



# COVID-19 vaccines in Africa: Challenges and implications for the future

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## Abstract

The covid-19 pandemic has not only exposed the weakness of state institutions, but it has also claimed considerable lives and plunged economies into recessions as public and private companies are going bankrupt. The swift spread of the virus coupled with the morbidity and mortality rate arising from the infection has caused Governments to scour for vaccines to protect their citizens from the pandemic. However, the vaccines available are limited with African countries competing with wealthier Nations. This has generated questions about the swift acquisition of the vaccines for vulnerable Africans and logistical constraints arising from Africa's socio-economic woes like funding and their capacity to store the vaccines. Thus, using eclectic works of literature, the study analyzed the challenges faced concerning the vaccines such as research to determine the efficacy and type of vaccine for the population, and policy guiding the procurement and distribution of vaccines in Africa. Also, the imminent effect of the vaccines on African nations.

**Keywords:** Africa; COVID-19; Pandemic; Policy; Vaccines

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## 1. Introduction

In March 2020, there was an unexpected halt to mobility as the coronavirus swiftly spread globally following its discovery in Wuhan, China, in November 2019. The halt entails a global restriction on movement as countries implemented lockdown, the shutdown of businesses and borders, and restrictions on certain sectors to curtail the virus (source). The virus, which was regarded as a pandemic on the 11th of March, 2020 by WHO jerked up the global mortality and morbidity rates. As well as plunged economies into recessions as public and private institutions went into bankruptcy (source). Although the spread of the virus can be mitigated through safety measures such as lockdown of public places including educational establishments, and retail outlets, closure of borders and offices, observing physical distancing, hand washing, and the use of masks, it does not stop the infectivity of the virus. This has led governments globally to scour for vaccines to protect their citizens. Currently, some vaccines had undergone trials to serve as preventive and reduce the potency of the virus on human bodies. However, the vaccines are limited with countries competing for the available stock.

While Africa is no stranger to epidemics and imposing precautionary measures to curtail the spread of infection. For instance, the EBOLA outbreak of 2015. The coronavirus is different from any epidemic witnessed in the continent in recent times. Therefore, putting African leaders together with other global leaders in the search for vaccines. However, scholars (Bikinesi and Arora, 2020; Edward-Ekpu, 2020; Wouters et al, 2021) have raised concerns about the ready-state of Africa for vaccines, from a continent with high prevalence rates for both infectious and non-infectious diseases, to a continent with limited resources in terms of finance, personnel, and equipment. Based on this, the study using a qualitative research method employing eclectic literature will be analyzing the Covid-19 vaccines in Africa. It will be answering research questions such as: What are/will be the challenges faced by Africa? What are the socio-economic impacts of vaccines on the continent?

## 2. Vaccines overview

Vaccines are biological or biochemical agents used to stimulate the production of antibodies providing immunity against one or several diseases. Vaccines are usually made from either the causative agents of a disease or its products or a synthetic derivative treated to act as an antigen without inducing the disease process itself. In terms of COVID-19, safe and effective prophylactic vaccines are an urgent need to curtail the virus that has had devastating medical, social and economic consequences.

Traditionally, the intricacies surrounding the formulation of vaccines have questioned the safety and credibility of the COVID-19 vaccines (see Figure 1). Studies (Broom, 2020; Calina et al, 2020; Shipman, 2020) have shown that the development of a vaccine normally takes between 12-15 years in comparison to the swift production of the COVID-19 vaccines (see Figure 1). While vaccines are not a cure to diseases but are largely preventive in their functions through defenses it gives the body, the COVID-19 vaccine has been under debate to see if it's effective whilst having minimal adverse effects.

Unlike the traditional vaccines, for instance, rotavirus, measles, and rubella, amongst others that went through the requested stages of chemical trials thoroughly, COVID-19 did not. This implies that while we focus on the benefits and major prevention and reduction of significant morbidity and mortality from the disease, time will bring to focus any immediate, intermediate or long-term adverse effects from these vaccines.

