

COVID-19 vaccination: What have we learned and what more can we do to address the vaccine inequity in Africa and the Middle East?



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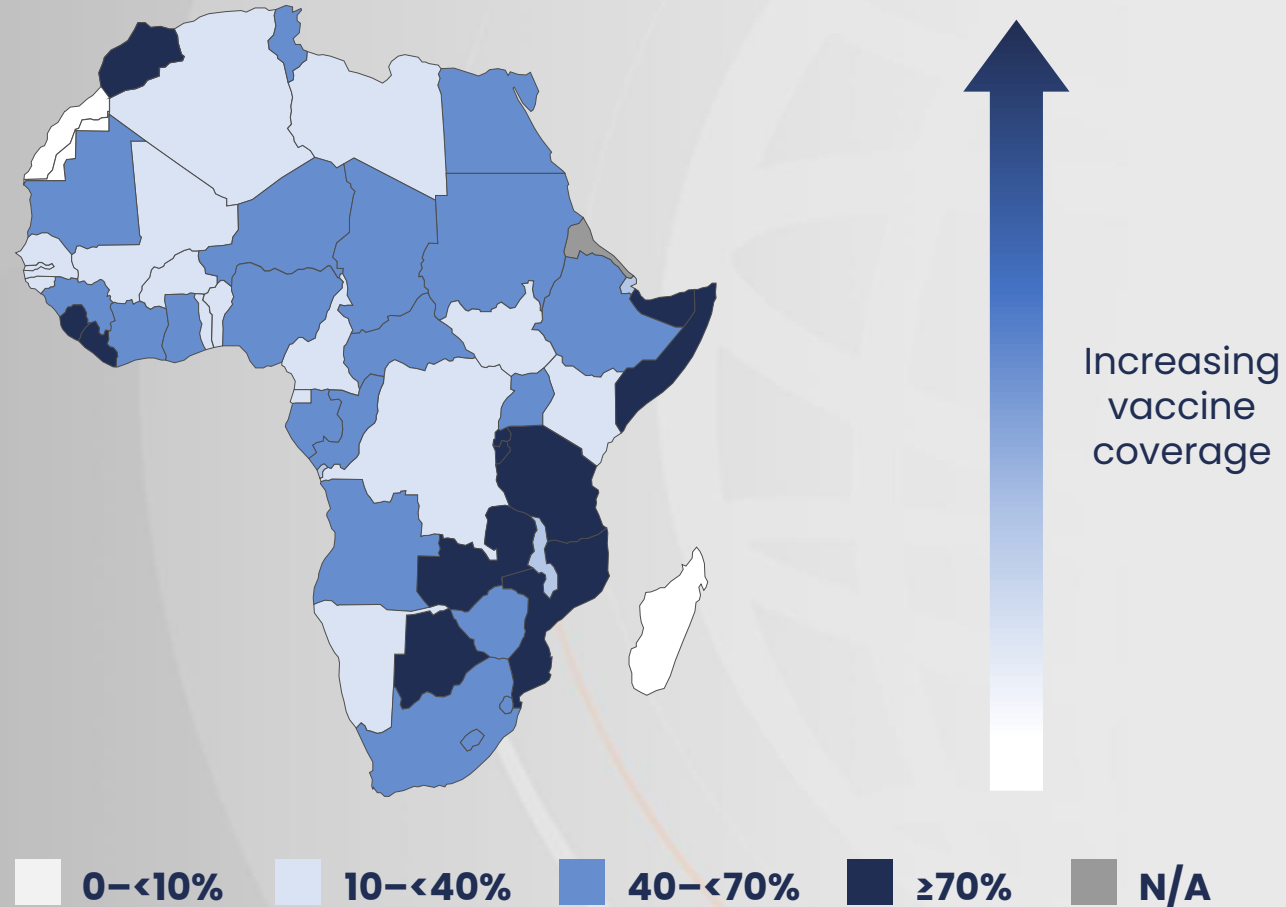
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**What progress has been made in
addressing COVID-19 vaccine
equity issues in Africa?**

COVID-19 vaccination rates vary widely across Africa

Vaccine coverage by member state

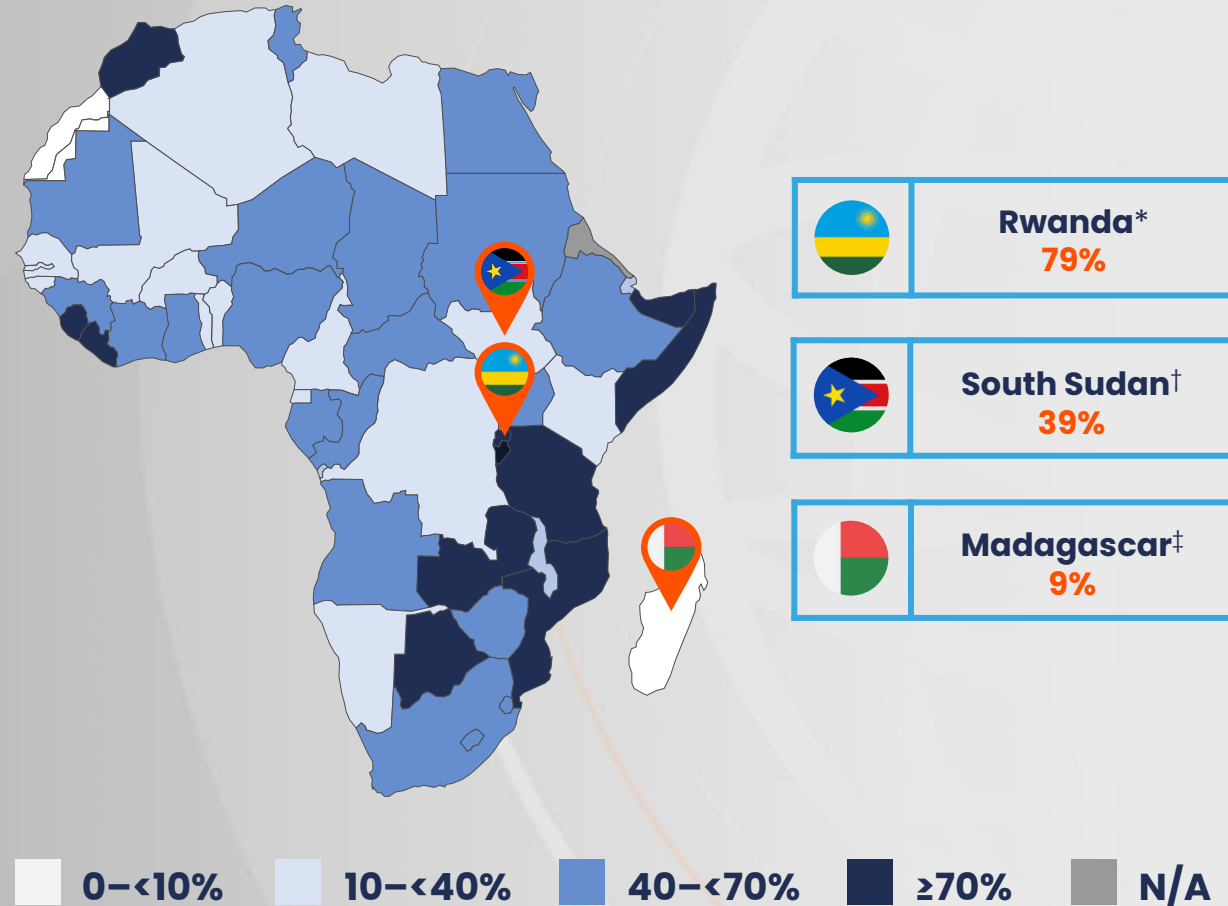


N/A, not applicable.

Africa Centres for Disease Control and Prevention. Available at: <https://africacdc.org/covid-19-vaccination/> (accessed 12 June 2023).

COVID-19 vaccination rates vary widely across Africa

Percentage of people who have received ≥ 1 dose of COVID-19 vaccine^{1,2}



*As of 4 June 2023; †as of 18 June 2023; ‡as of 7 May 2023.

N/A, not applicable.

1. Africa Centres for Disease Control and Prevention. Available at: <https://africacdc.org/covid-19-vaccination/> (accessed 12 June 2023);

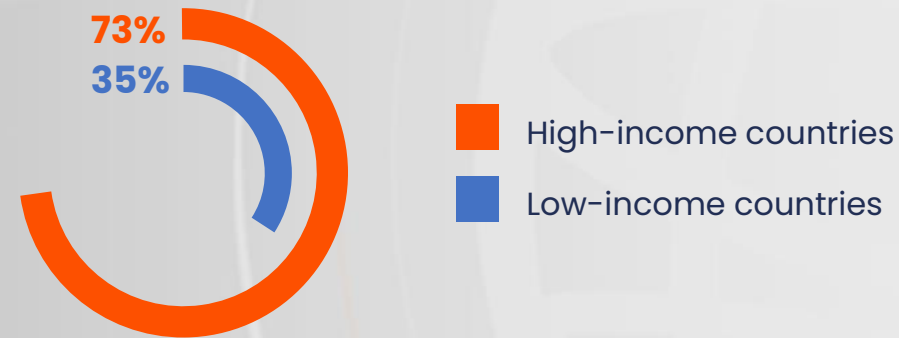
2. Our World In Data. Available at: www.ourworldindata.org/covid-vaccinations (accessed 12 June 2023).

There is inequity in the accessibility of COVID-19 vaccines

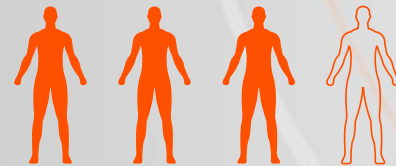


VACCINE EQUITY: All people, wherever they are in the world, should have equal access to a vaccine that offers protection against COVID-19 infection¹

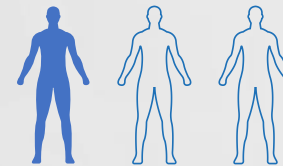
Vaccination* by country income²



Equivalent to...



3 in 4 people are vaccinated in high-income countries



1 in 3 people are vaccinated in low-income countries

*At least one dose of COVID-19 vaccine.

1. United Nations. Available at: <https://news.un.org/en/story/2021/09/1100192> (accessed 5 July 2023);

2. United Nations Development Programme. Available at: <https://data.undp.org/vaccine-equity/> (accessed 27 June 2023).

There is inequity in the affordability of COVID-19 vaccines



VACCINE EQUITY: All people, wherever they are in the world, should have equal access to a vaccine that offers protection against COVID-19 infection¹

The cost of vaccinating 40% of the population as a per cent of current health expenditure²

