the risk of transmission and disproportionately high rates of preexisting comorbid conditions that increase the risk of COVID-19 disease severity.

The high burden of COVID-19 disease and COVID-19-related mortality in these populations makes the distribution and uptake of critical preventative tools such as COVID-19 vaccines in BIPOC communities even more critical. Vaccine development efforts have included representation of BIPOC individuals in clinical trials, and there is guidance for equitable vaccine delivery and prioritizing populations at the highest risk [33]. However, there may be barriers to equitable vaccine uptake in BIPOC communities, including higher uninsurance rates and concerns about cost, less access to care, vaccine appointments conflicting with other commitments, transportation barriers, and others [34]. Accordingly, across the country, the proportion of BIPOC individuals being vaccinated lags behind their share of the US population, and their share of the population affected by COVID-19 [28, 35], with the exception of AI/AN individuals, who have higher vaccination rates relative to other racial groups [36].

In addition, many individuals from BIPOC communities have expressed reluctance or barriers to receiving the available vaccines [37], with several national surveys reporting rates of reluctance ranging from 25% to 50% [38–41]. Among those expressing reluctance, reasons included safety concerns related to lack of sufficient time for vaccine development, a lack of trust in or having doubts about the government or the healthcare system, and high rates of concern that the development of the vaccine did not take their needs into account. These surveys reported that for the BIPOC communities, confidence in vaccine safety and effectiveness were the number one predictor of vaccine intention. Thus, critical trust-building efforts must focus on healthcare institutions and professionals establishing their trustworthiness, by ensuring that communities have access to high-quality information that increases their understanding of the science behind vaccine development and mechanisms. These efforts must also consider the historical trauma and distrust of vaccinations, the government, and the healthcare system borne by BIPOC communities [40]. Reduced vaccine confidence within BIPOC communities must be appreciated within the extended historical context that has engendered contemporaneous and historical mistrust of health systems. Such

historically informed mistrust of medical and public health systems remains coupled to known disparities in quality-of-care delivery experienced by BIPOC communities through today, undergirding skepticism of health systems and structures for even those with the highest health literacy in these communities.

VACCINE CONFIDENCE AMONG BIPOC HEALTHCARE PERSONNEL

Although white workers represent the majority of the overall healthcare workforce (64%), Black and Hispanic workers are more heavily concentrated in Healthcare Support and Personal Care and Services sectors [42]. The Centers for Disease Control and Prevention reported 412 091 cases of COVID-19 and 1463 COVID-19 deaths among healthcare personnel (HCP) in the United States as of February 26, 2021 [42, 43]. Data from February to July 2020 showed that, among HCP COVID-19 cases, healthcare support workers accounted for the largest proportion within the HCP group (32%) [44]. For HCP who are members of historically disenfranchised racial/ethnic groups, decisions regarding the COVID vaccine are influenced by their professional backgrounds, historical context, and more recent experiences of differential treatment in the public sphere and the workplace [45, 46]. They may wrestle with whether to (1) advocate for vaccines as a major component of the strategy against a condition that has had a devastatingly disproportionate impact on their communities or to (2) maintain skepticism, reservation, and protection of themselves and their communities against new vaccine tools in the face of mistrust engendered by this embedded historical experience [47, 48]. This issue is particularly challenging because some data suggest BIPOC healthcare providers may hold particularly heightened sway in influencing the decision of BIPOC community members to obtain a COVID-19 vaccine [40, 41].

Efforts to promote equitable vaccine uptake for these HCP will therefore need to address these complexities. In a confidential survey conducted in 2 large hospitals at the end of 2020, concern about side-effects and not knowing enough about the vaccine were among the most common reasons (89.1% and 77.9%, respectively) that employees indicated for not being willing to take a COVID-19 vaccine [49]. Only 29.7% of Black and 54.4% of Hispanic hospital employees in that study were planning to receive a COVID-19 vaccine, compared with 69.5% of white and 74.1% of Asian employees [49]. Information about COVID-19 vaccines provided to HCP should include accurate research findings and the details of the vaccine approval process to help answer questions about safety and efficacy for individuals with a broad range of scientific knowledge, including HCP who work in nonclinical roles [45]. Healthcare personnel who are members of BIPOC communities may also witness and experience discriminatory practices in the settings in which they work that reinforce concerns that they may not be treated fairly, despite working within the healthcare system. Strategies aiming

to improve vaccine confidence among BIPOC HCP need to acknowledge and address this mistrust of the medical system to be effective [41]. Approaches must include culturally appropriate messaging that acknowledges that their experiences as healthcare workers and healthcare consumers may differ from those of their white counterparts.