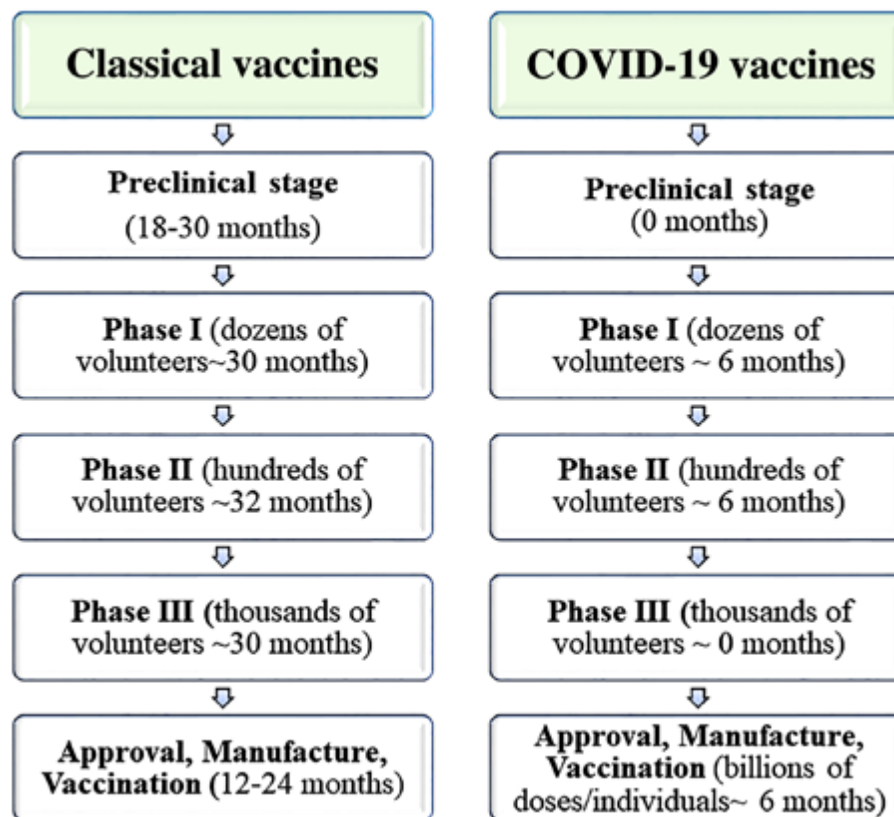


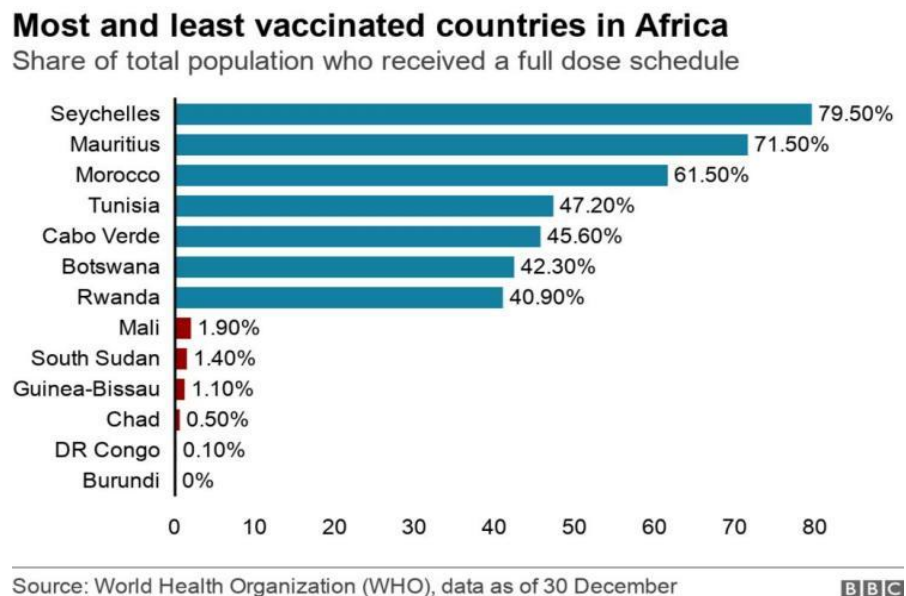
Figure 1. Vaccines timeframe (Source: Calina et al., 2020)

### 3. COVID-19 vaccines in Africa

There are ongoing debates regarding access to COVID-19 vaccines, particularly among the high and low-income/middle countries. While the high-income countries are at a high advantage due to funding and availability of high impact technologies, Africa appears to be at a “crawling stage” as many countries in the continent are low-income. According to WHO (2021), as of April 8, 2021, less than 2% of the 690 million vaccines that have been distributed globally are in Africa and small quantities across countries in the continent. Out of the 54 countries in the continent as of December 30, 2021, 53 countries have received vaccines and begun vaccinations except for Eritrea (Mwai, 2021). However, the vaccine rolls out among the countries that access vaccines have not been uniform. Some countries have been delayed due to logistic difficulties such as lack of funding for training and deploying medical staffs, logistics of delivery within the country, poor health infrastructure and vaccine storage. A few have ended up disposing of vaccines out of the little they have due to expiration. For instance, Malawi had to destroy 16000 doses out of 10200 vaccines and Namibia destroyed 50000 vaccines (Mwai, 2021). In Africa, 10 out of 100 have received one dose of the vaccine and only 4 out of 100 have been fully vaccinated (Kyobutungi, 2021).

