



Prospective recipients of a vaccine against COVID-19 waited to be called from under a shed at a public vaccination site in Nigeria's southwest city of Ibadan.
Credit: Paul Adepoju / Nature Medicine

Africa is waging a war on COVID anti-vaxxers

Misinformation about COVID-19 vaccines often starts life in Europe or the United States but has found fertile ground in Africa, which poses a challenge for local health leaders.

Paul Adepoju

Shade is a 58-year-old Nigerian frontline health worker living with osteoarthritis. She is also overweight, diabetic and hypertensive, all of which made her first in line for a vaccine against COVID-19 when it finally became available in Nigeria. Her eldest daughter booked an appointment for her at their local primary healthcare center, but when the day came to receive her first dose of the vaccine against COVID-19, she changed her mind. Shade instead chose to take her chance with the virus instead of getting vaccinated.

“It isn’t about my trypanophobia [fear of needles], it’s the aftermath of a constellation of conflicting, confusing and scary messaging and reports on the safety and politics of the vaccine. I saw videos of people getting dizzy and fainting after receiving the vaccine. We also heard of people that developed blood clots and died afterwards.

So many uncertainties made me doubt whether I really need the vaccine,” she tells *Nature Medicine*.

Shade is not the only frontline health worker to refuse a vaccine against COVID-19, despite its availability.

Africa’s anti-vaxxers

Vaccine hesitancy is a phenomenon that predates COVID-19. A 2015 report by the European Centre for Disease Prevention and Control noted that vaccine-hesitant healthcare workers might spread unfounded concerns about vaccines to the general population, recommend vaccines less frequently to their patients, and reduce vaccine confidence and uptake. Vaccine hesitancy is therefore a major concern in the global fight against the COVID-19 pandemic.

“We should be worried that up to 40% of medical staff in a number of countries have

expressed doubt about the vaccination,” says Roger Tatoud, deputy director for HIV Programmes at the International AIDS Society.

Whether or not to receive a vaccine is a person’s individual decision, but **vaccine hesitancy** may prevent herd immunity from being reached, especially in sub-Saharan Africa, where vaccine doses are sparingly available and the anti-vaccine campaign has influential mouthpieces.

In January 2021, former Tanzanian President John Magufuli **cast doubt** on the effectiveness of vaccines against COVID-19, and even denied the existence of SARS-CoV-2 in his country. After his death, his successor, Samia Suluhu Hassan, decided to **take a different approach** when she said the country “cannot isolate ourselves as an island while the world is moving in a different direction.” Even though a



A primary healthcare officer fills out a COVID-19 vaccine card for a frontline health worker after registration online as required by the health authorities. Credit: Paul Adepoju / Nature Medicine

committee to advise the government on COVID-19 has been set up and its members are public-health and medical experts, and strict COVID-19-prevention measures have been reintroduced, Tanzania is yet to announce any vaccination plans. There remains formidable opposition to vaccines against COVID-19 in Tanzania, even by some key players in the country's science ecosystem.

In early April 2021, Wilcox Onyemekeihia, Secretary of Programmes to the Senior Special Adviser on Youth Affairs in Nigeria's Cross River state, was on a panel that discussed the myths and realities of vaccine hesitancy for COVID-19 and other vaccine-preventable diseases. To the alarm of some on the panel, Onyemekeihia queried the vaccine's quick development process, overhyped the side effects of the vaccines and questioned the true status of the pandemic in Africa—implying vaccines were unnecessary, given the associated risks. All of these talking points were straight from the anti-vaccine playbook.

Onyemekeihia continues to share vaccine-hesitancy sentiments on social media, views that may be influenced by one of Nigeria's top pastors, who connected 5G to COVID-19 and spread other vaccine myths.

Spread from the West

In early December 2020, before doses of vaccines against COVID-19 became available in Africa, vaccine hesitancy was already gaining momentum globally. Melissa Fleming, chief spokesperson for the United Nations High Commissioner for Refugees notes that miscommunications probably originated

in Western countries, especially the United States and Europe, and these were fueling vaccine hesitancy in Africa.

"Building vaccine confidence is an issue across the globe. What we're really concerned about is that these pieces of misinformation that are created in the USA or in the UK, they're traveling and finding some fertile ground in Africa as well," Fleming says.

Richard Mihigo, coordinator of the Immunization and Vaccine Development Programme of the World Health Organization (WHO) Regional Office for Africa, says vaccine hesitancy in Africa is not being driven by people's fears alone. According to Mihigo, international groups are fueling anti-vaccine tendencies that had not been seen in Africa before COVID-19. "Anti-vaxxers in some Western countries are taking advantage of all the concerns about the adverse effects of vaccines. We need to address the spread of vaccine misinformation in Africa," says Mihigo.