NUANCES OF ADDRESSING VACCINE CONFIDENCE AMONG IMMIGRANT AND REFUGEE COMMUNITIES

Immigration from countries and communities in every continent over many centuries has been the defining event underlying the creation of an increasingly diverse population in the United States. Attitudes towards vaccination may be not sufficiently granular to account for the myriad of socioeconomic, cultural, religious, and other factors that could inform considerations for addressing vaccine confidence and uptake in these disparate communities. In addition to the harmful effects of social determinants of health and systemic racism experienced by US-born BIPOC, immigrant and refugee populations experience the compounded impact of anti-immigration policies and rhetoric, language barriers, health illiteracy, and unfamiliarity with navigating the US healthcare system [50, 51]. It is common for immigrants and refugees to maintain social media contact with family and friends in their country of origin, compounding an infodemic (ie, overabundance of rapidly spreading information, some accurate and some inaccurate, making it difficult to identify trustworthy information sources) of misinformation through which they must navigate. The dominant narrative around the COVID-19 vaccine in other countries frequently differs from that in the United States. Therefore, educational programs that target dominant messages in US social media may not influence vaccine confidence in these populations. It is imperative that US public health officials leverage existing immigrant and refugee community organizations to better understand the infodemics affecting immigrant and refugee populations. We must pursue tailored education campaigns based on in-depth analysis of norms, beliefs, misinformation, and preconceived notions prevalent in any given community that may be culturally or geographically distinct. The pandemic has fueled an intense increase in nationalism with calls initially to prioritize vaccines for residents and citizens ahead of undocumented immigrants. However, this position is contrary to the urgent public health need to vaccinate as many people as possible, particularly when immigrants, including undocumented immigrants, comprise a large constituency of essential workers at highest risk for COVID-19 [52]. Therefore, although it is important to remove language barriers to vaccination efforts, equally important are efforts to remove barriers related to immigration status, such as requiring proof of residency or citizenship, or insurance status, and explicitly communicate to these populations that they will not be turned away or reported if they present themselves for a vaccine appointment [53].

THE RIGHT COMMUNICATION STRATEGY

Well conceived and appropriately designed background research on the addressable and actionable factors influencing vaccine confidence should initially be conducted. Differences in vaccine acceptance rates vary across demographics based on multiple factors, including age, ethnicity, socioeconomic status, geographic location, and source of information. Therefore, we must use multifaceted approaches to build vaccine confidence in ethnically diverse communities, focusing on both the delivered messages and the messengers.

A practical communication approach requires public health officials and HCP to earn the community's trust through cultural humility, transparency, and open-mindedness. First, a nonprescriptive, bidirectional listening and learning approach should be adopted, sharing respect for and empathy with cultural beliefs and norms within these communities. When possible, partnerships with trusted community resources such as faith-based leaders, community organizers, and community mentors should be emphasized to have a multipronged approach. Second, we must recognize our knowledge gaps in the pandemic's trajectory and the COVID-19 vaccine trial results. Third, we should empathize with our audience, respect their opinions, and understand the impact of social injustice, health inequities, and systemic racism in healthcare on people's attitudes. A condescending or dismissive approach will be ineffective, particularly in the context of conspiracy theories or misinformation that are often prevalent and significantly influence attitudes about vaccination. Public health officials and healthcare professionals should openly address past and ongoing injustices with empathy and reassurance based on scientific evidence.