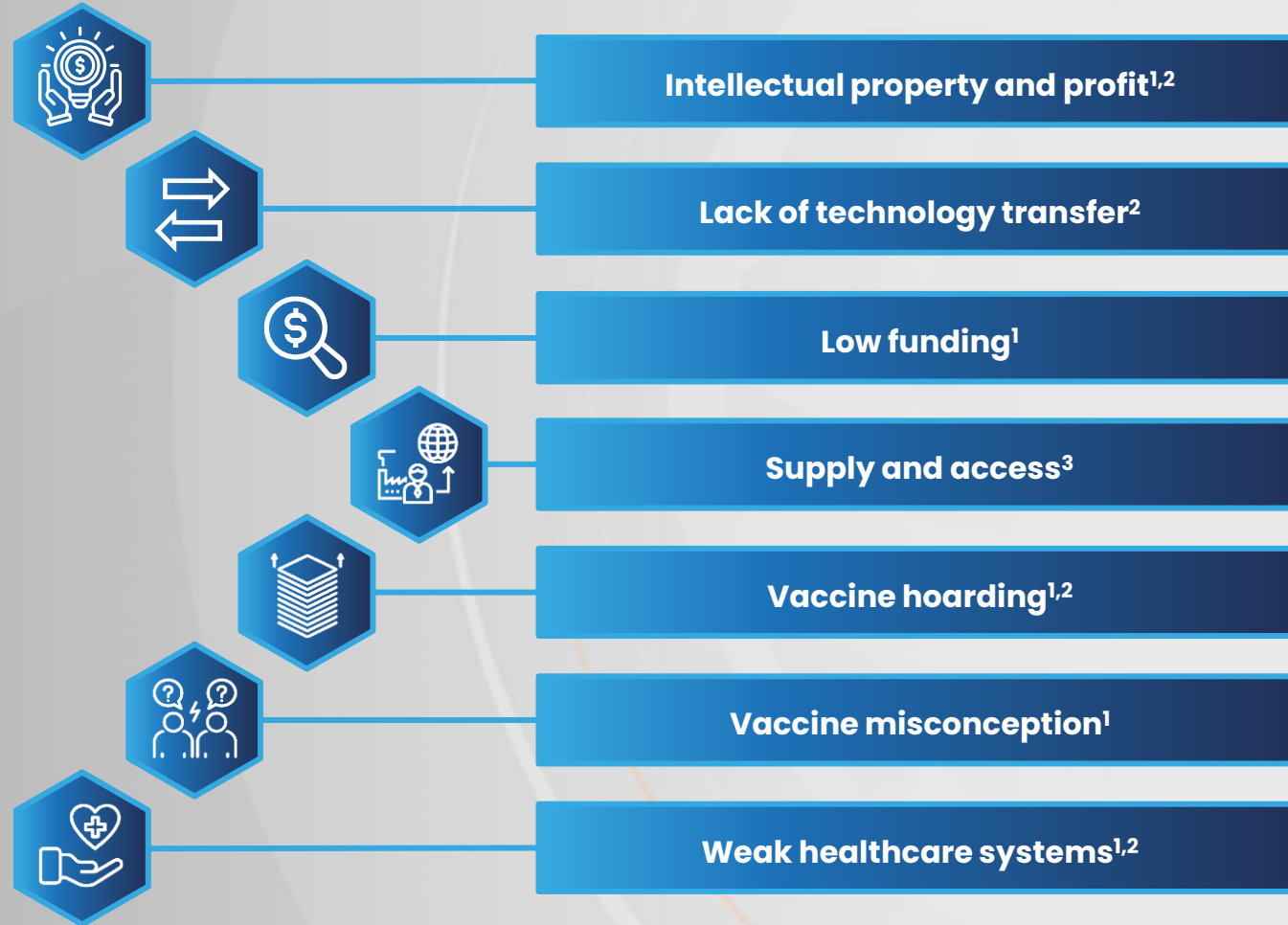


Vaccination can represent a significant financial burden for low-income countries

1. United Nations. Available at: <https://news.un.org/en/story/2021/09/1100192> (accessed 5 July 2023);

2. United Nations Development Programme. Available at: <https://data.undp.org/vaccine-equity/explore-data> (accessed 27 June 2023).

There are multiple barriers to vaccine equity in Africa

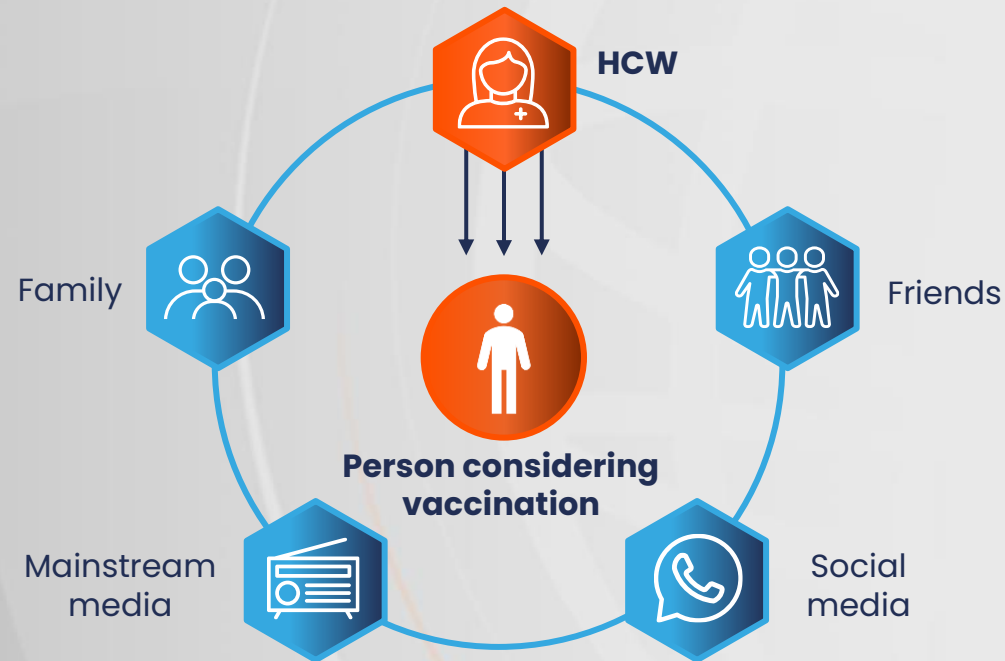


1. Kunyenje CA, et al. *Front Public Health*. 2023;11:1087662; 2. Turyasinguru N, et al. *Trans R Soc Trop Med Hyg*. 2023;117:470–2; 3. Msellati P, et al. *Lancet*. 2022;400:1304.

HCWs can influence vaccination decisions

“Health workers, especially those in communities, remain the most trusted advisor and influencer of vaccination decisions”¹

Examples of common messengers influencing vaccine uptake²



People are more willing to get vaccinated if they think their HCW recommends vaccination^{3*}

*An online survey of 2,006 adults ≥18 years old in the USA.

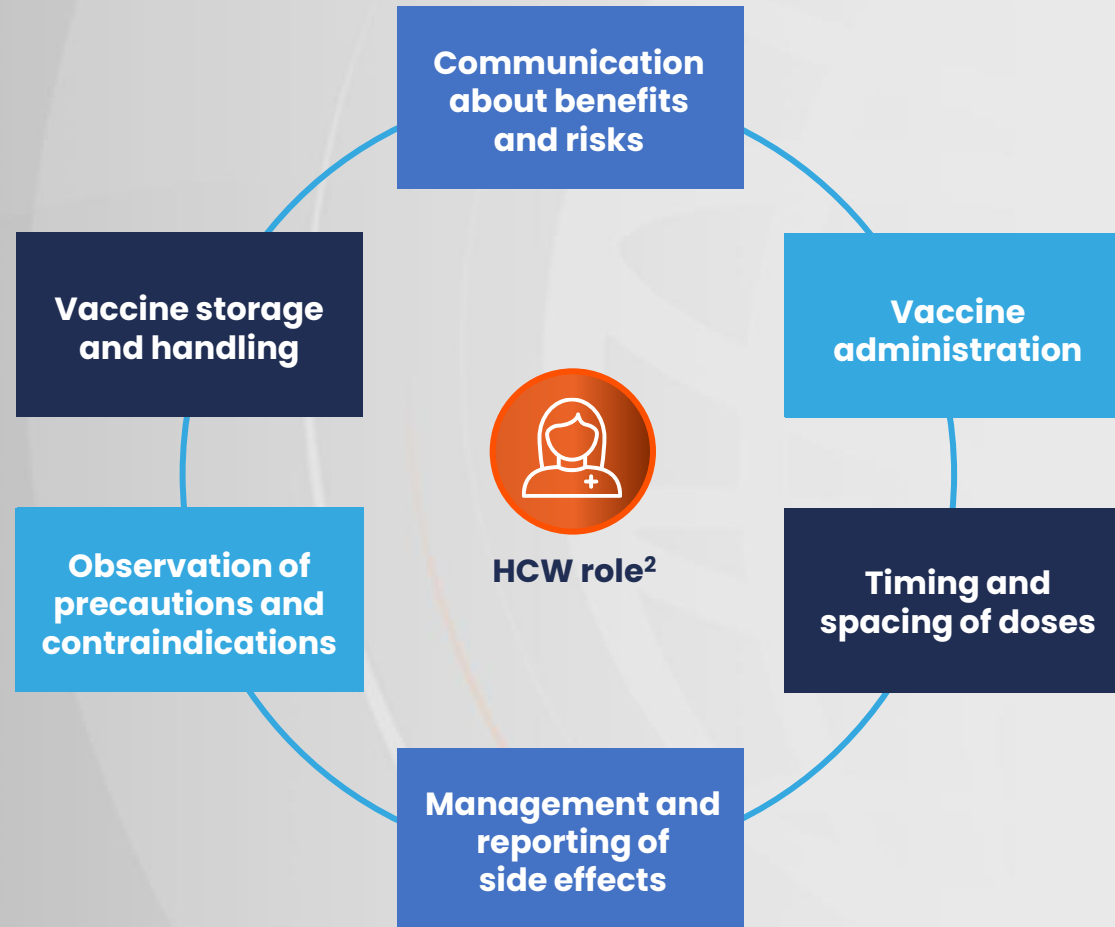
HCW, healthcare worker.

1. World Health Organization. Available at: www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019 (accessed 13 June 2023);

2. Osuagwu UL, et al. *BMC Public Health*. 2023;23:38; 3. Reiter PL, et al. *Vaccine*. 2020;38:6500–7.

HCWs play a pivotal role in vaccination

“Health workers, especially those in communities, remain the most trusted advisor and influencer of vaccination decisions”¹



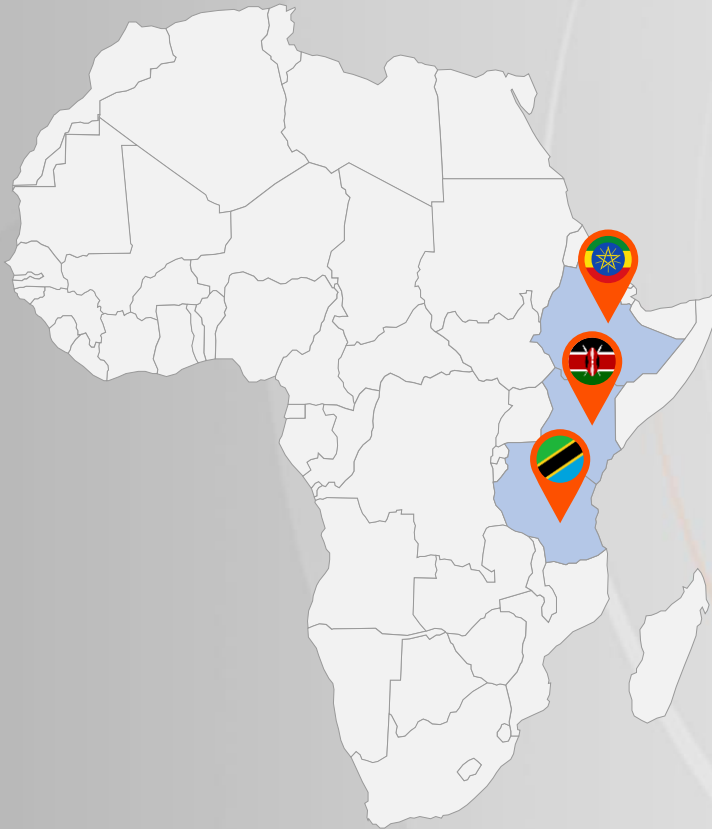
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1. World Health Organization. Available at: www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019 (accessed 13 June 2023);

2. Centers for Disease Control and Prevention. Available at: www.cdc.gov/vaccines/hcp/admin/storage/providers-role-vacc-admin-storage.html (accessed 13 June 2023).

