Understanding and addressing barriers to COVID vaccine acceptance

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When it came to the COVID-19 vaccine, Florencia Polite felt driven to be an early adopter.

"It was clear to me that I had the ability as a leader—specifically as a Black leader—to stand up early, to say I believe in science, to do my homework, which I did, and to say to our community, 'Here's why we, as medical professionals, are going first this time, and you get to watch,'" she says.

On the first day the Hospital of the University of Pennsylvania offered vaccinations, Dec. 16, 2020, Polite, chief of Penn Medicine's division of general obstetrics and gynecology, got hers. After her second dose, she recorded a video journal every few hours for the next two days. "I wasn't feeling super great the second day, but it was important for that transparency and trust we're trying to rebuild," she says. "This was the real real for 48 hours."

In the months since, Polite has become a Penn vaccine advocate, co-planning an 800-participant town hall, creating doctor huddles where people could ask questions and express concerns, taking broad measures to address hesitation and increase acceptance of the COVID vaccines.

"Vaccine hesitancy in the Black and brown communities is well-earned mistrust, from as far back as Tuskegee and even further back than that, to current-day disparities in care. It's not just historical," she says. "The Black and brown communities with hesitancy do not overlap with the traditionally white anti-vaccination communities."

Reservations about the vaccine emerge for a range of reasons: Some people have concerns regarding the speed with which they were developed or about their safety or side effects. Others feel a historical distrust for the medical establishment or governmental authority. Another community may feel like the shot just isn't something they need. Some discrepancies in uptake could be altogether separate from hesitancy, related to lack of access more than anything.

Of course, it's possible to experience a mix of many of these at once.

For that reason, it all tends to get clumped into one big "vaccine hesitancy" bucket. But Penn behavioral scientist Alison Buttenheim warns that's a mistake. "We have to be careful not to leap to the assumption that when we see people not getting vaccinated, it's hesitancy. There are many underlying barriers," she says. "We miss out on opportunities to support and intervene when we call all of that hesitancy."

It's also important to distinguish between communities in the United States wary of getting the COVID-19 vaccination, of which there are many and within each one, many subtleties. A March NPR/PBS NewsHour/Marist Poll found that Republican men were least likely to get a coronavirus vaccine if given the chance, followed by people who supported Trump in 2020, and white men without college degrees. And although in that same poll, a greater number of African Americans said they wanted this vaccine in March 2021 than in December 2020, there's still reluctance to overcome in that community, Polite says.

Understanding and, when possible, moving beyond all of this is key to giving the COVID vaccines—in combination with actions like mask-wearing and social distancing—the chance to protect the most vulnerable and ultimately, to offer a way forward out of this pandemic.

Vaccine-specific hesitation

The idea of resistance to vaccines is hardly new, arising first in the 1800s around the smallpox inoculation. In an effort to stop a smallpox outbreak in the 1870s, several U.S. states tried to enforce existing vaccination laws or create new ones. This ignited the sparks of a fledgling vaccine opposition movement, giving rise to organizations with names like the Anti-Vaccination Society of America.

"You can draw a string starting in the 19th century to this long history of vaccine opposition, in different eras with different vaccines," says Robert Aronowitz, a Penn physician and historian of science. "Yet it's a fairly different configuration of forces motivating this each time, not one consistent know-nothing movement that grabs onto each vaccine as it comes out."

Put another way, each vaccine controversy has its own character, he says. Some of Aronowitz's own research, for example, has focused on the debate over a Lyme disease vaccine. In the 1990s, two had been developed, with one brought to market and then pulled. Thirty years later, there still isn't an FDA-approved Lyme vaccine.

Part of the debate, Aronowitz found, comes down to beliefs about the disease itself. "The vaccine's efficacy, whether you thought it worked or not, ended up being totally connected to whether you thought Lyme was an acute, treatable disease that people got better from or a chronic condition that had many manifestations," he says.

Aronowitz sees potential parallels to current conversations around COVID long-haulers, whose coronavirus symptoms linger for months. (Many long-haulers have recently reported improvement after vaccination, mitigating vaccine hesitancy.) "It's not trivial," he says. "If you think you're not getting better because of your own body's immunological reaction, it's not a huge leap to worry about taking [the vaccine]."

In that case, he adds, "hesitancy is not because of a general distrust of the biomedical establishment or fears of autism," the latter a reference to the controversy spurred by a discredited scientist who made entirely false claims that the measles, mumps, and rubella vaccine caused autism. The most prominent such firestorm the U.S. has experienced to date still holds sway in some pockets of the country and for some groups.