We may encounter individuals with varying levels of ambivalence influencing their likelihood of accepting vaccines after hearing our messages (Table 1). Sentiments toward COVID-19 vaccines may include "resistance" due to firmly held beliefs; "misinformation" by way of myths or inappropriate messages; a "wait and see" approach to gather more information before committing; or "acceptance" and willingness to confirm and share experiences with others. It is important to note that these sentiments do not represent a linear progression. Individuals may experience bidirectional transition between these feelings depending on personal experience and societal input, and they should be given space (and grace) to change their minds. Table 1 illustrates our proposed strategic approach to a shared discussion about deliberation with individuals experiencing these 4 sentiments toward COVID-19 vaccines. Our messages should be flexible to probe our patients' position, to accommodate dynamic groups of constituents, and to focus on specific concerns that shape their attitudes toward COVID-19 vaccine acceptance, with an overarching goal to helping to make informed decisions about vaccine choices [54].

IMPORTANCE OF INCLUDING TRUSTED MESSENGERS IN THE ALLOCATION, DISTRIBUTION, AND COMMUNICATION STRATEGY

The importance of trusted messengers in the allocation and distribution strategy cannot be overstated. Trusted messengers in these communities may not include traditional healthcare professionals, due to the historical underpinnings with prior unethical experimentation in this population. Faith or community leaders and other influential persons may be viewed as trusted messengers in the BIPOC population. They should be an integral part of activities designed to engage, educate, and ultimately positively influence prospective vaccine recipients (Figure 1). More importantly, this collaboration should incorporate empathic listening and cocreation of solutions with the community leaders based on their needs, rather than bringing predetermined solutions without their involvement [55]. A university hospital in California implemented a 3-tiered approach to engage the community in a vaccination strategy [56]. They began with the direct empowerment of local faith leaders through a COVID-19 faith summit, after which the pastors themselves coordinated information sessions about vaccines to their congregations. The faith leaders helped members make appointments and register using paper forms to avoid a technology barrier, and, finally, the mobile vaccine clinics themselves were held on church grounds [56]. Although the AI/AN community experience multiple underlying systemic inequities possibly creating barriers to vaccination, tribal autonomy with design and implementation of vaccine distribution efforts has contributed to higher vaccination rates among tribal citizens compared with other racial groups [36]. For example, in the Navajo Nation, traditional healers were instrumental in leading the way with COVID-19 vaccine messaging by choosing to be vaccinated first in the community, along with healthcare workers, President Jonathan Nez, and other community leaders. The transparent, coordinated strategy [57, 58] emphasized clear, unified messaging in both English and Navajo languages, and it included utilization of digital and social media channels, all of which influenced increased uptake of vaccines in this community.

Although many trusted messengers may come from outside of the healthcare workforce, vaccine confidence can certainly be influenced by having ethnically diverse healthcare workers with good rapport with their communities engage in frequent open and transparent dialogues to address people's questions [41]. Concerns and ambivalence toward the vaccine should be addressed and welcomed in a nonjudgmental manner with a bidirectional discussion opportunity. The BIPOC healthcare professionals lead many of the outreach programs or personal engagement mentioned in this article [45–48, 53, 56]; healthcare organizations should leverage this work that is already being done by partnering with BIPOC healthcare professionals to provide them with the resources they need to amplify their

Table 1. Four Sentiments Toward Coronavirus Disease 2019 (COVID-19) Vaccines and Approach to Shared Discussion and Deliberation