HCWs in Africa faced many challenges during the COVID-19 response

Lack of resources and equipment



~50% of HCWs not satisfied with the medical equipment available for COVID-19 treatment¹



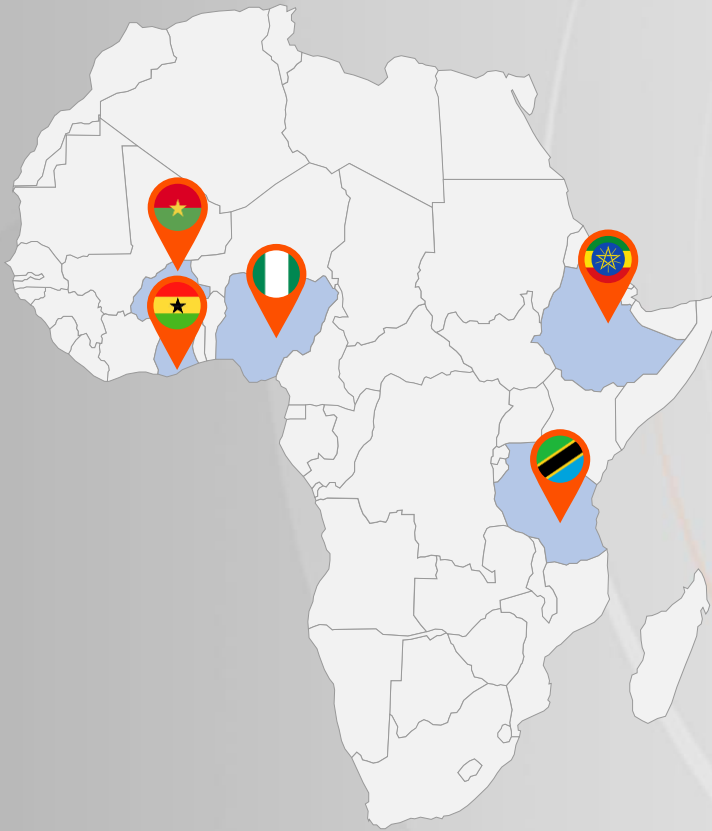
- Limited ICU and bed surge capacity²
- Lack of emergency breathing interventions²
- Shortage of ventilators in ICU²



- Limited availability of:³
- Alcohol-based hand rub
 - Disinfectants
 - Medical masks
 - Running water in rural areas

HCWs in Africa faced many challenges during the COVID-19 response

Lack of training opportunities



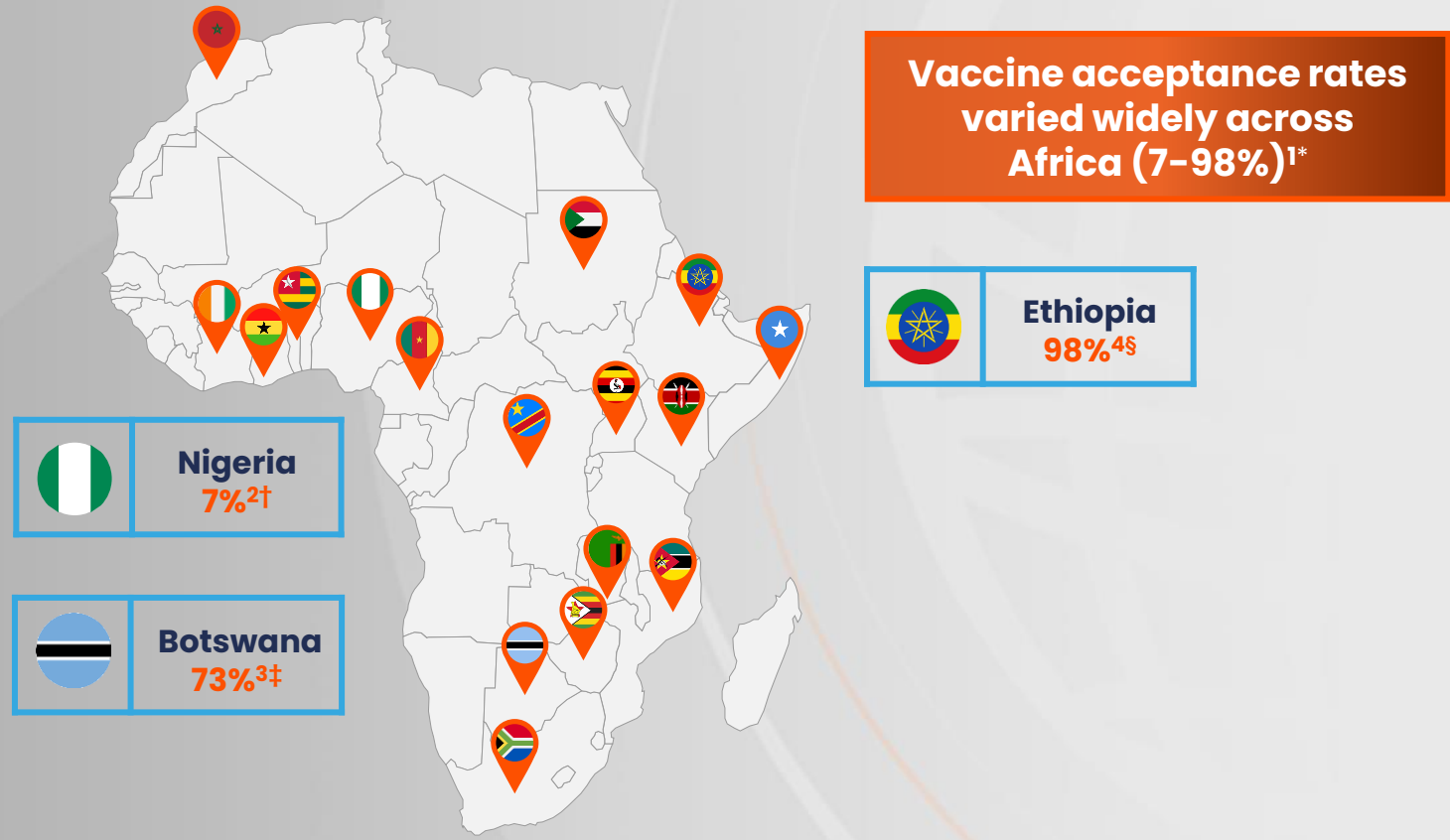
Per cent of HCWs* across five sub-Saharan African countries that received training on:

- Natural course of COVID-19 disease: **37%**
- Management and treatment: **34%**
- How vaccines work: **29%**
- Managing vaccination programmes: **23%**

*A computer-assisted telephone interviewing survey was conducted among 1,499 HCWs across five sub-Saharan African countries in 2021.
HCW, healthcare worker.
Assefa N, et al. *J Glob Health*. 2022;12:05046.

HCWs in Africa faced many challenges during the COVID-19 response

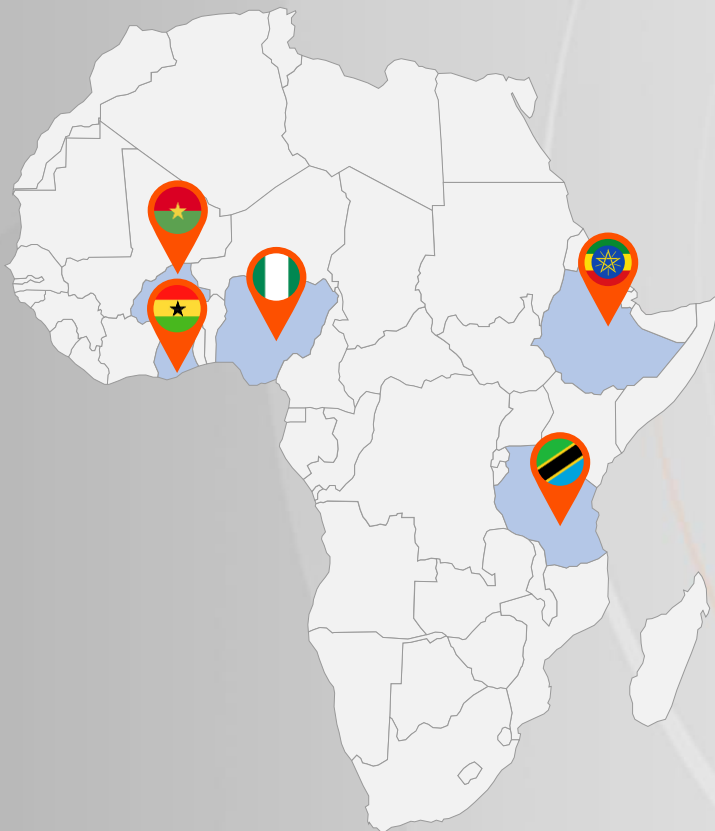
COVID-19 vaccine acceptance and hesitancy



*A scoping review of articles published from 1 January 2020 to 8 March 2022; †sample of 577 mothers; ‡interview of 5,300 adults; §survey of ≥15-year-olds.
HCW, healthcare worker.
1. Ackah BBB, et al. *Glob Health Res Policy*. 2022;7:21; 2. Chinawa AT, et al. *Hum Vaccin Immunother*. 2021;17:3982–8; 3. Tlale L, et al. *PLoS One*. 2022;17:e0263375; 4. Kanyanda S, et al. *BMJ Open*. 2021;11:e055159.

HCWs in Africa faced many challenges during the COVID-19 response

Impact on mental health



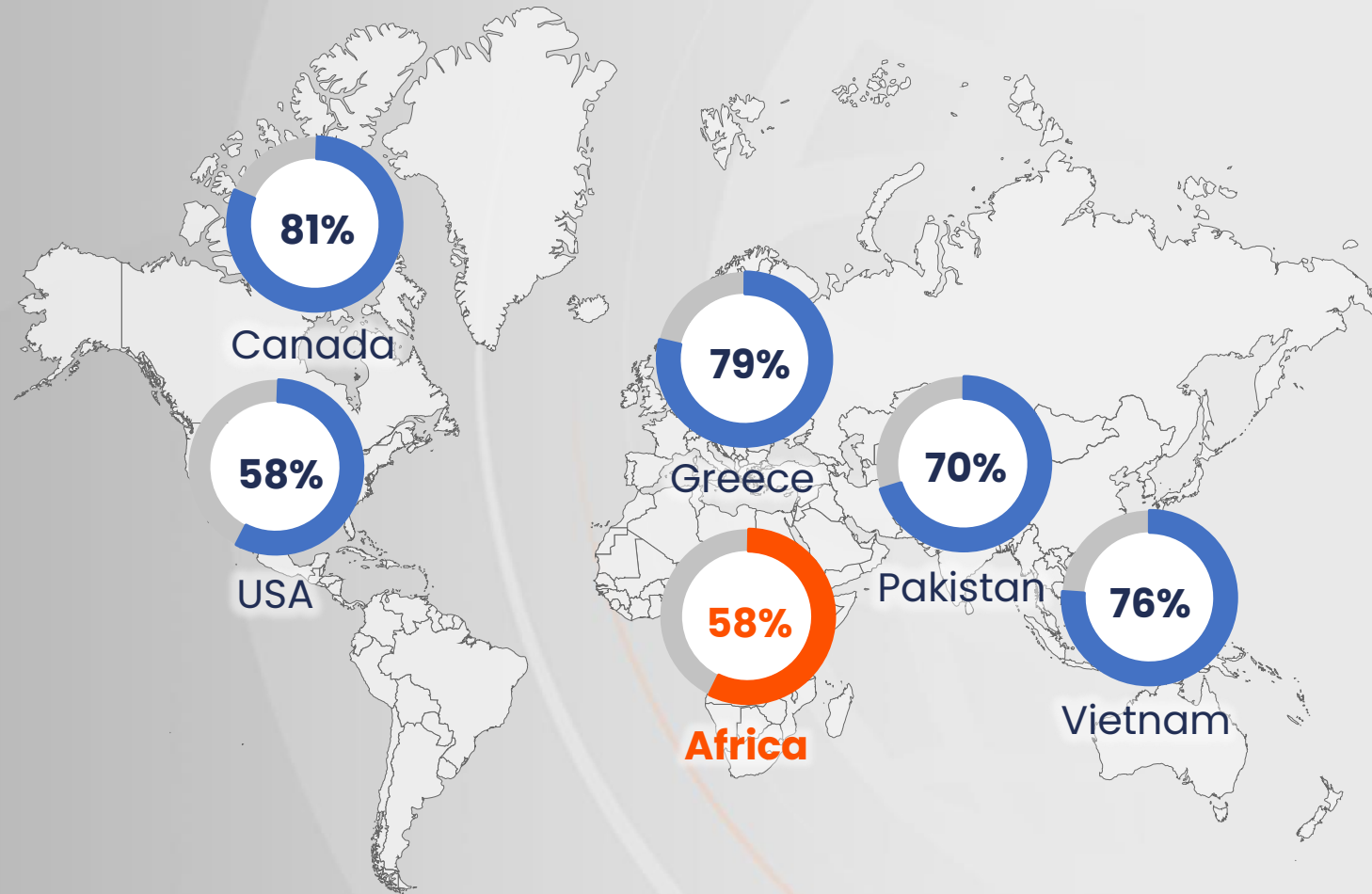
Per cent of HCWs* across five sub-Saharan African countries that reported:

- Mild psychological distress: **9%**
- Anxiety: **8%**
- Social avoidance or rejection: **14%**

*A computer-assisted telephone interviewing survey was conducted among 1,499 HCWs across five sub-Saharan African countries in 2021.
HCW, healthcare worker.
Assefa N, et al. *J Glob Health*. 2022;12:05046.