This statistic reveals a lagging behind the continent based on the goal the World Health Organization put forward that 40% of the citizens in every country should be fully vaccinated by the end of 2021 (WHO, 2021). In Africa, only seven countries have reached the WHO goal with Seychelles and Mauritius topping the list with

the full vaccination of more than 70% of their population, while countries like Mali, South Sudan, and Burundi have less than 5% of their population fully vaccinated (See Figure 2). This figure lays a prediction of the failure of Africa to achieve the new goal of WHO which is a 70% vaccination coverage target by June 2022.



**Figure 2.** Africa's most and least vaccinated countries

### 3.1. Challenges of COVID-19 vaccines in Africa

The COVID-19 vaccine has been met with various challenges considering the sudden invasion of the virus and its swift spread among humans. However, various authors see the following as the most significant challenges:

- **Competition with Wealthier Nations:** The roll-out gap of vaccines in high-income countries cannot be compared to that of low and middle-income countries. African countries many of which are low-income are faced with vaccine scarcity. Many the high-income countries continue to monopolize the global share of vaccines. They have spent billions of dollars hoarding and securing future supplies while low-income countries are being pushed to the back of the queue (Edward-Ekpu, 2020; Ileyemi and Kanabe, 2021; Lancet, 2022). The inequity in vaccine distribution has facilitated the emergence of new variants with the potential for an immune invasion like the delta and omicron variants.
- **Poverty and competing wants:** The economic state of the continent has become more pronounced with COVID-19 (OECD, 2020; AU, 2022). The little funds available on the continent have a lot of competing needs for it. For example, the development of the health sector and getting equipment in the hospital for treatment, provision of relief packages to fill the gap of the economic brunt caused by COVID and addressing insecurity among many others.
- **National Interest:** Vaccines available have been used as a bargaining chip for world dominance as well as to garner favor from one another (Itugbu, 2021; Jennings, 2021; Clarke, 2022). For instance, half a million doses of the Chinese Sinopharm COVID-19 vaccine arrived first in Pakistan, before reaching 13

other countries including Cambodia, Nepal, Sierra Leone and Zimbabwe (Jennings, 2021). According to the Chinese ambassador to Pakistan, it is a “manifestation of our brotherhood” (Jennings, 2021). Also, Israel has reportedly agreed to pay Russia to send the Russian-made Sputnik V vaccine to the Syrian government as part of a prisoner exchange deal (Holmes, 2021). Likewise, China’s donation of vaccines to Africa has been regarded as a soft power push by the Chinese government to bolster its global influence (Mureithi, 2021).

- **Myths and Conspiracies:** Although not a new phenomenon, myths and conspiracies have grown rapidly in the past 15 years. According to Swami et al. (2014), conspiracy theories are a set of false beliefs in which the ultimate cause of an event is believed to be a result of a plot by multiple actors working together with a clear goal in mind, hardly lawfully and in secret. The plots which can take different forms are mostly not good. The outbreak of the Covid-19 virus and its vaccines has stemmed various conspiracy reports. From the deliberate spread of the virus by China to waging war on the USA to become the leading nation in the world (Kurlantzick, 2020; Schindler et al, 2020; Taylor, 2020); an avenue for the rise of the antichrist and the dreaded 666 (Africanews, 2020; Bohlinger, 2020a; Bohlinger, 2020b) and the relationship between the spread of the virus and the introduction of the 5G network (Bruns et al, 2020; Goodman and CarMicheal, 2020; Messe, et al., 2020; Van Wyk, 2021) to the adverse effect of the vaccine due to the speed of testing in humans and the doubts surrounding its efficacy, thus, causing some people to freeze their sperms (Krueger and Corso, 2020; Topchishvili, 2021). Another vaccine conspiracy theorem speculates the transfer of mutant genes from vaccines into human bodies (Schmidt, 2020). Although many of these theorems are fanciful, their beliefs are as costly as the spread of the virus. The theories have led to mass resistance by people to being vaccinated. For example, A study conducted by FINTECH company and Comparisure (2021) revealed that 52% of South Africans will not take COVID-19 vaccines due to various notions like the side effects of the vaccines, the time frame of production, religious consideration, and widespread information. Another group of people believed that the vaccine contains microchips (Menezes and Souza, 2021). Also, there were allegations that Africa is being used as a testing ground for the vaccine. For instance, A CDC report showed that 43% of respondents surveyed believed that Africans are being used as guinea pigs in vaccine trials (Africa CDC, 2021). In Addis Ababa, a study showed that hesitancy was high because a high number of its citizens sees vaccine as biological weapon (Dereje et al., 2021). Religious- wise, the vaccine has been regarded as a form of initiation and distribution of the mark of the beast - 666- as presented in a religion’s holy book (Senokoane, 2021). Similarly, a report showed that 90% of individuals surveyed in Niger and Liberia said that prayer was more effective than vaccines (Bodine, 2021).