Sentiment	Definition	Major Concerns	Likelihood of Vaccine Acceptance	Approach
Resistance	Firmly held beliefs	Speed of vaccine production and approval Previous vaccine adverse experiences Vaccine not seen as a high priority Feeling marginalized Doubts legitimacy of COVID-19 pandemic	Low	Clarify prior scientific work on vaccine technology, with pooled scientific and financial resources leading to successful vaccine development Reassure that data and safety monitoring procedures were followed in all stages of development and approval Ensure participation of community representatives in the Emergency Use Authorization process Advocate for long-term public health and socioeconomic plan Use culturally competent tools for outreach Engage local community and faith leaders as trusted messengers
Misinformation	Influenced by widespread myths, misconceptions, and falsehoods	Trust the wrong messengers Reliance on the internet and social media for health-related information Political bias	Low-medium	Identify and educate trusted messengers Clarify scientific data and send consistent messages Use the internet and social media to spread accurate information Stick to the facts: avoid partisan arguments or associating vaccination with specific politicians
Wait and see approach	Want to watch vaccine recipients' experiences Searching for more scientific data and trusted messengers Gathering more information before committing	Unsure about vaccine safety and efficacy Insufficient mid- and long-term data Personal health issues	Medium-high	Respect individual choices Acquiesce vaccine questions Highlight limitations of current scientific knowledge Underline scientific consensus Express willingness to update information and accept changes
Acceptance	Feel comfortable with information about the vaccine and ready to receive it	May have moved through any or all of the previous 3 sentiments	High	Encourage willingness to confirm and share their experiences with their community as trusted messengers

messages and increase their reach into BIPOC communities. However, although BIPOC healthcare professionals need more significant elevation in these efforts, the burden does not fall solely on their shoulders, mainly because there are so few of them. Hospitals and professional medical societies should develop public-facing resources that acknowledge concerns and answer questions pertinent to BIPOC communities (Figure 1). These resources should be easily accessible, use language that is easy to understand, and be available in multiple formats for different learning styles.

Although it is important to engage faith, community leaders, and BIPOC healthcare professionals as trusted messengers in vaccine uptake strategies, we acknowledge that an approach that engages only these leaders is not feasible. Receiving COVID-19 vaccine information from healthcare professionals with whom individuals already have an established patient care relationship may have utility in increasing vaccine trust among BIPOC individuals [59]; therefore, more efforts to place vaccines in primary care offices is important. Similarly, another important trusted source may be community health centers. These locations are uniquely positioned within the communities to ensure communication with people who may have questions or concerns about vaccines. Community health centers provide primary care services to many individuals experiencing homelessness or living in low-income housing and rural neighborhoods, including

many BIPOC. An analysis of community health center COVID-19 vaccinations across the country reported that over 50% of people receiving both doses of their vaccines were BIPOC, with vaccination rates exceeding the national rates [60].

VACCINE ACCESS

Notwithstanding the justifiable deliberations that BIPOC communities may experience regarding COVID-19 acceptance, the discussion about inequitable vaccine uptake must include 1 additional important component: access to vaccines. The Advisory Committee on Immunization Practices suggested a phased vaccine rollout plan because it was apparent that the demand for COVID-19 vaccines would exceed supply during the first months of the national COVID-19 vaccination program, preventing everyone from being able to get vaccinated at the same time [61]. This approach is helpful; however, although the Federal recommendations for prioritizing of individuals for vaccination accounted for mitigation of risk for older adults and those with specific comorbidities, decisions on how prioritization occurred in practice were left to the states. The National Academy of Sciences suggests that any framework for equitable distribution should “explicitly address the higher burden of COVID-19 experienced by the populations affected most heavily, given their exposure and compounding health inequities”, and it recommended that across all priority groups,

Strategies to increase vaccine uptake within minoritized communities

An approach to increasing vaccine confidence and uptake in BIPOC communities must be creative, flexible, and nimble, addressing the heterogeneous concerns and barriers to vaccine access people may have.