Vaccine acceptance amongst HCWs across the globe varies

Overall acceptance of the COVID-19 vaccine among HCWs in Africa is relatively low



There are multiple reasons for hesitancy among HCWs in Africa



Witnessing patients with side effects^{1,2}



Concerns over safety and effectiveness^{1,3}



Speed of vaccine development^{1,2}



Lack of belief in the vaccine's benefits³



Confidence in one's own immune system^{1,2}



Distrust in sources of information^{1,2}



Lack of trust in government³



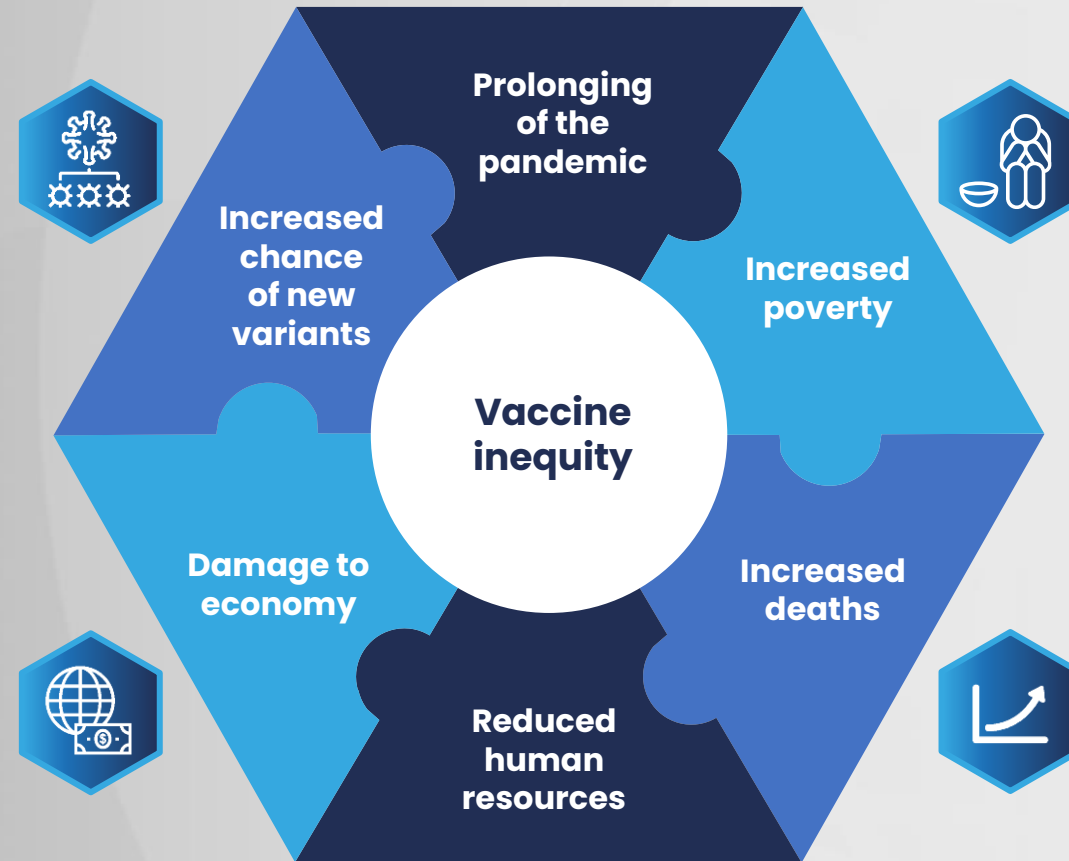
Lack of information^{1,2}

HCW, healthcare worker.

1. HEARD. Available at: www.heard.org.za/wp-content/uploads/2023/04/COVID-19-HCWs-Brief.pdf (accessed 15 June 2023);

2. George G, et al. *Vaccines (Basel)*. 2023;11:414; 3. Mohammed R, et al. *PLoS One*. 2021;16:e0261125.

The COVID-19 pandemic was impacted by global vaccine inequity



Strategies have been implemented in Africa to address inequity

COVAX

CEPI Gavi unicef World Health Organization

COVAX:* The vaccine pillar of the Access to COVID-19 Tools (ACT) Accelerator
The ACT Accelerator is a ground-breaking global collaboration to accelerate the development, production and equitable access to COVID-19 tests, treatments and vaccines¹



Over **1,113** million doses have been pledged via COVAX²



COVAX has shipped over **791 million** doses of vaccine to Africa³



COVAX has delivered vaccines to **50** African countries^{4†}



63% of all doses given in Africa arrived via COVAX³



69% of COVAX doses have been administered³

*COVAX is co-led by the Coalition for Epidemic Preparedness Innovations (CEPI), Gavi and the WHO, alongside key delivery partner the United Nations Children's Fund (UNICEF); †as of February 2022. COVAX, COVID-19 Vaccines Global Access; WHO, World Health Organization.

1. World Health Organization. Available at: <https://bit.ly/3pMuFab> (accessed 15 June 2023); 2. Africa Centres for Disease Control and Prevention. Available at: <https://bit.ly/43r2xH7> (accessed 15 June 2023); 3. World Health Organization. Available at: <https://bit.ly/3JkkVu7> (accessed 15 June 2023); 4. World Health Organization African Region. Available at: <https://bit.ly/3q1qgjs> (accessed 15 June 2023).

Strategies have been implemented in Africa to address inequity

EU humanitarian initiative to support COVID-19 vaccination rollout in Africa, including fragile and conflict settings¹



€100 million

EU humanitarian support to COVID-19 vaccination roll-out in Africa¹



€425 million

Team Europe contribution to the COVAX facility¹



145 million doses

Team Europe vaccines shared with Africa¹

An 18-month joint programme² between UNICEF and the EU's Humanitarian Aid rolled out COVID-19 vaccination in 12 countries in Africa, targeting the most vulnerable

Enhance co-ordination and partnership with governments in planning and monitoring of COVID-19 vaccine roll-out

Support delivery of vaccines to priority groups

Improve logistics, cold chain systems and vaccine management

Strengthen community engagement

Provide timely and quality technical support and oversight

COVAX, COVID-19 Vaccines Global Access; UNICEF, United Nations Children's Fund.

1. European Civil Protection and Humanitarian Aid Operations. Available at: <https://bit.ly/3XK9mCm> (accessed 11 July 2023); 2. UNICEF. Available at: <https://bit.ly/3NO3hAf> (accessed 11 July 2023); 3. World Health Organization. Available at: <https://bit.ly/3NJmbIJ> (accessed 11 July 2023).

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Early 2022: Vaccination rate was
<5%³

March 2023: Vaccination rate in targeted
vulnerable countries is now:
~30%³

Strategies have been implemented in Africa to address inequity

mRNA vaccine technology transfer hub^{1,2}

A global initiative to scale up global mRNA vaccine manufacturing through the establishment and expansion of capacity in LMICs



LMIC, low-or-middle income country; mRNA, messenger RNA; WHO, World Health Organization.

1. Medicines Patent Pool. Available at: <https://medicinespatentpool.org/what-we-do/mrna-technology-transfer-programme/resources> (accessed 15 June 2023);

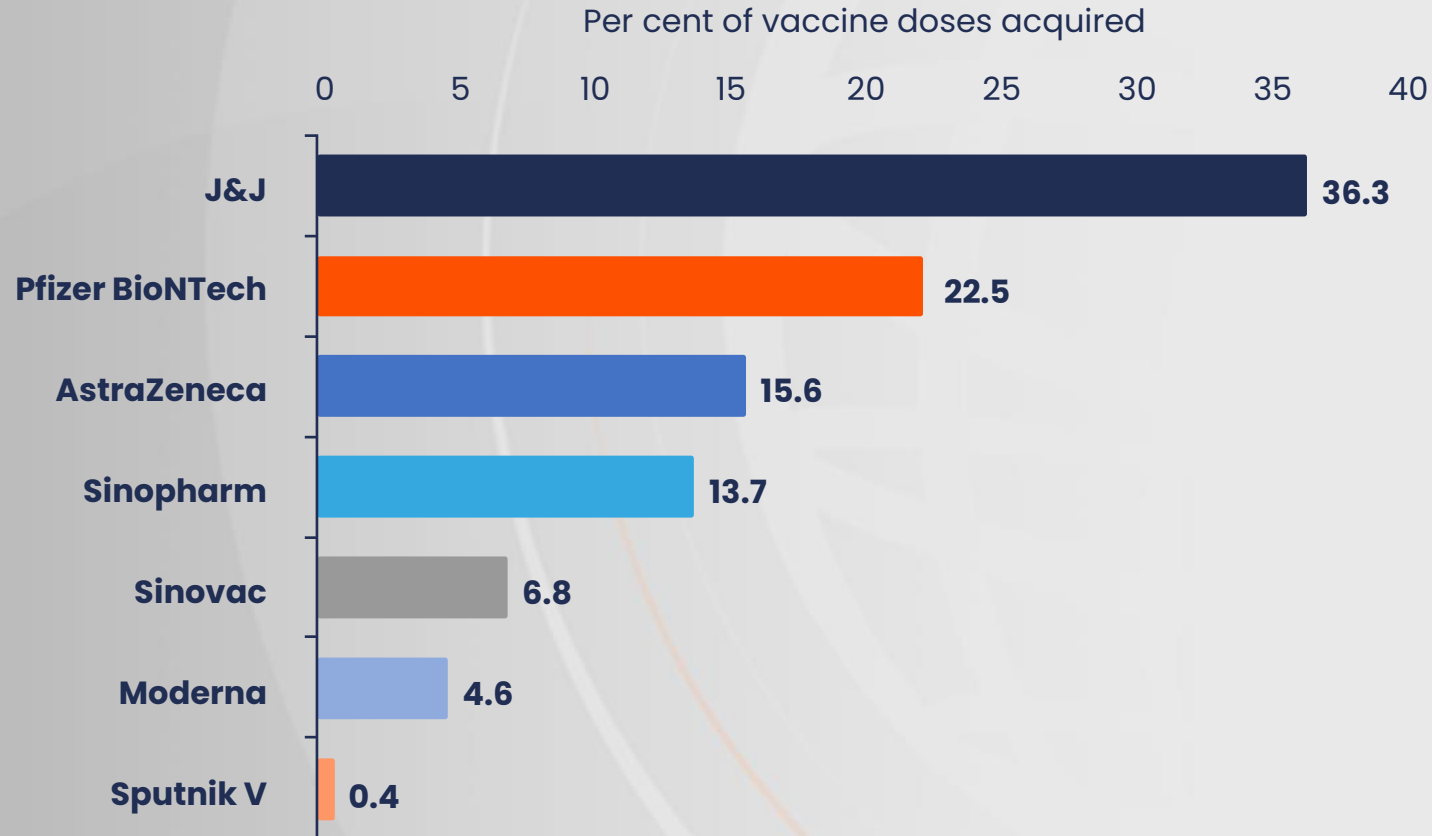
2. World Health Organization. Available at: www.who.int/initiatives/the-mrna-vaccine-technology-transfer-hub (accessed 15 June 2023).

