

EQUINET Information sheet 7 on COVID-19

Turning vaccines to vaccination in the region



Produced by Training and Research Support Centre for the Regional Network for Equity in Health in east and southern Africa (EQUINET)¹ January, 2022

New year greetings! EQUINET information sheets on COVID-19 summarise information from and provide links to official, scientific and other resources on east and southern Africa (ESA) covering selected themes related to equity in the pandemic. They complement and do not substitute information from public health authorities. Brief 7 summarises pandemic developments in the region to December 2021, with a focus on equity in vaccination coverage.

You can read the full brief or go to the section that is most relevant to you. This brief covers:

- [1: Recent trends in COVID-19 in ESA countries](#)
- [2: Vaccine supply to the ESA region](#)
- [3: Storage and distribution of vaccines in the region](#)
- [4: Vaccine uptake and vaccination coverage](#)
- [5: Addressing equity - from vaccines to vaccinated populations](#)

The source of information is cited or hyperlinked so readers can read from sources directly, including for deeper information on the issues raised. *We welcome feedback and contribution, including on any errors to be addressed – please send to admin@equinetafrica.org.*

Key messages

Inadequate and unpredictable vaccine supplies continue to pose a major challenge to more equitable outreach to and within the ESA region, undermining the population confidence needed for uptake. The brief points to ways of addressing donated supply challenges, while noting that a sustainable supply for this and future pandemics demands local production in the region.

There is wide variation across ESA countries in the share of people who are fully vaccinated. Within countries remote populations, refugees, displaced and homeless people and migrant, mobile and pastoral workers and communities face unique barriers to uptake. Challenges in the cold chain, and in infrastructures, storage technologies and transport affect 'last mile' outreach. ESA countries have decentralised outreach through creative strategies, many in locally embedded interactions implemented by frontline workers, community health workers, civil society activists, local authorities and 'influencers' that have a sustained relationship with communities.

Information is a vital part of the mix, but so too is overcoming costs, time, transport and other barriers to uptake. Vaccine hesitancy, mainly due to trust in vaccines and authorities, and concerns on vaccine safety and efficacy, calls for consistent engagement through trusted actors, particularly given the changing nature of the pandemic and responses. Increased and more reliable vaccine supply and improved outreach has been linked to reduced hesitancy, countering rhetoric from some sources that vaccine hesitancy has overtaken supply constraints as a major factor affecting the roll out in Africa. A combination of supply, distribution, uptake and social factors generate inequity between need and coverage between and with countries.

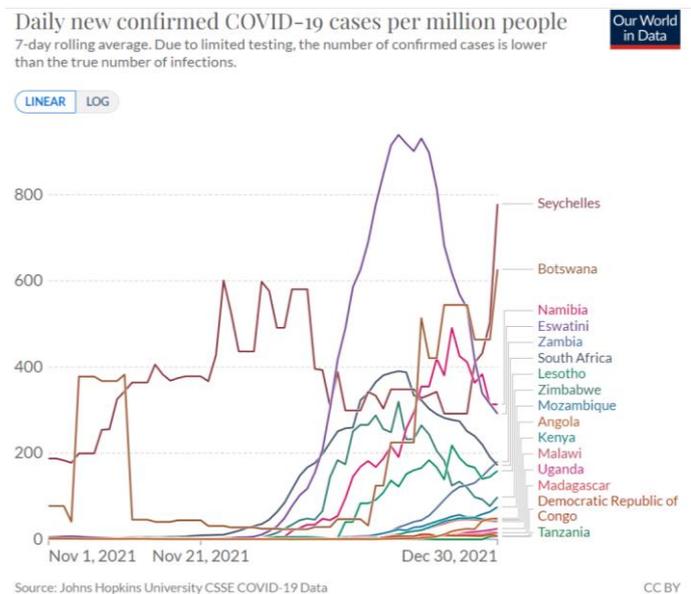
Pandemic developments, including the latest Omicron wave, highlight that vaccines need to be part of wider promotion, prevention, care and protection interventions, within comprehensive primary health care (PHC) strategies, and within a framework of global collective security.

¹ [EQUINET](#) is a network of professionals, civil society, policy makers, state officials and others in east and southern Africa implementing research, analysis, information sharing, dialogue and learning from action to promote health equity. This brief is synthesised by R Loewenson, TARSC with contribution from Pascalina Chanda Kapata Zambia. It is produced under the principles of 'fair use', attributing sources by providing links to authors and websites, whose views do not necessarily represent those of EQUINET or its steering committee. Financial support from Open Society Policy Centre is gratefully acknowledged. Photographs and graphics are used under fair use for educational purposes or under creative commons. Subscribe to EQUINET briefs and newsletters [online](#).

1. Recent trends in COVID-19 in ESA countries

By January 6 2022 [WHO AFRO report](#) 7.4 million cumulative cases of COVID in Africa, and 156 736 deaths. The [Africa CDC](#) reported in end December 2021 that the Omicron variant (B.1.1.529), first reported in South Africa on 24th November 2021, had spread by end 2021 to 106 countries worldwide, including most countries in the ESA region.