A history of mistreatment

There's another type of concern around vaccines altogether, one unrelated to the specific inoculations themselves but rather tied to the idea of vaccinations more broadly, borne out of a long history of mistreatment of African Americans by the medical establishment.

The Tuskegee Study is the most glaring and frequently cited example: In 1932, researchers intentionally misled 600 Black men to coerce them to participate, telling them they were being treated for "bad blood." In reality, they were being subjected to an experiment about what happens when syphilis goes untreated—even after it became clear that penicillin could significantly help the disease. The experiment continued until 1972.

Other shameful examples of exploitation and medical racism include forced sterilization and significant disparities in the health care access African Americans have today. All of this has weighed heavily on Polite during the pandemic, particularly as it became clear that COVID-19 was not affecting everyone equally.

"Black and brown communities are dying at two to three times the rate of the white community. This is because of racism, not race. That's an important distinction to make, that there's no biological reason for that," she says. It's also necessary to quantify the mistrust this group feels about the medical establishment, she adds, noting, for example, the fact that African Americans are less likely to have their pain addressed. "We in the medical community need to be thinking about it—because it's current," Polite says. "The COVID-19 vaccine represents a real struggle."

Annenberg School for Communication's Damon Centola, whose research focuses on social networks and the spread of behavior, recently

began a study on how decades of structural racism have influenced the way African Americans feel about these vaccines, how they are discussed on social media, and what effect such conversations might have on someone's willingness to get a shot.

"In the past, many public health campaigns tried to promote vaccination by using top-down approaches that relied on emphasizing the medical facts," Centola says. "But for communities that have suffered a long history of abuses, simply telling people what to do is an approach that's likely to backfire. It's more effective and offers greater health benefits in the long run to engage communities in a way that's empowering. Our work emphasizes the importance of targeting community networks to stimulate nuanced and critical discussion of new health information."

Aiming for the middle

As the pandemic passed its year mark in the U.S., the varied reasons for discomfort over a coronavirus vaccine have crystallized. But possible avenues to overcoming those barriers are just now coming into focus. Perhaps the most crucial, says Wharton's Sigal Barsade, is acknowledging there's no simple yes-or-no answer to the question, will you get a COVID vaccine?

She and Buttenheim, with a group of behavioral science experts across Penn, the University of California, Berkeley, and many other universities, recently released a report about vaccine uptake among staff at long-term care facilities, which has hovered around 40%. Their analysis revealed five types of decision-makers ranging from vaccine "accepters" to "refusers." They found that those in the middle three groups were most open to positive influence. In other words, those were people who might be swayed to accept a shot in a way that outright refusers simply would not.

To explain further, Barsade points to trends from Kaiser Family Foundation's COVID vaccine monitor: In December 2020, 39% of adults polled said they preferred to learn about vaccine outcomes and effectiveness before they decided whether to get one. In January 2021 that number dropped to 31% and in February it decreased again, to 21%. Conversely, the number of U.S. adults who have either gotten a COVID vaccine or want one as soon as possible keeps growing.

"Hesitancy about this vaccine isn't just a cognitive problem. It's also an affective problem. It's how people are feeling about the vaccine and this process and their organizations. We have to take that into account," Barsade says. "You have to take different action based on where people are psychologically in the process."

As an answer to that, Buttenheim and Carnegie Mellon's Gretchen Chapman came up with the idea of a COVID concierge. It's still theoretical, but they see it as someone who can get people exactly what they require in any particular moment, whether that's a conversation with a coworker or simply to be left alone. "What someone needs who hasn't been vaccinated yet is going to vary," Buttenheim says. "Unfortunately, that means interventions aren't really scalable and will take some individual handholding." Part of that relates to messaging.

Message matters

In January, the city of New Orleans released a public service announcement (PSA) of people explaining their reasons for getting vaccinated: "So Mardi Gras can happen." "To continue my culture." The United Kingdom's National Health Service put out a light-hearted PSA featuring Elton John and Michael Caine, the former auditioning for a vaccine advocate acting role that the latter eventually secures. An Ad Council spot of former U.S. presidents and first ladies offers reasons Americans should get the vaccine.

All very different, each with a particular audience in mind.