How can communication with the public in Africa about COVID-19 vaccines be improved?

In order to accurately portray data related to the COVID-19 vaccines, USF Health has chosen to list the names of the pharmaceutical companies associated with the data. The use of the company names is not to be construed as an endorsement of any particular pharmaceutical company or their products.

A range of COVID-19 vaccines have been utilized in Africa

Vaccine doses administered: **1,084.5 million***



*As of 19 June 2023.

J&J, Johnson and Johnson.

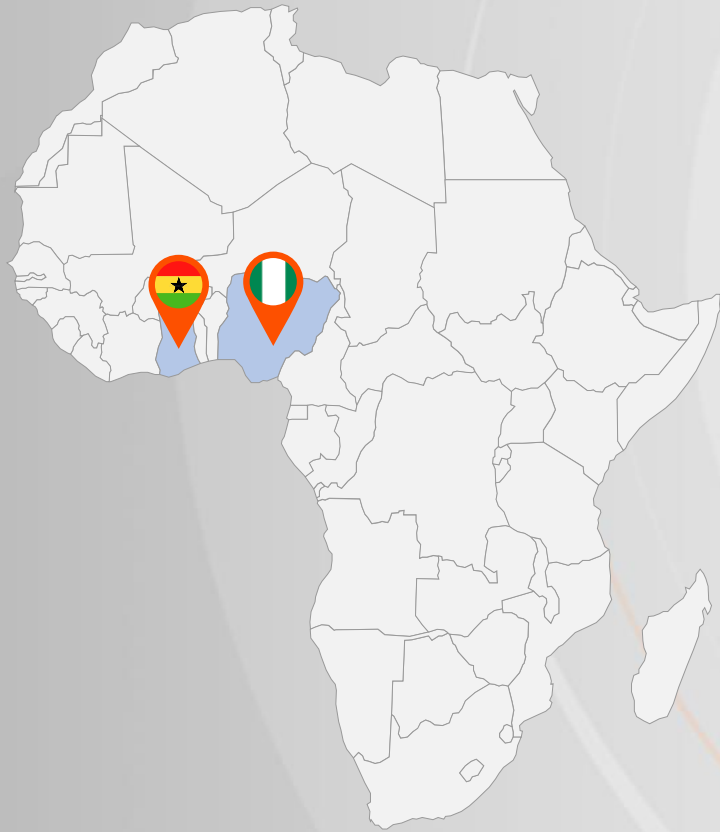
Africa Centres for Disease Control and Prevention. Available at: <https://africacdc.org/covid-19-vaccination/> (accessed 15 June 2023).

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Real-world data demonstrate vaccine efficacy in African populations

Real-world data from across Africa: **Nigeria and Ghana***†



AZD1222



N=667



Demonstrated immunogenicity

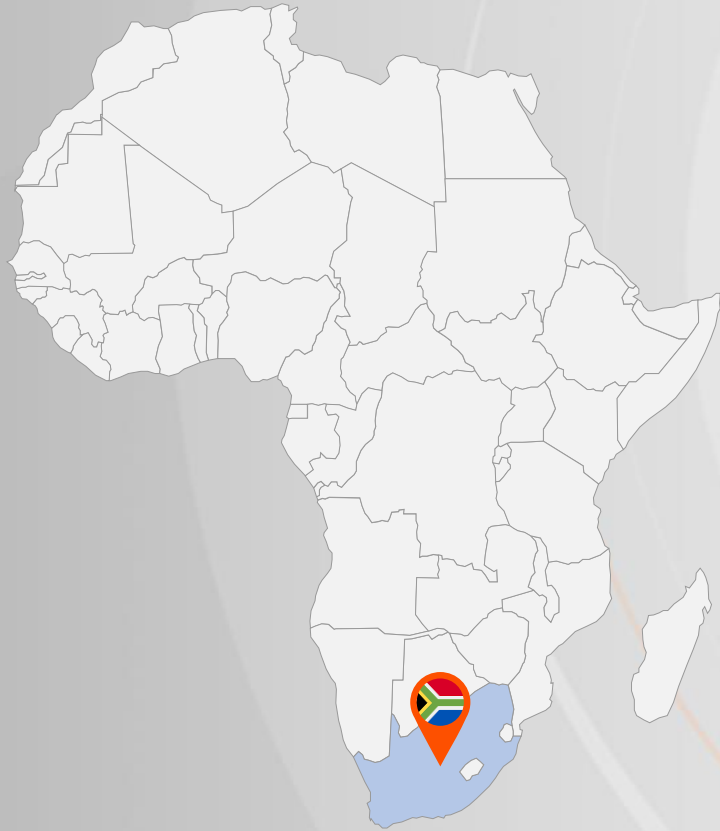
*Prospective longitudinal cohort study; †data from May to July 2021.

Abdullahi A, et al. *Nat Commun.* 2022;13:6131.

In order to accurately portray data related to the COVID-19 vaccines, USF Health has chosen to list the names of the pharmaceutical companies associated with the data. The use of the company names is not to be construed as an endorsement of any particular pharmaceutical company or their products.

Real-world data demonstrate vaccine efficacy in African populations

Real-world data from across Africa: **South Africa***



Study 1:[†]



BNT162b2



N=211,610 PCR tests



Reduced hospitalization

Study 2:[‡]



Ad26.COVS/BNT162b2



N=162,637 PCR tests



Effective against severe disease

*Retrospective analysis of PCR assays; [†]data from September to December 2021; [‡]data from November 2021 to January 2022.

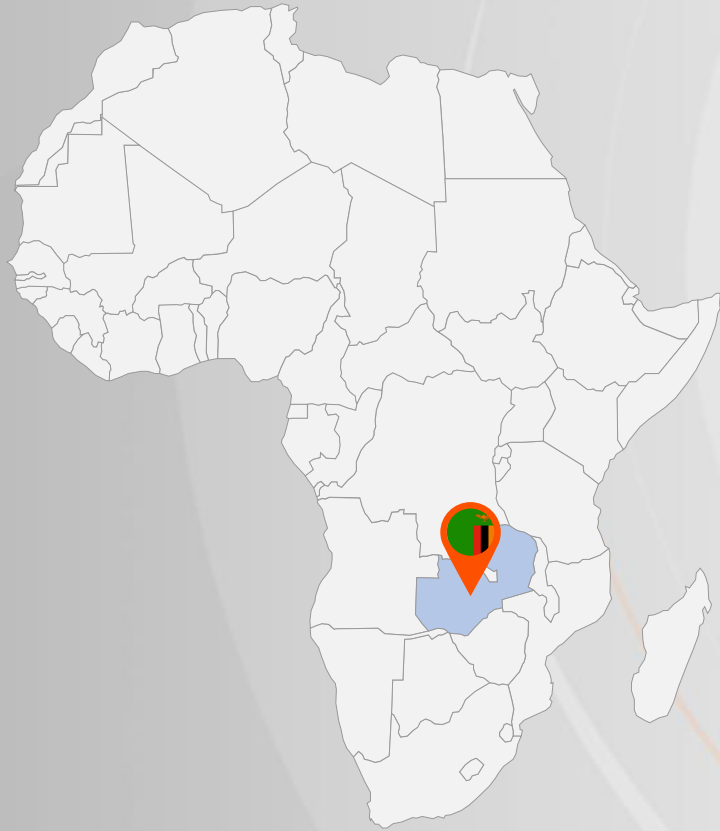
PCR, polymerase chain reaction. 1. Collie S, et al. *N Engl J Med.* 2022;386:494–6; 2. Gray G, et al. *N Engl J Med.* 2022;386:2243–5.

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Real-world data demonstrate vaccine efficacy in African populations

Real-world data from across Africa: **Zambia***†



Any vaccination



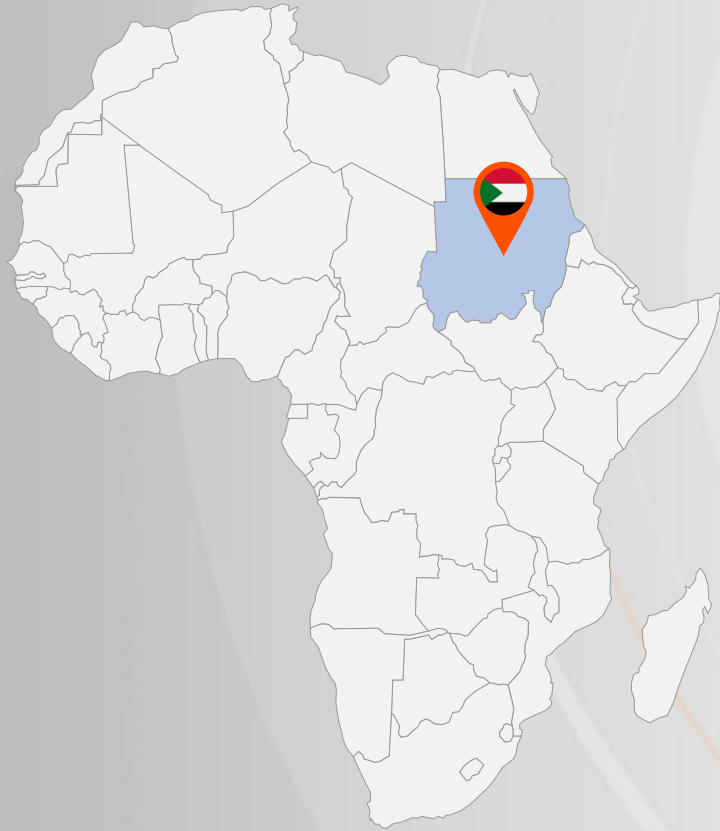
N=1,653



Reduced in-hospital mortality

Real-world data demonstrate vaccine safety in African populations

Real-world data from across Africa: **Sudan***



Common side effects (>35%) experienced after first dose of COVID-19 vaccines (N=349)



Pain at injection site
(50%)



Fatigue
(50%)



Headache
(39%)

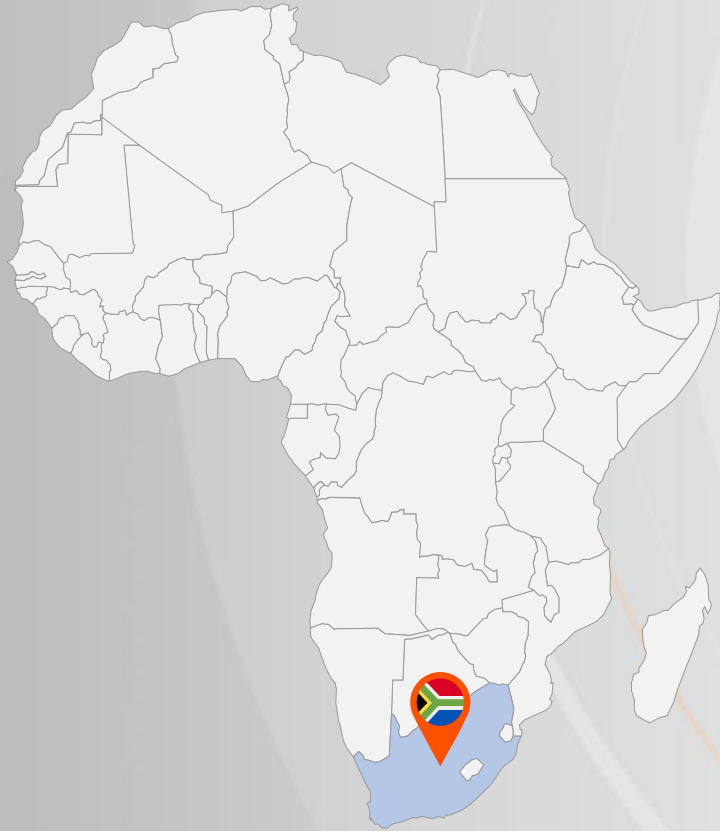


Fever
(37%)

*A cross-sectional survey disseminated between March and June 2022.
Mohamed MS, et al. *Vaccines (Basel)*. 2023;11:315.