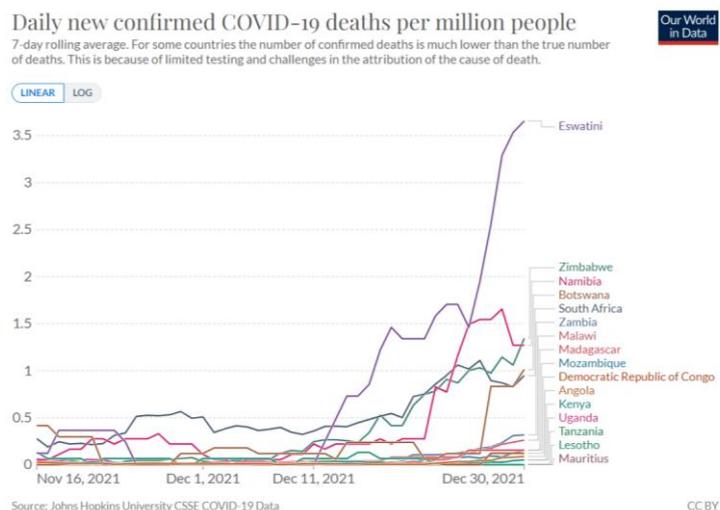
Figure 1:



Source: [Our World in Data 2022](#)

Figure 1 shows the daily recent pandemic wave in ESA countries, with rising COVID-19 rates per million in most ESA countries after late November, particularly in Seychelles, Botswana, Namibia, Eswatini and South Africa. The spread has been relatively rapid due to a more transmissible Omicron variant spreading in the region, attributed partly to the fact that the variant reproduces largely in the upper respiratory tract, making airborne spread more likely. Countries with an earlier rise in cases, mainly in southern Africa, showed declining rates of reported cases after mid- December, while cases continue to rise in other ESA countries.

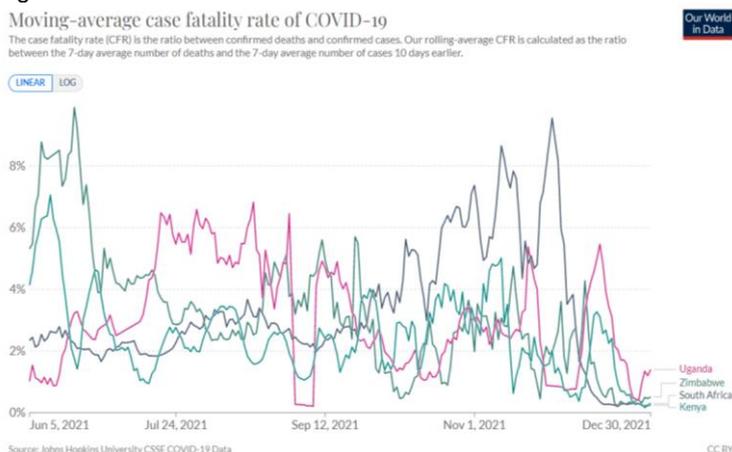
Figure 2:



Source: [Our World in Data 2021](#)

Associated with the rise in cases has been report of rising levels of mortality in the recent wave. Figure 2 shows increased mortality from late November, after the Omicron wave was reported, a bit later than case increases given the time for cases to progress to severity and mortality. There is some indication that mortality from cases has been lower in this wave than in the prior wave in June- September 2021. Figure 3 shows this, using the case fatality rates for selected ESA countries.

Figure 3:

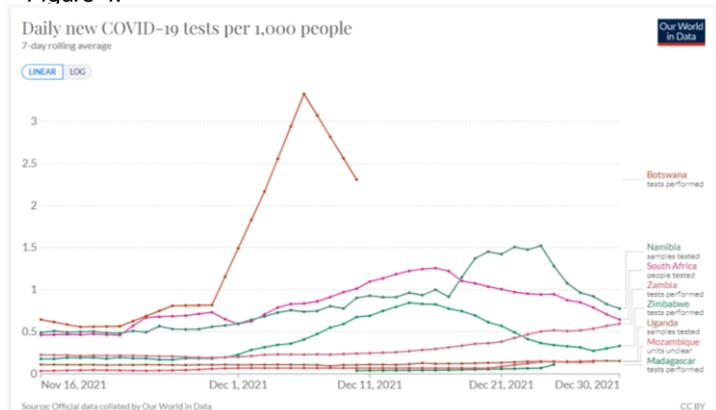


Source: [Our World in Data 2022](#)

effective for Omicron. Added to this, clinical studies found the variant to be less likely to progress to the lungs, where disease effects maybe more severe.

The case fatality rate measures deaths divided by cases. The case fatality rates in July-Sept were higher than in December for the selected ESA countries, less so for Uganda where exposure to Omicron was still unfolding in December. According to [Witchalls \(2022\)](#), high levels of population immunity in South Africa possibly reduced severity. Immunity was reported to have evolved through natural infection from the first three waves and from vaccination. T-cell immunity that plays a role in reducing the risk that infection will progress to severe COVID-19 was noted to remain relatively

Figure 4:

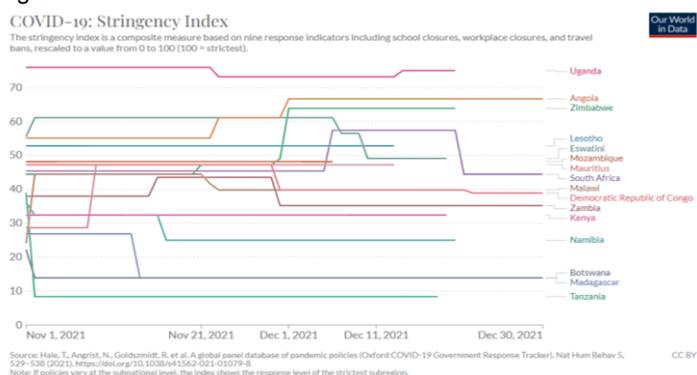


Source: [Our World in Data 2022](#)

four times lower than rates in Latin America (eg Chile) or half the rates in low income countries in Asia (eg Vietnam). As a core strategy for case detection, management and protection, ensuring adequacy of testing supplies and decentralised accessible testing services are key elements of the pandemic response. This supports the [TRIPS Waiver proposal](#) to not limit the scope of suspending copyright, patents and of disclosing information to vaccines only, but to include diagnostics and therapeutics for COVID-19.