When the first case of COVID-19 was confirmed in Nigeria, officials at the Nigeria Centre for Disease Control, led by the director general, Chikwe Ihekweazu, described a miscommunication menace, enabled by social media, as a major threat to the country. COVID-19 is the first pandemic since mobile, internet and broadband use expanded in Africa. The number of people in sub-Saharan Africa with access to a mobile broadband network more than doubled from 120 million people (13%) in 2014 to 270 million (26%) in 2019.

"In terms of vaccine hesitancy, we've seen a surge in misinformation, particularly in urban areas where there's high penetration

of social media. We're working on aggressively supporting countries on how to provide the right information to educate the people," Mihigo adds.

Nothing like Ebola

Africa has vast experience with vaccinations, so much so that countries like Ethiopia have been able to continue routine immunization exercises for measles, reaching millions of children in the middle of the pandemic. The WHO and the Africa Centres for Disease Control and Prevention were keen to report that several African countries, including Rwanda and Ghana, quickly rolled out doses of vaccines against COVID-19 from COVAX and other donors.

But not all African countries have performed as well. Formerly known as Zaire, the Democratic Republic of Congo (DRC) is located in Central Africa, and by area, it is the largest country in sub-Saharan Africa, the second largest in all of Africa and the eleventh largest in the world. The DRC has a battered health system that leaves children at the mercy of killer diseases, including malaria, cholera and measles. The DRC has reported more Ebola outbreaks than any other country in the world and continues to face a complex humanitarian crisis.

Since the COVID-19 pandemic began in the DRC in 2020, misinformation has been a major force slowing down progress, according to warnings from Doctors Without Borders. Misinformation is further complicated by skepticism about the seriousness of COVID-19 relative to that of Ebola and other leading causes of death in the DRC. The vaccine rollout in DRC was paused following news of vaccine-linked complications in Europe. This suspension was subsequently lifted but may have further damaged vaccine acceptance, as seen when the DRC returned 1.3 million doses of vaccines against COVID-19, supplied by COVAX, for redistribution to other countries.

Do as I do

Some of the health infrastructure used to combat COVID-19 was acquired in the fight against human immunodeficiency virus (HIV) and AIDS. At the first virtual HIVR4P conference in January 2021, Anthony Fauci, director of the US National Institute of Allergy and Infectious Diseases, described how decades of HIV research influenced the development of vaccines against COVID-19 and attributed reluctance and vaccine hesitancy among African Americans to the strained history the community has had with government-funded research, including the infamous Tuskegee Study of Untreated



A Nigerian medical practitioner draws diazepam into a syringe for a patient booked for an emergency cesarean section procedure during the COVID-19 lockdown. Credit: Paul Adepoju / Nature Medicine

Syphilis that targeted Black males in the United States.

Fauci described how church groups were engaged to drive support for the vaccine against COVID-19 among African American populations. This was complemented by respected members of the Black community, including Reverend Jesse Jackson, publicly receiving the vaccine against COVID-19 to show that it is safe.

Similar public actions were taken by several African heads of state, who received their vaccines against COVID-19 on live TV. However, even this publicity can backfire. In Nigeria, several politicians and their family members, including Atiku Abubakar, a former vice president and presidential candidate, [flew to Dubai](#) to be vaccinated, while a governor's wife received her vaccine in Houston, Texas.

Oyewale Tomori, a Nigerian professor of virology and chairman of Nigeria's Ministerial Expert Advisory Committee on COVID-19, says that politicians receiving the vaccine overseas allowed distrust to germinate among citizens. Some were concerned that the vaccine being administered in Nigeria might not be the same vaccine that politicians flew abroad to receive. "There is distrust and mistrust all over. Even when the president receives the vaccine publicly, some people will ask if the syringe is the same, and whether it is also the same content. We will never achieve herd immunity if this continues," Tomori says.

Tomori argues that several developments spanning decades have contributed to vaccine hesitancy in Nigeria. Nigeria was the last country in Africa, and one of the last countries in the world, to eradicate

poliomyelitis. This was in part because of a polio-vaccine boycott that began in August 2003 in three Nigerian states where rumors started that the oral polio vaccine was laced with antifertility drugs in order to sterilize young Muslim girls.

"The vaccine boycott in Nigeria was influenced by a complex interplay of factors—lack of trust in modern medicine, political and religious motives; a long history of perceived betrayal by the political class, the educated elite and big business; and the spread of false information," Tomori says.

The suspension of vaccination against polio in Nigeria [sparked a global polio outbreak](#) that quickly spread to 20 countries in Africa, the Middle East and Southeast Asia, causing 80% of the world's cases of paralytic poliomyelitis. Beyond [delaying the eradication of polio](#), the outbreak that started in Nigeria also resulted in a cost of [over US\\$500 million](#) for immunization campaigns and public-awareness initiatives.

