Addressing challenges to rolling out COVID-19 vaccines in African countries

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There is much ongoing debate and concern regarding access to COVID-19 vaccines and roll-out gaps in low-income and middle-income countries compared with high-income countries. African countries, many of which are low-income, also face issues with reciprocation after vaccine trials are done among their populations and the need to devolve vaccine manufacturing locally. Additional concerns include access to laboratory facilities for SARS-CoV-2 testing and scaling up testing and sequencing for detection of local SARS-CoV-2 variants. In this context, countries must scale up research on vaccine effectiveness, prioritise funding for and access to efficacious vaccines, strengthen high-quality and large-capacity storage infrastructure, maintain efficient cold chain, ensure effective pharmacovigilance, and address vaccine hesitancy while identifying priority populations for vaccination. Effective health communication and intensive community engagement are needed to convey accurate information and facilitate optimal vaccine uptake, issues which much be addressed quickly by national governments with support from partners such as WHO and the Africa Centres for Disease Control and Prevention.[1,2]

The second wave of the pandemic in Africa has spread more rapidly than the first wave and affected younger and healthier populations. The emergence of highly transmissible variants calls for mass immunisation with COVID-19 vaccines. Africa is unique in having large young and mobile populations, a large informal job sector, and hotspots of political instability and insecurity, all of which will pose substantial challenges to vaccine roll-out strategies.

The African Vaccine Acquisition Task Team of the African Union and the WHO-led COVAX consortium with its global partners are striving to secure 720 million doses of COVID-19 vaccines to achieve 60% coverage in Africa by June, 2022. This initiative presents opportunities for further international cooperation towards enhancing equitable roll-out of COVID-19 vaccines in disadvantaged countries.[3] As of March 4, 2021, 11 countries across Africa have initiated vaccination programmes. Among them, Ghana, Nigeria, Kenya, Angola, Côte d'Ivoire, and the Democratic Republic of the Congo have received doses of the COVID-19 vaccine by Oxford University and AstraZeneca through the COVAX initiative. As African countries tackle these challenges on a global platform, they also need to look inwards and develop a consolidated approach for local manufacturing, which would lower the costs of vaccine importation and cold chain. Such an approach can address other research and development needs on the continent, such as local manufacturing of HIV drugs. Even so, there are several challenges related to research and development costs, vaccine pricing, and sufficient supply and distribution within countries. In a pandemic, governments, pharmaceutical companies, and other stakeholders must re-examine the patent system for medicines. Granting exclusivity periods is no longer a fait accompli.

As more vaccine candidates are proven efficacious against SARS-CoV-2 and authorised for use, concerns from public health stakeholders about vaccine hesitancy are justifiably high. Although the exact vaccination rate needed to achieve COVID-19 herd immunity is still unknown, it could be as high as 80–95%, like it is for other vaccine-preventable diseases. Modest COVID-19 vaccine acceptance (eg, 54%) has been reported in high-income settings, such as the USA,[4] with a relatively high availability of vaccines. Recent studies from African countries report similar subpar vaccine acceptance rates. Dinga and colleagues reported a meagre 15% COVID-19 vaccine acceptance rate among a relatively young adult cohort in Cameroon.[5] As reported by the participants, major issues driving the low acceptance rate included confusing information and anti-vaccine campaigns warning Africans to refuse COVID-19 vaccines on social media; negative perceptions of the pharmaceutical industry; concerns about the reliability or source of vaccines; and cost to individuals.[5] A 56% acceptance rate was reported from the Democratic Republic of the Congo by Ditekemena and colleagues,[6] with concerningly low rates among health-care workers. Additionally, there were substantial differences in acceptance rates within the country: as high as 84% in one province and less than 40% in others.[6]

A survey done by the Rwanda Biomedical Centre in November, 2020, documented that 86% of participants were willing to take a government-approved COVID-19 vaccine (unpublished).

Populations among whom vaccine hesitancy should be urgently addressed include those with high exposure to the virus (eg, health-care workers and patients living in institutions) and those at high risk of severe disease and death (eg, people with non-communicable diseases and chronic infections). Vaccine considerations for other vulnerable groups, such as children and pregnant women in Africa, are particularly difficult to make given the low availability of COVID-19 data relevant to these populations.[7,8] Children account for a relatively large proportion of the population in African countries; vaccinating them will impact schools, communities, and teachers. Extra considerations for vaccinating pregnant women include the clinical outcomes for their exposed infants.

African governments, public health institutions, and other local stakeholders should take evidence-based COVID-19 risk and vaccine communication very seriously. Considerable efforts must be made to target the highest-risk, lowest-acceptance populations. A strategic communication response plan should seek to debunk disinformation and misinformation and discourage and counteract irresponsible, non-factual statements made on social media by individuals and by political and community leaders.[9] Furthermore, vaccine communication should focus on community structures and optimal community engagement[9] as well as on leveraging successful strategies for the distribution and promotion of other vaccines (eg, polio and measles vaccines) by engaging community health workers.

Given the emergence and rapid circulation of SARS-CoV-2 variants in Africa, as elsewhere, vaccine development must adapt and evolve over time. MERS-CoV, another WHO priority blueprint pathogen with pandemic potential, is more deadly than SARS-CoV-2 and has recently been identified in camel abattoir workers in west Africa.[10] As SARS-CoV-2 rapidly adapts to humans and MERS-CoV and other endemic coronaviruses continue to mutate and evolve, a stepwise and logical approach, shifting from a COVID-19-specific to a universal pan-coronavirus vaccine, should be a global priority. Many African countries that are unable to access vaccines or attain optimal uptake will continue to experience waves of infection after the disease has been controlled in high-income countries. This state of affairs will result in additional morbidity and mortality as well as continuing economic and social crises.

The COVID-19 pandemic has once again exposed global inequalities in health care. The medical and global health community has the responsibility to address these inequalities through equitable vaccine access and supply. African governments need to focus on local capacity for vaccine storage, pharmacovigilance, vaccine distribution, and efforts to reduce vaccine hesitancy. Further research is needed on evidence-based interventions against vaccine hesitancy and its driving factors. If these issues are not proactively and comprehensively addressed, the gallant efforts to distribute vaccines, achieve herd immunity, and end the COVID-19 pandemic might, unfortunately, be insufficient on the African continent.

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