The quality of the case and mortality data is affected by the level of testing. As pandemic waves rise, so too do testing rates to track cases and contacts, falling again as cases decline. Constraints in testing are, however, likely to be affecting case detection, especially where supplies undermine decentralisation of testing services, or for those who find testing services less accessible. Testing rates have been consistently higher in some ESA countries (Botswana, Namibia, South Africa, Zambia and Zimbabwe), but even those countries have testing rates that on average are 30 times lower than rates in Europe (eg UK),

Figure 5:



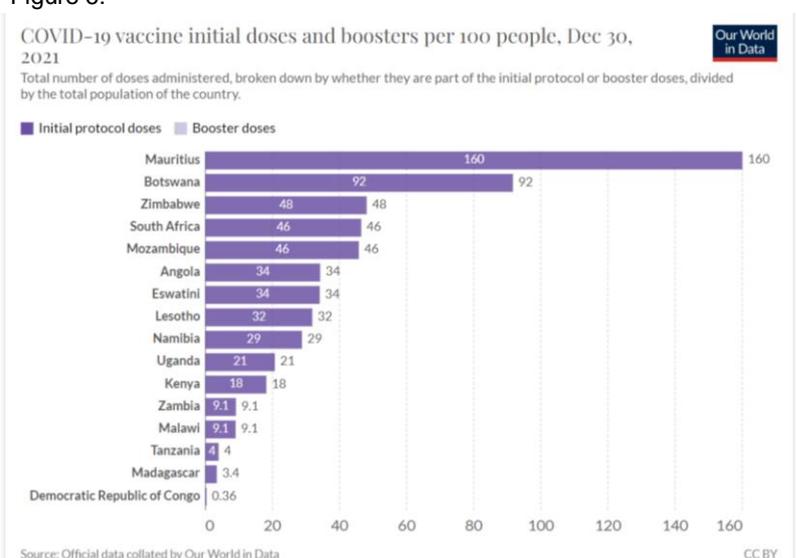
Source: [Our World in Data 2022](#)

The COVID-19 stringency index shown in *Figure 5* is a composite measure based on nine response indicators, including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100 (100 = strictest). Although there were increased measures imposed in some countries (South Africa, Angola, Zimbabwe, Uganda), in South Africa these were reduced again from mid- December when cases fell, and in many other ESA countries the stringency remained relatively unchanged.

2. Vaccine supply to the ESA region

This information brief focuses on vaccines. Vaccines are an important part of the response to COVID-19, but not a singular response, nor a ‘silver bullet’. Past information briefs outline other elements of equitable response, including prevention measures, to reduce overcrowding in homes, markets, transport and other spaces, improve ventilation in schools, workplaces, homes and other public places; provide personal protective equipment (PPE) to health workers, and relevant PPE for all formal and informal frontline workers working with the public and masks for the public; provide adequate safe water for hygiene measures; and facilitate access to testing to enable early detection, contact tracing and prevent outbreaks. The briefs also outline social protection responses and solidarity support for those in isolation or quarantine; measures to support access to food, education and health care; treatment for those with COVID-19 disease and sustained services for other conditions. These responses call for information, social dialogue, health literacy and consultation with those affected, and with those delivering and using services. As noted in December by the [African Union \(AU\)](#), while vaccines are an important tool to respond to the pandemic and need to be ‘encouraged in big numbers’, they do not exist in isolation of these wider ‘public health and social measures’.

Figure 6:



One indicator of vaccine supply is the number of doses administered in the different ESA countries. *Figure 6* shows the wide disparities in this, from Mauritius and Botswana with high numbers of doses per 100 people, to extremely low, almost negligible levels in Democratic Republic of Congo (DRC) and Madagascar. The consequent vaccination coverage is discussed later. The supply of vaccine doses relates in part to what countries have been able to procure, while coverage reflects also the distribution and uptake of vaccines.

Source: [Our World in Data 2021](#)

According to [WHO AFRO](#), the COVAX aim was to provide up to 600 million doses by the end of 2021 to vaccinate at least 20% of the African population, starting with those most in need of protection, including health workers and other vulnerable groups. The most recent [WHO AFRO](#) vaccine dashboard in September 2021, however, indicates that only 67,5 million doses had been received from COVAX, and a total of 177million doses received from all sources in Africa, including those from the African Vaccine Acquisition Task Team (AVATT) and from bilateral sources. Three quarters (75%) of these received doses were administered by that date. A [joint statement by WHO, AU and COVAX sponsors in end November 2021](#) indicated that by that date 90 million doses had been delivered by both COVAX and AVATT, still far short of the supply that was projected to meet the intended 2021 vaccination target. The statement notes the multiple problems faced in the expected supply from COVAX, including: ad hoc donations to COVAX, provided with little notice and short shelf lives, making it extremely challenging for countries to plan vaccination campaigns and increase absorptive capacity.