#### **4. COVID-19 vaccines in Africa: Role of African governments**

The Corona virus put leaders under immense pressure into making hampering decisions socially, economically and otherwise with incomplete and emerging information (Durokifa et al, 2021). With time and a lot of research carried out came COVID vaccines which are a mitigating aid and not a cure. African leaders like their counterparts rose to the occasion in garnering vaccines on behalf of their citizens. However, the continent is bereft with diverse issues like housing in poor countries, poor health infrastructure, political instability,

insecurity, and brain drain most especially among health workers due to governance and leadership problems within the continent (Durokifa et al, 2021). While these poses a challenge to vaccine dispensation, African leaders have been able to come up with swift plans and policies for the distribution of vaccines just as they did in curtailing the spread of the virus at its peak defying many dire predictions (Kuehn, 2021).

African leaders together with organizations like the African Union through the African Vaccine Acquisition Task Team, the World Health Organization through the COVAX consortium and various national committees set up came up with initiatives they can use to roll out the vaccine process considering the scarcity in vaccine distribution globally. For example, as of March 4, 2021, 11 countries across Africa including Nigeria, South Africa, Ghana, Kenya, Angola, Democratic Republic of Congo, among others have initiated the vaccination program and by December 30, 2021, 53 countries except for Eritrea have received vaccines (Mwai, 2021; Nachega et al, 2021; WHO, 2021). Nationally, countries have been faced with the rollout and equitable distribution of the limited vaccines they have. For example, South Africa started its vaccination program in phases prioritizing the healthcare and frontline workers, and people over the age of 60 first on February 17, 2021, and by October 18, 2021, they had made it available for all from age 12 and above (Dzinamarira et al., 2021). Nigeria started its rollout in March, 2021 and unlike South Africa, it made the vaccine available for all citizens from age 18 and above who showed interest but more focus on health workers (Usigbe, 2021). In Ghana, like South Africa, the distribution was also in phases. The recipients of the first phase of the vaccination were health workers, age 60 years and above, people with underlying health conditions, frontline Executives, Legislature, Judiciary, and their related staff, frontline security personnel, some religious leaders and other personalities (Quakyi, 2021). Other countries within the continent also had their vaccine roll-out plan. However, due to limited available vaccines and vaccine hesitancy, among other challenges, the expected rate for Africans has not been met. As of December 24, 2021, just 3% of the almost 8 billion doses given globally have been administered in Africa, and only around 8% of Africans are fully vaccinated, compared with more than 60% in many high-income countries (WHO Africa, 2021).

This position has prompted the African Vaccine Acquisition Task Team of the African Union and the WHO-led COVAX consortium in striving to secure 720 million doses of COVID-19 vaccines and achieve 60% coverage in Africa. For this to be achievable though, the challenges seen from prior vaccine distribution and discussed in the subsequent part of this study must be addressed.

## 5. Futuristic lessons from COVID-19 vaccines in Africa

While the development of the COVID-19 vaccine had been an enormous success, vaccinating the populace, particularly in Africa has been met with various challenges. Nevertheless, the abrupt infiltration of the virus and the dispensation and distribution of vaccines as left key reformative lessons for Africa if the continent is to control current and future pandemics. They are:

- Reformation of the Health Sector: COVID-19 exposed Africa's health care deficiencies, gaps and inequalities. This ranges from the limited health infrastructures and workforce; to shortages of skilled workers trained in critical care; inadequate specialized hospitals with intensive care units; and access to vital drugs and health technologies (Afriye et al, 2019; HRW, 2020; Tessema et al., 2021; Sidibe, 2022). These challenges have also affected the distribution of vaccines across the continent. According to statistics, compared to other regions in the world, Africa's vaccine distribution is still low



(WHO,2022). However, these challenges have provided lessons for the African health system to latch on such as: building a stronger health workforce not just in numbers but in the quality of personnel. Also, a workable partnership between the public and private sectors. More importantly, African leaders need to invest more in health care.