"[In Nigeria], there is a general distrust of the aggressive, door-to-door mass immunization campaigns due to poor access to basic health care. There is no medicine for children dying of measles and diarrhoea; but you bring polio vaccine for free house-to-house," Tomori says.

"The [vaccine] rollout has to be an all-out effort, not just the federal government. Some states, two weeks after the vaccine came, were not even ready. Some of the state governments were stalling probably because they did not have confidence in the vaccine and were delaying. In one state, they said they had not trained health workers, while another said they were testing the vaccine for sterility," says Tomori.

Different strokes

A single approach may not be effective in tackling vaccine hesitancy across Africa, says Mihigo, due to differences between countries. Even within countries, vaccine concerns vary from one place to another. "There are countries where up to 50 or even 60% of people are not keen to be vaccinated and others where most of the population are willing to be vaccinated. This is something that needs to be addressed very comprehensively and very strategically," Mihigo says. Efforts should be geared toward effective communication and should be driven by an understanding of what people are believing, thinking and fearing. "It's one thing to have political leaders speaking on the television telling people broadly what needs to be done, it's quite another to have somebody understand as a person and an individual in a particular context why the story that they've been told is not true," Mihigo tells *Nature Medicine*.

Matshidiso Moeti, WHO Regional Director for Africa, notes that African countries now have another chance to get their logistics and communication plans in order, due to the delay in the shipment of doses of vaccines against COVID-19 from COVAX. Moeti says that vaccine hesitancy in Africa can be preempted, identified and tackled by carrying out simulation exercises, listing priority groups and communicating early with communities.

Pause and rewind

When countries in Europe decided to pause the rollout of the ChAdOx1 vaccine from Oxford-AstraZeneca following reports of very rare side effects, John Nkengasong, director of the Africa Centres for Disease Control and Prevention, was concerned that the pause would damage trust in this particular vaccine. This is especially worrying because ChAdOx1 is the main vaccine being distributed to African countries through COVAX.

For Tomori, African leaders should not pause vaccine rollout whenever they suspect a possible side effect, as most African countries have only a single vaccine on offer, with no other vaccines as possible replacements. "In my discussion with people I say 'Europeans have a choice of vaccines, Africans don't have a choice and the WHO still says the vaccine is safe. There is no vaccine that doesn't have side effects. [ChAdOx1] is what we have for now,'" says Tomori. "If you have a half loaf of bread and you're hungry, will you say no [until] you have a full loaf to eat? If your neighbor has ten loaves and decides not to eat one, how is that your concern?"

Nkengasong notes that the COVID-19 pandemic has raised the need for Africa to focus more on continuous vaccine literacy in order to build the confidence of the people. Nkengasong describes trust as the foundation of good public-health practice—building trust with the community and with public-health agencies. "We should work consistently to make sure that the right message and information are shared, and that the right education, what is called vaccine literacy, is actually promoted," says Nkengasong.

Vaccines work

Public-health authorities in Africa are keen to share positive stories from places where the rollout is going well, such as Morocco, Rwanda and Angola. Another such positive story comes from Ghana, the first country in Africa to [receive the vaccine against COVID-19 through COVAX](#).

Christian Owoo, Ghana's National COVID-19 Case Management Coordinator

for Severe and Critical Diseases, explains that the vaccine is already having a substantial positive impact in reducing COVID-19 mortality among people who have been vaccinated. Owoo says that the successes in Ghana should be a key message used to encourage more Africans to receive the vaccine. “One of the lessons we’ve learned from critical care is that since Ghana started vaccinating, the proportion of patients who have presented to ICU with severe critical diseases, and that had been vaccinated, is much lower than those who have not been vaccinated,” Owoo says. “Sharing this knowledge is important in

African countries. Research and sharing of knowledge are going to be a massive part of reducing vaccine hesitancy; working collaboratively with other African countries and making sure that this evidence is put out there to encourage an efficient distribution of vaccines.” Owoo adds.

Mohamed Moustapha Malick Fall, UNICEF’s Regional Director for Eastern and Southern Africa, argues that partnerships with key people in the region, such as social-media influencers, are needed to tackle vaccine hesitancy. “These people can relay the message that vaccination is nothing new in Africa. Africa has been doing

vaccination campaigns for years, and we’re always faced with the same situation every time there’s a new vaccination campaign. We need to stop this disinformation and fight back.” In the end, says Fall, Africa can win the war against vaccine hesitancy by focusing on what truly matters: how vaccination has saved millions of lives on the continent. □

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