The [joint statement](#) articulates the major challenge this unpredictable and ad hoc supply raises for African countries: *Countries need predictable and reliable supply. Having to plan at short notice and ensure uptake of doses with short shelf lives exponentially magnifies the logistical burden on health systems that are already stretched. Furthermore, ad hoc supply of this kind utilises capacity – human resources, infrastructure, cold chain – that could be directed towards long-term successful and sustainable rollout. It also dramatically increases the risks of expiry*

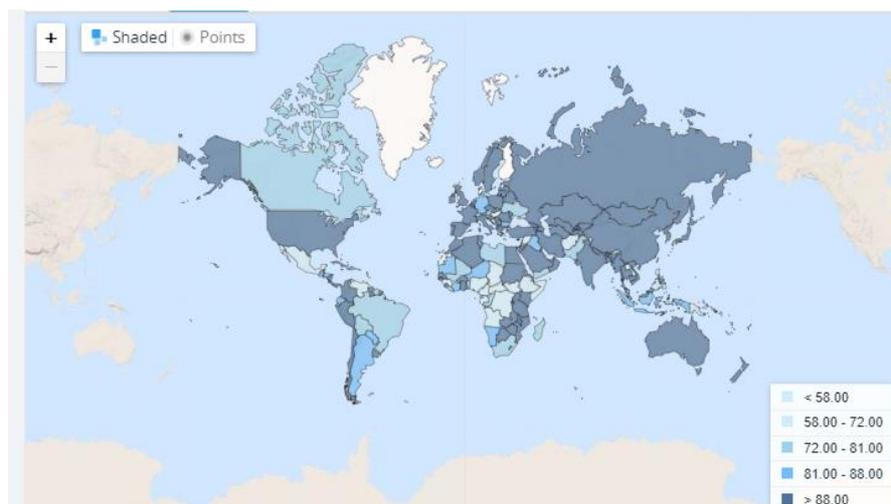
once doses with already short shelf-lives arrive in country, which may have long-term repercussions for vaccine confidence.

The AU launched the AVATT initiative to acquire vaccines. During 2021 however, direct purchases by AVATT from the Serum Institute of India fell through and India later banned vaccine exports as their own infections soared. [AVATT was reported by December 2021](#) to have purchased and distributed 100 million doses in African countries and to have secured direct purchase of a further 500 million from South Africa. Supplies from all sources improved in the last quarter of 2021, with the [AU CDC indicating on 22 December 2021](#) that African countries had been supplied with 445.9 million doses, of which 324.7 million doses had been administered (73%). Notwithstanding this improvement in supply, the doses still fall short of even the total needed to vaccinate only 20% of the populations, and by end 2021 AU CDC report that only 10.89% of the population had received two vaccine doses or one dose of the Johnson and Johnson vaccine. As noted earlier and in *Figure 6*, this aggregate total hides the wide variation in supply, sources and vaccine types between ESA countries. Zimbabwe's higher vaccine coverage has, for example, in part been enabled by [significant supply of vaccines from China](#). Countries with smaller populations have been able to use the mix of purchased and donated vaccines to cover wider needs. However for low-income ESA countries with larger populations, the supply volumes have been more limited relative to population, and own purchase less feasible.

Limited, unpredictable, ad hoc supplies continue therefore to be a major constraint to improved vaccination in ESA countries. A [study by Oyekale \(2021\) of vaccine uptake in Kenya](#) found that as more vaccines are made available, many Kenyans were more likely to get vaccinated, showing a connection between supply and uptake. In [the words of the AU CDC Director](#), *the problem in Africa is vaccine famine, not vaccine hesitancy*. A rapid escalation in supply without adequate notice to plan for their use and especially when donated supplies have short shelf lives creates new challenges, and particularly given that most of the vaccines require two timed doses. In December, the [deputy director of the AU CDC advised countries](#) not to accept doses approaching their expiry dates: *Just don't. It's not a donation anymore. If someone is giving you vaccines that are going to expire in less than three months, that is dumping, that is dumping*, he said. *We are encouraging our members that don't take anything like that because it's a headache. It's going to expire in your hands if you don't have a system that is ready to be able to absorb it*. The expenses of in-country roll-outs are also often overlooked, with [funding for vaccine purchase and roll-out often available as loans rather than grants](#), discouraging some countries from large-scale roll-outs. Export restrictions placed on vaccines, vaccine raw components, and on delivery supplies such as syringes and glass bottles, further undermined equity in supply, with [UNICEF and others](#) providing some support for these ancillary supplies to make vaccine roll-out possible..

These supply challenges have made it difficult for ESA countries to plan the sort of scale up achieved in many other areas of vaccination. *Figure 7* shows this, for example, for Hepatitis B, scaled up globally post-2000, where ESA countries have equal or higher levels as in high income countries, [or as reported of Rwanda's rapid scale up](#) in recent years to achieve 93% of girls vaccinated against human papilloma virus (HPV), or WHO report of Malawi's [scale up of PCV3 vaccine in 1 year olds](#) to have reached the same high level (93%) in 2020 as Netherlands, higher than the United States' level in that year of 82%.

Figure 7: Immunisation HepB3 % one year old children



Source: [WHO and UNICEF](#), 2021

[Prior EQUINET information sheets](#) have reported the pre-orders by high income countries of sufficient quantities of many of the vaccine candidates to vaccinate their populations many times over even before they were approved. This fuelled a national protectionist position and significant inequity in access to vaccines that the WHO director-general called a “catastrophic moral failure”, and [others described as](#) a racist inequity and moral crime. The ‘TRIPS Waiver’ proposal by India and South Africa with many country co-sponsors from ESA and other regions to the World Trade Organisation General Council is thus key to securing more reliable supplies. It seeks to waive the implementation, application and enforcement of copyright (IP) and related rights, industrial designs, patents and trade secrets constraints in the TRIPS Agreement to enable a more distributed production of vaccines in the region. While the proposal now has 62 co-sponsors and it has received support from many countries and from the international community, including from AU, WHO and UNAIDS, it has been opposed by the European Union, UK, Japan, Canada, among others. While text-based negotiations continued to end 2021, the delays and lack of legal certainty on distributed production of such key health technologies that are seen as global public goods during a pandemic and the reliance on voluntary support sustains inequities that some have termed a ‘vaccine apartheid’.