The risk of vaccine-induced vascular thrombotic events is low

Real-world data from across Africa: **South Africa***



Ad26.COV2.S



N=477,234



The risk of total venous or arterial thromboembolism events is not increased post-vaccination

*Open-label, single-arm, phase IIIB study.
Jacobson BF, et al. *BMJ Med.* 2023;2:e000302.

In order to accurately portray data related to the COVID-19 vaccines, USF Health has chosen to list the names of the pharmaceutical companies associated with the data. The use of the company names is not to be construed as an endorsement of any particular pharmaceutical company or their products.

Several interventions are proven to increase vaccine uptake in Africa



Several interventions are proven to increase vaccine uptake in Africa

CASE STUDY: Deploying community mobilizers to expand COVID-19 vaccination in Sierra Leone



1,846 community mobilizers in **13 districts** in Sierra Leone were recruited and deployed to support **11,882** communities



~77% completed primary series*

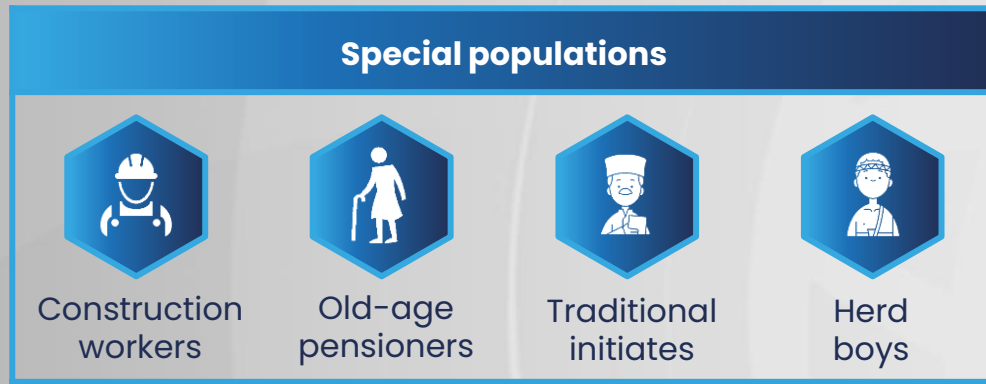


*As published April 2023.
HCW, healthcare worker.

United Nations Children's Fund. Available at: www.unicef.org/sierraleone/stories/community-mobilisation-expands-covid-19-vaccination-sierra-leone (accessed 11 July 2023).

Several interventions are proven to increase vaccine uptake in Africa

CASE STUDY: Targeting special populations for COVID-19 sensitization in Lesotho



Strategies employed by the Lesotho Red Cross Society



*In February 2023.
Africa Centres for Disease Control and Prevention in partnership with Mastercard Foundation. Available at: <https://mastercardfdn.org/wp-content/uploads/2023/05/Saving-Lives-and-Livelihoods-Newsletter-April-2023-.pdf> (accessed 15 June 2023).

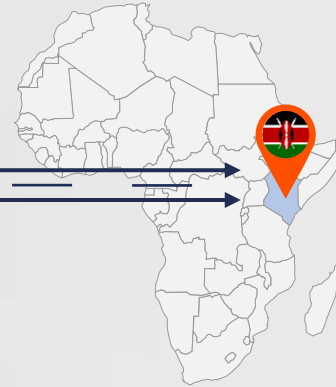
Several interventions are proven to increase vaccine uptake in Africa

CASE STUDY: Mobile clinics supporting communities with limited or no access to vaccines and other health services in Kenya



11 x
mobile clinics

Hard-to-reach areas



- Each mobile clinic aims to vaccinate **70–100 people per day**
- **1,000 people per day** once all **11 mobile clinics** are fully operational



Mobile clinics bring services that are really needed, closer to people

There is best practice guidance for HCW communication on COVID-19 vaccines

Engaging and empowering HCWs to promote COVID-19 vaccine uptake^{1,2}



Training for HCWs: Collaborative learning approach¹

- In-person training
- Virtual coaching support
- Digital and print materials

Understanding and addressing behavioural challenges among HCWs¹



Lapel pins: HCWs wear these to signify they have been vaccinated, thereby fostering a social norm



Peer referral cards: HCWs receive a card after vaccination and refer co-workers by giving them the card



Vaccination card game: Game to help HCWs increase their understanding of COVID-19 and the vaccines, and build resilience to misinformation

HCW, healthcare worker.

1. USAID. Available at: <https://bit.ly/3Pofk9X> (accessed 15 June 2023);

2. United Nations Children's Fund. Available at: www.unicef.org/southafrica/documents/talking-about-vaccines-guide-healthcare-workers (accessed 12 July 2023).

HCWs are key to helping build trust around COVID-19 vaccination

UNICEF have created a guide for HCWs to help with communication around COVID-19 vaccination



STEP 1: LISTEN

- Listen and answer questions without judging
- Use relaxed body language and establish eye contact
- **Do not** judge anyone's beliefs or values



STEP 2: ASK

- Ask questions to understand better and correct wrong information
- **Do not** scare people into vaccinating



STEP 3: EDUCATE

- Tell stories from your own life and about the benefits of vaccines to encourage them
- **Do not** overload people with difficult language



STEP 4: RETURN

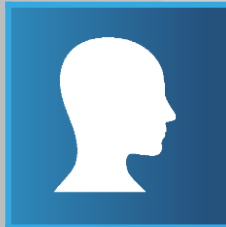
- If you don't have the answer, that is okay. Find out and prepare for the question again
- **Do not** argue. Excuse yourself

HCWs can prepare for conversations with people who are vaccine hesitant

Building trust and empathy around COVID-19: Reference material for HCWs

- **Breakthrough ACTION-Nigeria** and **UNICEF** have provided practical guides for HCWs to help navigate different patient scenarios
- For example, to help **address safety concerns** of the COVID-19 vaccine with their patients, the guide provides examples on what to say^{1,2}

If the person says...



"I worry about short-term side effects after getting the vaccine."

Then explain...

*"COVID-19 vaccines **stimulate your immune system** to protect you from the virus. Many people don't have side effects; however, some common vaccine side effects include fever, headache, fatigue, or a lump under the skin where the shot was given. These **are usually mild and temporary.**"*

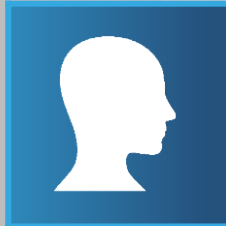


HCWs can prepare for conversations with people who are vaccine hesitant

Building trust and empathy around COVID-19: Reference material for HCWs

- **Breakthrough ACTION-Nigeria** and **UNICEF** have provided practical guides for HCWs to help navigate different patient scenarios
- For example, to help **address safety concerns** of the COVID-19 vaccine with their patients, the guide provides examples on what to say^{1,2}

If the person says...



"I don't know enough about COVID-19 vaccines to make an informed decision."

Then explain...

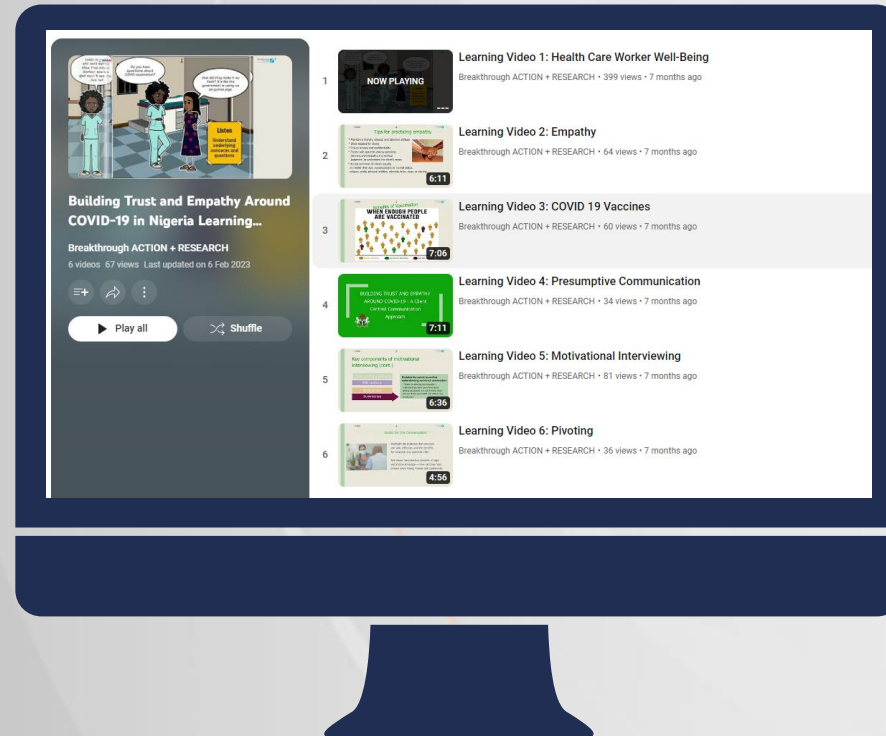
*"All COVID-19 vaccines work with the body's natural defences to safely develop immunity to the disease. That means if you get exposed to the virus after being vaccinated, **your body is ready to fight the virus** and helps prevent severe illness or death. Also, by being immunized, **you reduce the likelihood of transmitting COVID-19 to others.**"*



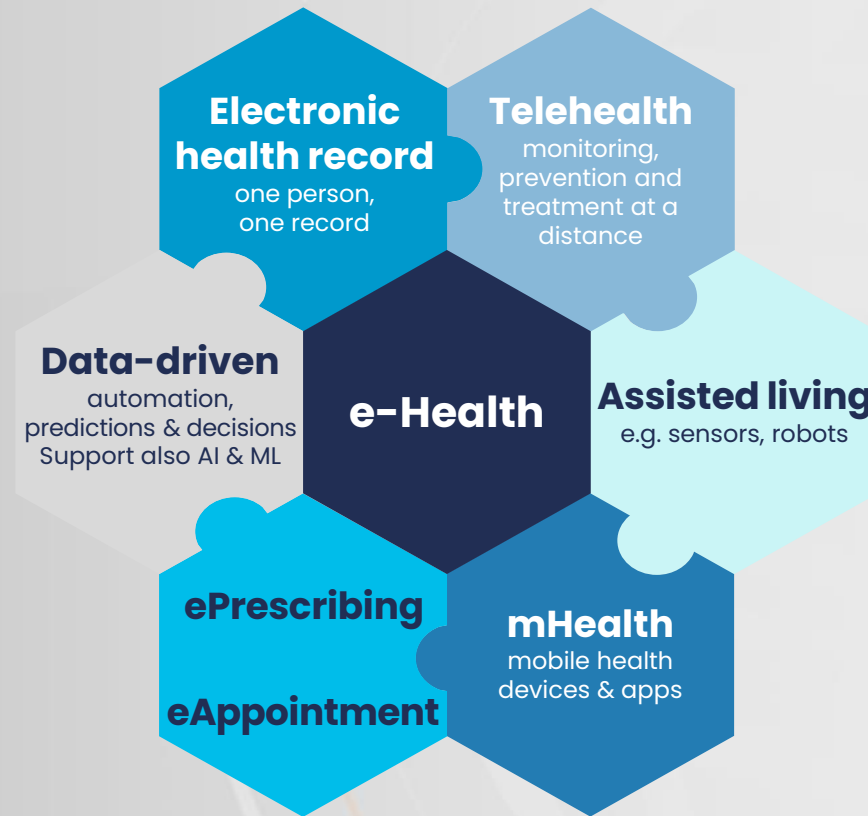
HCWs can utilize online materials to help build trust around vaccines

Building trust and empathy around COVID-19: Reference material for HCWs

Breakthrough ACTION-Nigeria have also developed **online learning videos**, that can serve as **job aids to be used while engaging with clients**



Digital health is used in Africa to increase vaccination rates



Digital health technologies are widely used in Sub-Saharan Africa to:

- Deliver healthcare
- Map health services and population-level needs
- Manage drugs and supplies
- Facilitate digital systems for integration and central reporting

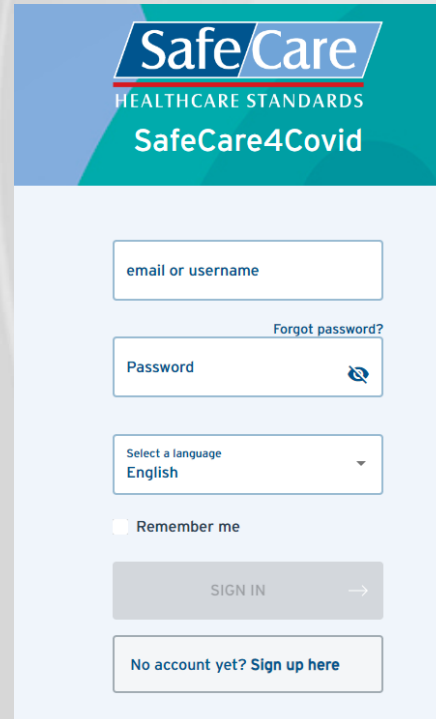
Digital technology is also being used to support HCWs

SafeCare4Covid – the free app for healthcare providers with practical support amid the COVID-19 crisis

SafeCare is a unique standards-based and ISQua-accredited incremental approach for measuring and improving the quality of healthcare services in resource-restricted settings, including Sub-Saharan Africa

Check availability of equipment

Check availability of supplies



SafeCare
HEALTHCARE STANDARDS
SafeCare4Covid

email or username

Forgot password?