"No one campaign is going to be the silver bullet," Buttenheim says. "Clever ad campaigns that speak to specific groups, those are great. So are campaigns consistent in terminology, in look and feel—the bus ad is the same as the sticker, which is the same as the slogan you hear on the radio. People might need to hear the message 17 times."

But which language exactly? That's what Penn's Message Effects Lab (MEL) has been trying to parse since before there were actual vaccines to give. The lab, run by Jessica Fishman of Annenberg and Penn Medicine, has tested dozens of messages. For example, some focused on education, others on vaccine scarcity or the actions of peers. The work is ongoing, but so far, messages highlighting benefits have proven most effective.

It's counterintuitive, Fishman says, given the instinct to attempt to persuade with facts, something she's noticed happening more as new coronavirus vaccines enter the mix. "It's an understandable impulse to try to get into the nitty gritty by comparing the COVID-19 vaccines," she says. "But attention being paid to these vaccine differences, which are minor, could have a negative effect, giving the impression that some are inferior. It could get lost that the most important outcomes are great for any of these vaccines."

Right now, her team is conducting a randomized control study on another COVID messaging debate: whether financial incentives will increase vaccine uptake. "Some experts have argued that the fastest way to herd immunity is to pay people to vaccinate," Fishman explains. "Others have been adamant that this policy would backfire." These opposing arguments can't both be right, she adds.

Sometimes this kind of intervention fails to change behavior, sometimes

it helps. Given that it's unclear what will be true for COVID, the MEL has started testing the effects of this potential policy, and Fishman says she sees reasons for either outcome. Even if payments do increase vaccination rates, people with less money may accept a financial incentive more readily, without the chance to work through hesitation they may have.

Moving forward

So many factors matter beyond the message of a public health campaign or the words used; for instance, who is saying them and who that person is to the community. And the fact is, because demand for the COVID vaccine in the U.S. has so far outpaced supply, it's unclear just how largely resistance to these shots will factor into the pursuit of herd immunity.

The supply-chain challenges will likely start to ease up soon, Buttenheim says, but "there will still be a whole bunch of people not wanting to get a vaccine." Fishman agrees: "There could be a gradual shift, but even with the flu vaccine that's been around forever, we still have a lot of adults who don't get it who are at risk of getting quite sick or dying from the flu."

For all those reasons, Penn Medicine's Polite is continuing her quest as a vaccine advocate. Through a program she named CAVEAT—COVID Acceptance Vaccine Education and Adoption Taskforce—she's worked hard with Black physicians and hospital leaders to address the concerns of departments within the health system whose demographics skew majority Black. The doctor huddles she helped organize always included at least one Black physician, something she says was intentional "because we realized that the hesistancy of the Black community was such that bridging the cultural gap was important to the mission."

It's why, despite some initial fears, she got the vaccine herself and why she volunteered at the Mercy/Penn Medicine/The Community Vaccine Collaborative vaccination clinic Penn put on in West Philadelphia in early March, one in a series of such clinics. "It was very special," she says. "I was tired going into the day, but when I left, my soul was renewed." She personally vaccinated 80 people that day, including her own 73-year-old mother.

Yet despite all the efforts around hesitancy, it's just one half of the conversation, she adds. "We also need to decrease inequity in the vaccine roll-out to address access disparities. We have to address both sides of the vaccination coin."

Overcoming the pandemic will require both individual and collective actions

A pandemic, particularly like the one experienced this past year, elicits many bioethical considerations. In a new afterword to their book "Everybody Wants to go to Heaven, but Nobody Wants to Die: Bioethics and the Transformation of Health Care in America," Penn President Amy Gutmann and Penn Integrates Knowledge professor Jonathan Moreno addressed a few, including vaccinations.

"Once vaccines are developed, universally available, and taken by enough people for generation after generation to establish herd immunity, even a highly infectious disease like COVID-19 can be effectively eradicated," they wrote this past summer.

But the path—which requires both individual and collective action—isn't straightforward, particularly as the pandemic has pulled back the curtain on just how deeply systemic racism in the U.S. runs.

"Black and Hispanic Americans have suffered hospitalization and death from COVID-19 at disproportionately high rates," Gutmann and Moreno wrote. "Underlying these greater health vulnerabilities are also long-standing racial disparities in health care, as well as in housing, education, employment, wages, and wealth."

There's an urgency to closing such gaps, to addressing chronic racial, economic, educational, and social injustices, as well as investing proactively in public health and innovative research, they add. The time is now. "These investments save lives, all lives."

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