Global Justice now, 2021

Vaccines are used in high income countries to reduce severe disease and mortality. ESA countries with higher vaccine coverage show some evidence of mortality declines, discussed later. [UNCTAD has estimated](#) a total cost of delayed vaccinations in lost income amounting to US\$2.3 trillion, with low and middle income countries shouldering the majority of the losses. Imposing IP barriers on sustained, predictable local supplies in ESA countries protects pharmaceutical profits at the cost of African lives and wellbeing.

From the onset of the pandemic, and since the struggles on treatment access related to HIV, EQUINET has advocated enabling and ensuring distributed production in the ESA region of essential health technologies as the most sustainable strategy to secure the regional needs for health commodities, including for pandemics. Potential sites for vaccine manufacture in Africa have been identified in Rwanda, Senegal and South Africa, while capacities exist in other ESA countries for related inputs, including for [the necessary investments](#) in public health, genomic and disease surveillance, and immunisation infrastructure. [There is report](#) of some production starting in 2022, in co-operation with manufacturers in high income countries. [China is also reported to be setting joint production hubs](#) in Egypt and Morocco to produce 400 million vaccine doses as part of China's 1 billion vaccine supply promise for 2022 to support AU targets.

In addition, a number of measures are [reported to be essential](#) to enable African countries to effectively plan, organise and mobilise domestic resources for the rollout needed to increase coverage rates. These measures include ensuring predictable, large volume supplies, with early notice of supply and comprehensive supply information. The measures also include some flexibility on which countries vaccines are distributed to, to align to need, cold chain and distribution capacities. Supplies should have a minimum of 10 weeks shelf life when they arrive in-country, unless recipient countries have explicitly indicated willingness and ability to absorb doses with shorter shelf lives. Together with vaccine supply, the corresponding supply of syringes and diluent needs to be secured, and the freight and other resources for rapid allocation and absorption covered.

The next sections address the distribution and uptake of vaccines. However, the evidence in this section on the continuing supply constraints indicate the need for continuing policy and socio-political focus on the drivers of inequities in supply. While supply improvements do increase demand for and focus on distribution capacities, as [argued by civil society](#), challenges in distribution and uptake should not be used to *weaponise against the idea of expanding supply*.

3. Storage and distribution of vaccines in the region

[WHO AFRO have noted a number of system barriers to vaccine roll out](#), especially where countries are using a variety of different vaccines, calling for logistic capacities to keep track of who gets what type of vaccine, their differing storage and transporting requirements and to train adequate, distributed vaccinators to administer and record them and to manage the needs of different population groups. While ESA countries have significant experience with cold chains and vaccine dissemination for child health, few have the ultra-cold-chain (UCC) and freezer storage needed for MRnA (Pfizer and Moderna) vaccines. [The AU CDC](#) commented that: *Storage and distribution will pose a serious problem for use of the [Pfizer] vaccine in Africa,*

Other vaccines (Astra Zeneca, Sinopharm, Sinovac, J&J) can use existing cold chain capacities and have less demanding transport and storage requirements. However, they all face a range of [supply-chain related challenges](#), in planning and data systems and warehousing infrastructure; in relation to consistency of electricity supplies, ageing storage technologies, and in limited transportation capacity. All of these features call for resources. [WHO estimate](#) that globally, at least 25% of vaccines are thrown away due to cold chain issues. This is even more challenging in the ESA region, where a large share of people live in more remote rural areas or in poorly-serviced informal settlements. Further, even where the vaccines maybe present, as noted earlier, related supplies such as syringes may not, especially when vaccines are shipped without these supplies, calling for recipient countries to source additional resources before deployment.

Added to this are demands to [micromanage the logistics](#) of 'last-mile' delivery countrywide in a range of rural, urban and social settings, and to effectively manage the interaction with target groups and communities. The vaccine distribution policy may not always be clear or well communicated. For example ESA countries prioritise frontline workers for vaccination, but [stakeholders in the Community Health Impact Coalition](#) note that community health workers (CHWs) are under-recognised and may not be counted as part of the formal health force and thus not included in this priority. Yet these same CHWs are critical frontline workers, particularly in remote, rural communities and should be both engaged and protected as part of the vaccine distribution strategy. Information outreach to different age and socio-cultural groups, in formats and through channels that they connect with, calls for more than the biomedical skills and measures that often draw most attention in pandemic control.

Keeping populations informed calls for consistent information flows, in a context of continuous changes in the virus itself, in epidemic waves, in scientific understanding and pandemic measures. Many people in Zimbabwe were, for example, [reported in a 2021 study](#) to be poorly informed about the decentralization of the vaccination centers, affecting uptake. There is thus a general understanding that vaccine roll out in ESA should give a [strong focus to community level measures](#) and engagement with community structures as a critical element of distribution. This is being implemented in settings with significant variation in communities, including in refugee, informal, mobile, displaced, remote and multi-cultural communities.

Having a portfolio of safe and efficacious vaccines that are stable at room or regular fridge temperature or can be applied in a single dose regimen would help to overcome some of these distribution challenges. [A 2021 simulation model of a COVID-19 vaccination program in South Africa](#) found the pace of vaccination to be important for uptake, making the distribution infrastructure and implementation factors, such as prompt, consistent procurement, distribution, and rollout, influential in maximizing public health benefits.