Password

Select a language
English

Remember me

SIGN IN →

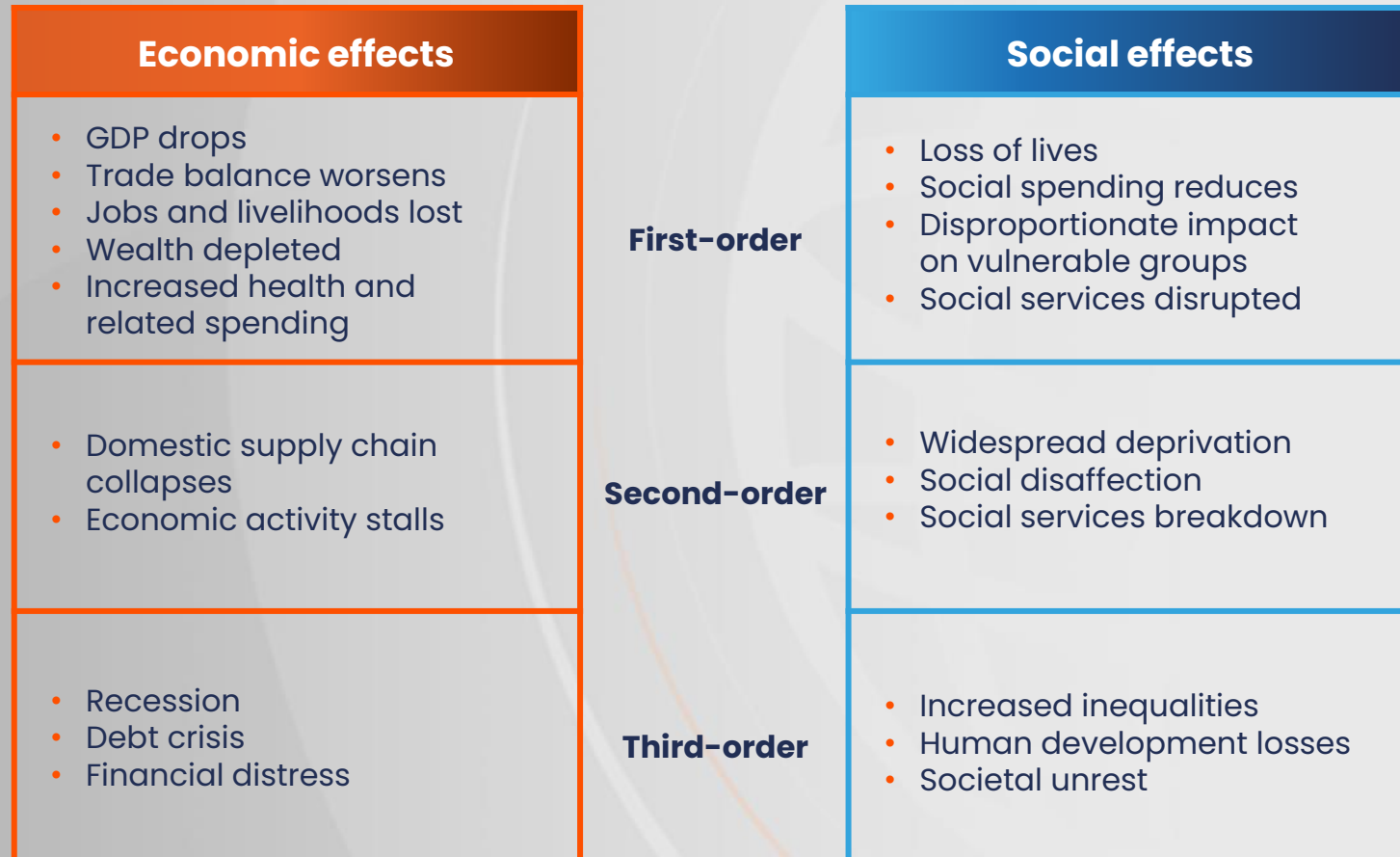
No account yet? [Sign up here](#)

Review processes and update knowledge on how to treat patients for COVID-19 while staying safe

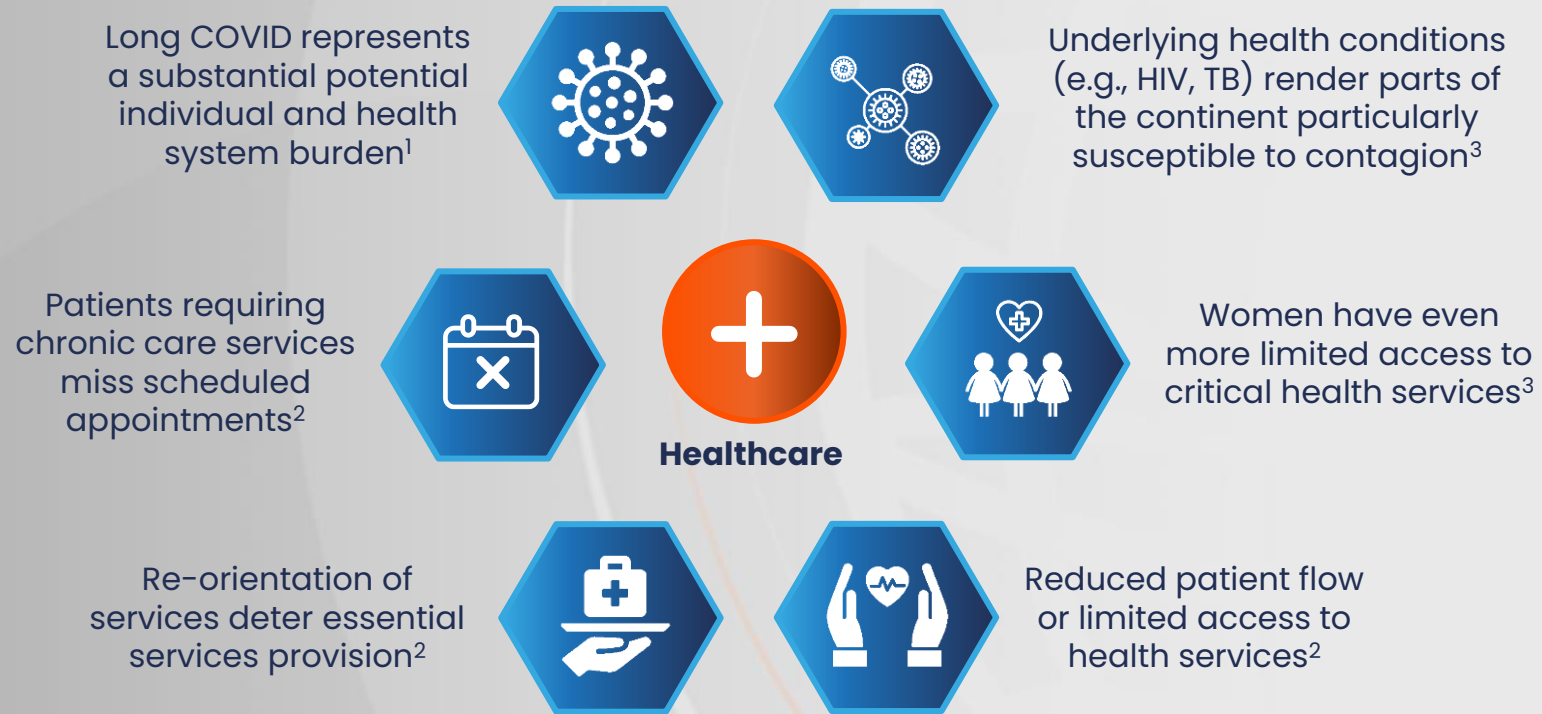
Check availability of staff

If vaccine inequity is not improved in Africa, what are the consequences?

Vaccine inequity has consequences for the socioeconomic landscape



Vaccine inequity has consequences for healthcare systems in Africa



HIV, human immunodeficiency virus; TB, tuberculosis.

1. Jassat W, et al. *Int J Infect Dis.* 2023;128:102–11; 2. Tessema GA, et al. *BMJ Glob Health.* 2021;6:e007179; 3. United Nations Sustainable Development Group. Available at: <https://unsdg.un.org/resources/policy-brief-impact-covid-19-africa> (accessed 15 June 2023).

Vaccine inequity has consequences for mental health

Factors affecting mental health during the COVID-19 pandemic^{1,2}



According to the WHO, global prevalence of anxiety and depression increased by **25%** in the first year of the COVID-19 pandemic²






Pooled prevalence rates across Africa of anxiety (**47%**) and depression (**48%**) were reported during the COVID-19 pandemic^{1*}

*Systematic review, N=62,380; from African Journals Online, CINAHL, PubMed, Scopus, and Web of Science databases from inception until 30 September 2021. CINAHL, Cumulated Index to Nursing and Allied Health Literature; WHO, World Health Organization.

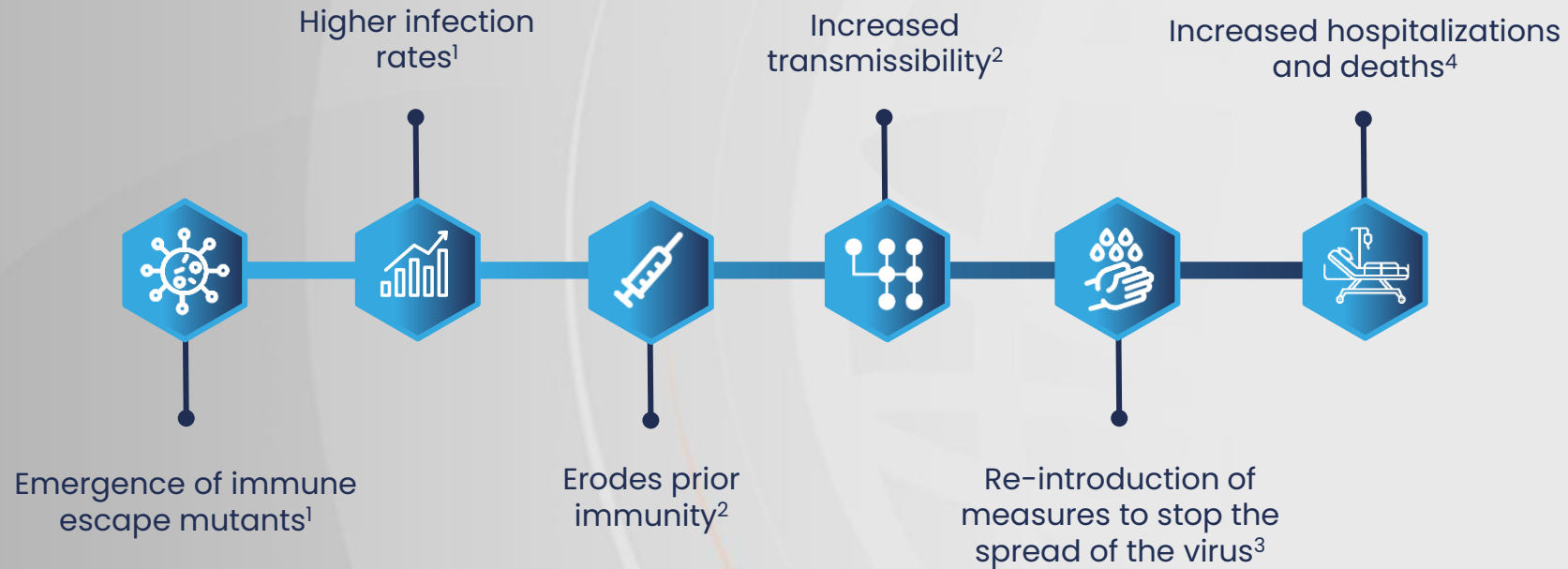
1. Bello MU, et al. *Front Public Health*. 2022;10:814981; 2. World Health Organization. Available at: www.who.int/news/item/02-03-2022-covid-19-pandemic-triggers-25-increase-in-prevalence-of-anxiety-and-depression-worldwide (accessed 22 June 2023).