- **Result-oriented Research:** The scout for COVID-19 vaccine in Africa has revealed the productive research gap existing in science within the continent mainly associated with funding. More specifically, it has underscored the gap that exists in the capacity for vaccine production. Before COVID-19, Africa produced less than 1% of the vaccine that it consumes and imports over 99% despite consuming 25% of vaccines globally (Sidibe, 2022). Five African countries manufacture vaccines at different levels (WHO, 2021). They are: Egypt, Morocco, Senegal, South Africa and Tunisia. Among these is the Institute Pasteur in Senegal which manufactures yellow fever vaccine. Apart from funding which can be an issue in vaccine production, manufacturing a vaccine requires that a skilled research and development project be conducted. It is essential that African countries begin to think about vaccine production. As it stands, it can implicitly be said that epidemics and pandemics are not going away. Therefore, vaccine production will help relieve the story of vaccine inequity.
- **Fostering Global Partnership:** The importance of partnership amongst countries cannot be understated. Little wonder, its inclusion in the global developmental goals such as the millennium development goal 8 “develop a global partnership for development” and sustainable development goal 17 “partnerships for the goals”. In creating a better world, countries need to be supportive, empathetic, passionate and cooperative towards each other and that is what partnership enforces. COVID-19 has brought countries together thus aiding partnerships. The unplanned and unexpected pandemic has proving not to be a threat for a country but a global threat. Hence, countries had to come together, ideas and approaches shared with policies bandied across continents. The virus reflected that nobody is safe until everybody is safe. More prominently, the fact that Nations can come together to work and build a more robust relationship that will produce an efficient result.
- **Technological Advancement and Embrace:** Prior to COVID-19, there had been insecurities regarding the fourth industrial revolution era. Such as the era being a force for disruption and a threat to livelihood (Durokifa and Ijeoma,2020). However, technology has appeared to be a bridge-gap to the new “normal”. For instance, companies were able to carry out their day-to-day activities and grow because of technological apps like Zoom and Microsoft teams and students were able to share information and take lectures online. The pandemic has become a catalyst for technological advancement as people became more reliant on digital technologies as well as how these technologies can create value in a new way.

## 6. Conclusion

COVID-19 has shaken the world and brought it to a standstill. While a lot of studies are still ongoing concerning the virus, the best weapon currently is the vaccine. Ironically, Africa still faces challenges regarding vaccine allocation and distribution, and more disturbingly, vaccine hesitancy. This challenge has been linked to our leadership issues. Africa despite boasting of intellectual minds is bereft of the best leadership to attain the required economic power. Therefore, fostering partnership and collaboration among member states of the

African Union in areas of weakness towards pandemic response will bring a welcome development to individual nations.

Also, maintaining and creating awareness of the importance and benefit of the vaccine against the different myths powered by conspiracy theories is a critical response to the covid-19 pandemic and the already predicted future pandemics. The government needs to have a thorough understanding of the factors associated with vaccine hesitancy which could be cultural, tribal, religious or societal and come up with strategies in addressing such concerns. For example, in the United States, African-Americans were discovered to have a greater notion against the vaccine (OECD, 2020). On further investigation, it was discovered it was because they tend to experience lower communication quality with physicians particularly non-African Americans and also the fact that they have poorer access to healthcare (Reiter et al., 2020; OECD, 2021).

Likewise, the government can also partner and engage with critical stakeholders in the society such as religious leaders, community chiefs, and civil organization leaders to have a clear understanding of the barrier and enablers to the vaccines to instill confidence in their communities on reasons why they must be vaccinated. Of equal importance also is combatting the misinformation and widespread rumor that has led to the non-acceptance of the vaccine. In tackling this, effective health messaging must be put in place to encourage vaccine acceptance through social media platforms like Instagram, YouTube, and Facebook. Also, there are other media platforms like the Radio and TV that can be used to disseminate information on the misconception about the COVID-19 vaccine. Additionally, there is individual propaganda and enlightenment towards those who are not well knowledgeable on the negation of the misconceptions surrounding vaccines and the benefits of being vaccinated. Just as the oft-quoted “No one is safe until everyone is safe”.

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