ESA countries have thus made creative use of available capacities to support consistent distribution. [In Malawi](#), for example, the Ministry of Health is rolling out the vaccines in all 28 districts of the country. The vaccine doses are stored in cold rooms at district and central hospitals and use existing cold chain storage options at facility level. When the consignment is taken to a remote area or an outreach immunization centre where there is no fridge, the vaccine is kept in vaccine-tailored cooler box. Such strategies to expand distribution build on experiences, approaches and capacities in the distribution and promotion of other vaccines in ESA countries, albeit with the supply challenges noted earlier and pressures for more rapid outreach. Campaign-based immunization and innovative, mobile, community level distribution techniques are also suggested to shorten distribution time from national stores to local districts.

Many ESA countries report approaches that have worked because they are locally embedded. [In Kenya's northern region](#), bordering Somalia, for example, pastoralist communities live in a hostile climate, with poor security and scarce services. Aware of the potential COVID-19 had to further exacerbate their already-dire conditions, a group of women activists took action to communicate with the local communities on the [COVID-19 vaccination](#). They particularly engaged elders to get support from influential traditional leaders and visited house-to-house in remote areas, talking with women, young and elderly people in their own settings.

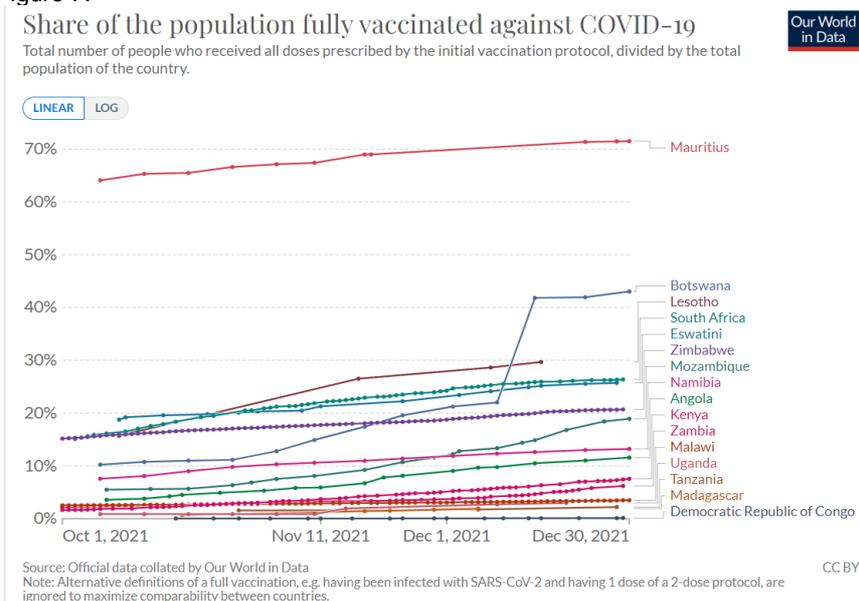
There is a synergy between these intensive social outreach processes and the decentralisation of vaccine centres. [In South Africa](#), for example, pop-up vaccination centres have been set up across the country and community leaders engaged. [In Limpopo, South Africa](#), health authorities are reported to have taken things into their own hands to [implement what they knew would work for the province](#). Vaccines were delivered through existing service delivery platforms, providing more than 3,000 points of contact. For health worker vaccination, one hospital per district was used as the “hub”, and district hospitals as the “spokes”. To reach different social groups, the vaccination team went to local council venues, community halls and shopping malls and set up drive-through vaccination. The health department worked with local influencers, community leaders and CHWs to register people to plan for outreach to all those eligible. The team note: *It worked. We need information, widely disseminated, in as many forms as possible, right now.*

4: Vaccine uptake and vaccination coverage

Notwithstanding the significant focus that has been given to vaccinations as a key strategy, coverage in many ESA countries remains low. *Figure 7* shows the cumulative share of the population that had been fully vaccinated by end 2021. Mauritius, Botswana, Lesotho, South Africa, Eswatini and Zimbabwe had higher coverage, with about a fifth or more of their

populations fully vaccinated.

Figure 7:



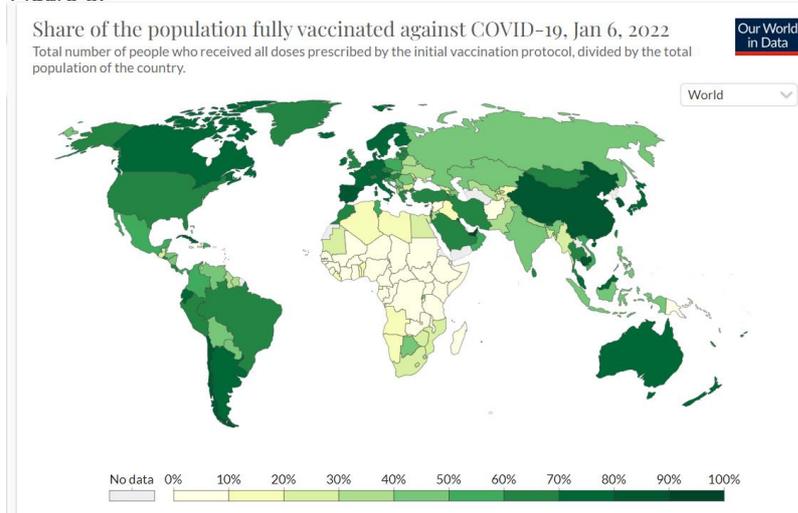
At the other end of the range, DRC, Madagascar, Tanzania, Uganda, Malawi and Zambia had less than 10% of their population fully vaccinated. The [AU COVID-19 strategy](#) sets the principle that no country will be safe until all the countries are protected. This variability and the lower levels in many ESA countries are thus an issue for the region as a whole.