Vaccine inequity has consequences for economies and employment

Examples

	Initial measures to combat COVID-19	Effect on economy and employment
 Cabo Verde	<ul style="list-style-type: none"> • Flights suspended 	<ul style="list-style-type: none"> • Job losses ~20,000 • Labour supply shock reduced economic productivity • 6.3% loss in GDP
 Kenya	<ul style="list-style-type: none"> • Flights suspended • No full lockdown • Introduction of a curfew 	<ul style="list-style-type: none"> • Job and income losses • Delays at borders, resulting in loss of business profits
 Nigeria	<ul style="list-style-type: none"> • Travel ban on 13 countries • Measures on public gatherings • School closures • Regional lockdowns and curfews 	<ul style="list-style-type: none"> • Rise in unemployment and disruption of economic activity in various sectors: <ul style="list-style-type: none"> • Food production, agriculture, mining, trade, transportation, leisure

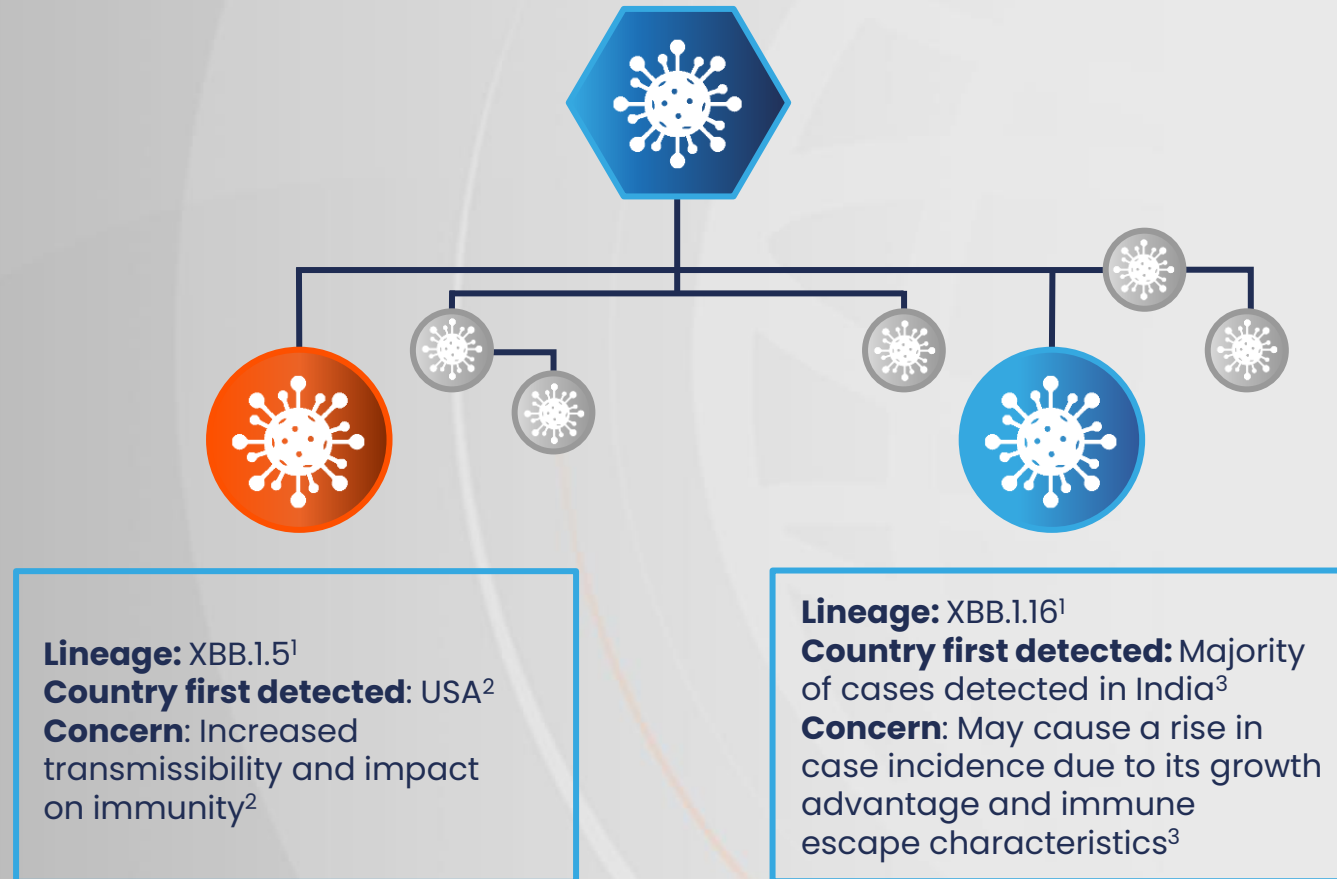
New variants of COVID-19 pose substantial risks



1. El-Shabasy RM, et al. *Int J Biol Macromol*. 2022;2014:161–8; 2. Yang W, Shaman J. *medRxiv*. 2022.11.14.22282323; 3. World Health Organization. Available at: www.who.int/news-room/feature-stories/detail/the-effects-of-virus-variants-on-covid-19-vaccines (accessed 22 June 2023); 4. Centers for Disease Control and Prevention. Available at: www.cdc.gov/coronavirus/2019-ncov/variants/index.html (accessed 3 July 2023).

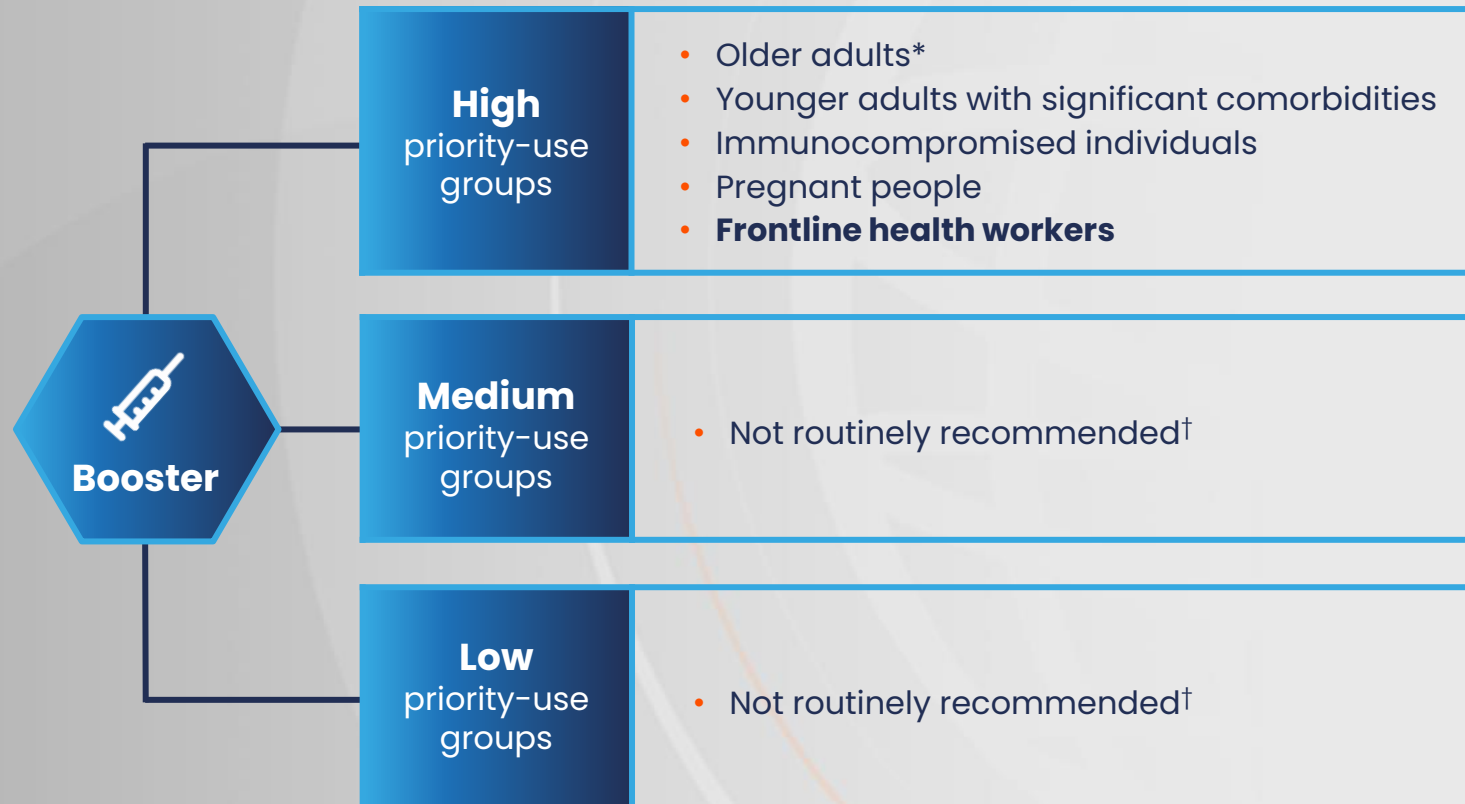
COVID-19 variants of interest continue to emerge

The WHO is monitoring two variants of interest as of 29 June 2023¹



WHO SAGE have set out recommendations for COVID-19 booster vaccines

Key recommendations for the administration of additional booster doses (beyond the first booster dose)



*Age cut-off to be decided by countries; [†]vaccines are not recommended for inclusion in routine programmes because of minimal public health impact and low-cost effectiveness in most settings.

SAGE, Strategic Advisory Groups of Experts; WHO, World Health Organization.

World Health Organization. Available at: www.who.int/publications/i/item/WHO-2019-nCoV-Vaccines-SAGE-Roadmap (accessed 11 July 2023).

COVID-19 boosters reduce the risk of severe illness and mortality

35 member states are offering booster doses¹



A booster dose enhances vaccine effectiveness against infection, symptomatic disease and severe outcomes²



This effect has been observed with homologous and heterologous boosting schedules²

1. Africa Centres for Disease Control and Prevention. Available at: <https://africacdc.org/covid-19-vaccination/> (accessed 12 June 2023); 2. Africa Centres for Disease Control and Prevention. Available at: <https://africacdc.org/download/guidance-on-administration-of-covid-19-vaccine-boosters-in-africa/> (accessed 29 June 2023).

Summary



Healthcare workers play an important role in vaccination, but face many challenges in the fight against COVID-19



Effective communication through public health messaging is crucial to increase vaccination rates



Despite COVID-19 presenting economical, mental and social challenges, interventions to support vaccine development and delivery are key in addressing inequity



COVID-19 is still with us, but boosters are an effective strategy to fight against infection and symptomatic disease