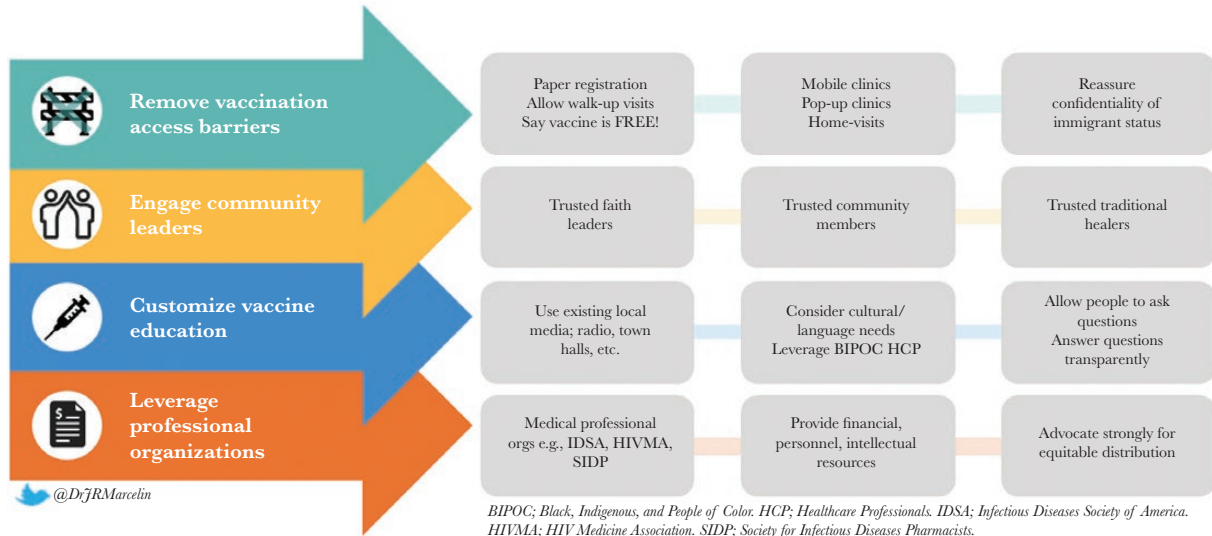


Figure 1. Strategies to increase vaccine uptake within minoritized communities. BIPOC, Black, Indigenous, and People of Color; HIVMA, HIV Medicine Association; IDSA, Infectious Diseases Society of America; SIDP, Society of Infectious Diseases Pharmacists.

there should be an accounting for prioritization of those with higher structural vulnerability [33]. An evaluation of these state-directed practices demonstrated that in many cases, the states deprioritized certain groups such as essential workers, who are predominantly BIPOC individuals, and often ignored other groups such as American Indian/Alaska Native populations or those living in low-income housing [62]. Furthermore, the reliance of vaccine appointments on electronic scheduling creates another hindrance to people without reliable access to technology [63]. The development of this information in English only serves as a barrier to individuals whose primary communication language is different [64].

The positive impact of intentional, directed vaccine access is apparent in the story of the Navajo Nation, despite the American Indian/Alaska Native community experiencing some of the worst morbidity and mortality from COVID-19 [5]. As of April 5, 2021, IHS had received more than 1.5 million COVID-19 vaccine doses, translating to approximately 75 000 doses per 100 000 people served, one of the highest rates of vaccine delivery nationwide compared with state vaccination programs [36]. A coordinated effort among the IHS, Navajo Nation, and tribal health organizations organized a streamlined vaccine rollout with lowered age administration priority groups, centralized vaccine delivery, and mass walk-in vaccination efforts that resulted in almost 50% of the Navajo population receiving their first vaccine dose [57, 58]. However, the experience in the tribal community may not reflect that of the 78% of the American Indian/Alaska Native community who reside

in urban populations outside of tribal lands [65], and similarly BIPOC outside of a system such as this with a focused effort toward vaccination may experience many barriers to vaccination, including language, distance, and lack of culturally appropriate information. In these situations, the approach to equitable uptake in these populations should remove these barriers by emphasizing language and culturally congruent messaging, with flexible and convenient vaccination opportunities such as pop-up clinics or home vaccinations (Figure 1).

CONCLUSIONS

Coronavirus disease 2019 has unveiled for the world something that BIPOC living in America have endured for centuries; that they are at the highest risk of inequitable care and subsequent devastating health disparities. Because we consider vaccines as a vehicle for ending this pandemic, our only successful move forward ensures that the communities most impacted are protected. Vaccine confidence can be strengthened if we begin with respect and transparency and if our approaches to vaccine allocation, distribution, and messaging start and end with an equitable lens. Therefore, the approach to COVID-19 vaccines in BIPOC must focus on equity instead of hesitancy.

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