Source: [Our World in Data 2022](#)

As shown in *Figure 8*, compared to countries globally, while a few countries in Southern Africa are showing relative improvements, the ESA region has amongst the lowest coverage levels. Such shortfalls in coverage are significant for groups that are more highly exposed. All ESA countries have prioritized health workers in their vaccination plans. However, the [WHO AFRO reported in end 2021](#) that only 27% of health workers in Africa had been fully vaccinated against COVID-19, leaving most health workers unprotected, with potential consequences for themselves, their families and health care systems.

Elderly people, those with underlying conditions and weakened immunity, pregnant women, and workers with high levels of public interaction also merit particular attention in vaccine uptake

Figure 8:



Source: [Our World in Data 2022](#)

So too do remote populations, refugees, displaced and homeless people, migrant, mobile and pastoral workers and communities, and those in conflict zones, all of whom face barriers to service access. Each of these groups need strategies that address their particular situations and concerns. While routine data systems often do not report vaccine uptake disaggregated by these different social groups.

For example, [pregnant women were noted in Zimbabwe](#) to have distinct concerns around a possible risk to their unborn children, affecting their uptake of vaccines. There was also note of some hesitancy amongst healthcare practitioners to advise or administer vaccines to pregnant and breastfeeding women. With multiple studies underway on safety risks specifically for this group, [WHO recommended in 2021](#) that vaccination is unlikely to pose a risk to breastfeeding children, that breastfeeding should continue after vaccination, and that the benefits of vaccination for pregnant women who are at high risk of exposure to COVID-19 or with co-morbidities that raise their risk of severe disease outweighs any possible risks. [Guidelines are provided to support healthcare workers](#) managing pregnant women to promote confidence in and protect this group.

Reaching elderly people implies taking their social conditions into account and the barriers they may face. [In Eswatini](#), for example, the government has provided on-site registration for elderly people who do not have access to smartphones and can't register online prior to vaccination.

Africa hosts more than [25.2 million](#) refugees and internally displaced people, many already stressed and malnourished. Added to this many migrant workers work in informal markets. Undocumented migrants are reported by [the Institute for Security Studies](#) to try to remain invisible to authorities. [A WHO brief](#) highlights that all such groups should be included in national deployment vaccination plans (NDVPs), but also found in a global study of COVAX submissions that 72% of these NDVPs did not explicitly include migrants. Over half (53%) of countries with more than 500 refugees did explicitly include refugees, but undocumented migrants were generally excluded. Fear of deportation, stigma, exclusion, and lack of entitlement or access to services and lack of appropriate information pose barriers to uptake for this group.

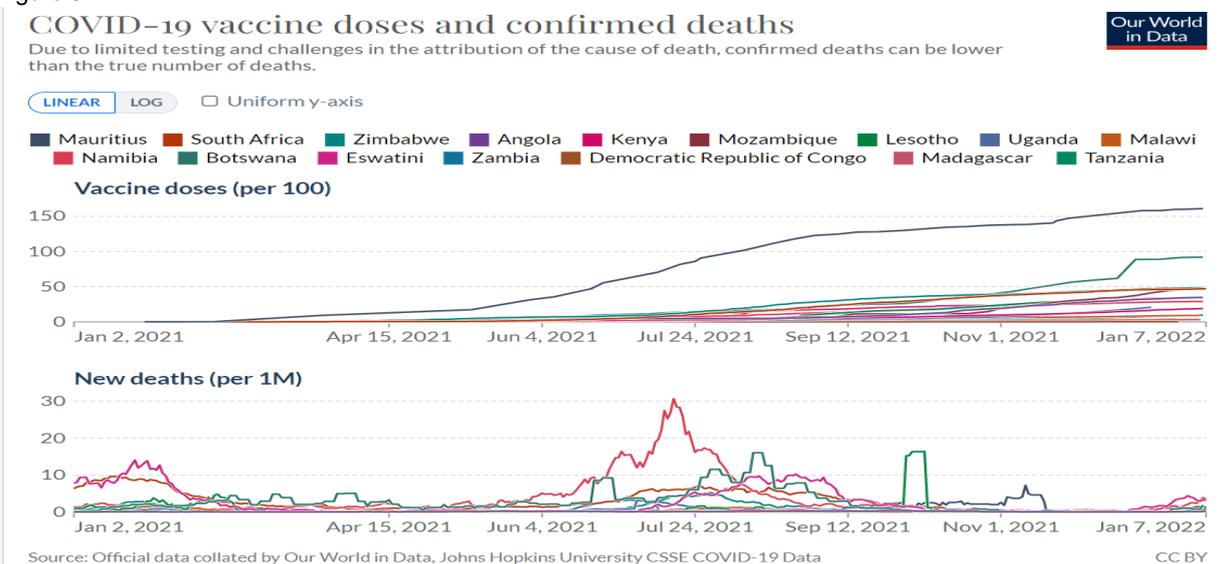
More generally, Uganda exemplifies a situation in many ESA countries, where [public health workers report that](#) rural residents often have no transportation to get to cities where vaccination sites are clustered, and that even those living within walking distance frequently cannot afford to leave work to wait in line for hours, especially when there is uncertainty over local supply.

[In South Africa](#), at a time of rising vaccine acceptance (from 67% in early 2021 to 72% mid-year), travel, time and other barriers were also noted to affect uptake. People with medical insurance coverage and those who owned a car were twice as likely to have been vaccinated. Researchers report: *Getting vaccinated is not a straightforward decision because they have to consider factors like the cost of traveling to the vaccination site, taking time off work, and possibly not being paid for that time off.*

Where such barriers reduce vaccine coverage, they have consequences in the raised risk of severe disease and death in unvaccinated populations. Inequalities in access across countries and communities translate into increased burdens, more so for lower income and more marginalised groups.

Figure 9 shows vaccination coverage and mortality rates due to COVID-19 over 2021. The large rise in mortality in the mid-2021 wave does not appear to have happened in the most recent wave, particularly for those countries with higher vaccination levels. While the mortality rise in mid-2021 corresponds to low vaccination coverage for all ESA countries except Mauritius (whose mortality rate at that time was also very low), the lower levels of mortality in the most recent wave may reflect immunity from vaccination and from prior exposure, as noted earlier, but also that at the time of producing this brief, the time lag was still underway for infection to translate into mortality.

Figure 9:



Source: [Our World in Data 2022](#)

In the [ESA region](#), [South Africa](#), Kenya, Zimbabwe, Uganda, [Zambia](#) and Mozambique are reported to have introduced or recommended booster vaccines, starting in some countries with older, vulnerable or more at risk populations, albeit with the intention in some countries for wider uptake. With the spread of Omicron, two concurrent debates have emerged globally with implications for the region. The first raises the likelihood that high transmission and uneven vaccine coverage pose for the emergence of new variants, posing that before boosters, the priority should be to reach unvaccinated communities. The second, in the face of an Omicron surge of cases, but reduced hospitalisation and mortality in high income countries with high vaccination rates, is of whether the pandemic has entered a new phase, with more focus on hospitalisation and mortality as the basis for public health approaches to monitoring and managing it. While these debates will continue in 2022, prevention continues to be a key public health priority, not only in terms of equity in vaccine access, but also in action on the underlying living, working and social conditions that increase risk of exposure, and in equity in access to legal, service and social resources to protect against the harms from infection.

As noted earlier, there is [some rhetoric that vaccine hesitancy](#) has overtaken supply constraints as a major factor affecting the roll out in Africa. This has been voiced in briefings by the USA Presidents, White House Press Secretary, Pfizer CEO and others, suggesting that levels of vaccine hesitancy in Africa is higher than in Europe or the USA. Vaccine hesitancy clearly is a factor, as it is in all countries. However there is little evidence that it is higher than other countries globally, or the larger cause of coverage deficits. A 2021 AU CDC [survey across 15 African countries](#) reported that 79% of respondents said they would get vaccinated against Covid-19, with even greater rates of acceptance among rural people. A further [12-country study](#) in August 2021 found acceptance rates ranging from 67% to 89% in Burkina Faso, Mozambique, Nigeria, Rwanda, Sierra Leone, and Uganda, at a time when only 65% of Americans planned to get vaccinated. It is thus not valid to attribute low coverage to vaccine hesitancy, given the supply, system and socio-economic barriers to uptake already noted in this brief.

At the same time, the reasons for pockets of vaccine hesitancy, found in almost all countries globally, do need to be understood and acted on, especially where they exacerbate other factors driving COVID-19 inequities. In a [2021 AU CDC survey with the London School of Hygiene and Tropical Medicine](#) (LSHTM) of over 15 000 adults, willingness, or not, to take a COVID-19

vaccine depended mostly on trust in vaccines and perceptions of its importance, safety and efficacy. Safety was the most significant consideration, with hesitancy reflecting a view that vaccines are not safe, generally, or specifically referring to the COVID-19 vaccine. The survey suggested that hesitancy linked to misinformation, including views that COVID-19 is man-made, does not exist, or is exaggerated and does not pose a serious threat. Others think that they are not at risk of being infected or that natural remedies are effective. [Vaccine hesitancy has thus also been linked to the influence of media](#), with influence from mainstream media, publications and social media. The message matters. These sources have not only had influence on misinformation, they have also played a vital role in information supporting uptake.

Hesitancy in the region has various drivers, as shown in *Table 1* for selected ESA countries, where country-specific reports are available. Underlying this, [some health workers in African countries](#) are reported to have their own concerns about safety, side effects, and effectiveness that can then influence community beliefs. The temporary suspension of the AstraZeneca and Johnson & Johnson vaccines in high income countries to evaluate reports of blood clotting affected confidence in COVID-19 vaccination. [Trust in government and in the vaccine source were found in the AU CDC and other](#) surveys to be a key factor. Mistrust of vaccines from Western countries was observed in DRC to be related to a fear of vaccines being used as biological weapons. Such views need to be understood in the context of a colonial history of [unethical clinical trials](#) and [extractive practices](#). This is not unique to COVID-19: [Child vaccination rates in Africa are reported](#) to be considerably lower in areas where the local population mistrust local authorities

Table 1 Reported nature of vaccine hesitance, selected ESA countries, 2021

Country	Nature of hesitancy reported
Kenya	In Kenya willingness increased as people felt more at risk, and conversely decreased when the risk perception declined. Willingness was also greater for those living alone, for older people, and those with formal education. Some people preferred COVID-19 contact-prevention to vaccination. Mental health disorders, nervousness and hopelessness was also found to reduce willingness to take COVID-19 vaccines. In a phone-based survey in February 2021 in four rural counties of Kenya , beyond concerns regarding vaccine safety and effectiveness, there were religious and cultural concerns affecting uptake.
Madagascar	In Madagascar uptake of voluntary vaccination is reported to have been affected by the promotion of a herbal remedy as a <i>cure</i> by the Head of State.
South Africa	A 2021 study found COVID-19 vaccine uptake willingness in South Africa to range from 52% to 82%, influenced by age, employment status, urban residence, and geographical location. A quarter of South Africans who said that they did not intend to take the vaccine when available indicated that they are opposed to vaccines in general. Others raised concerns about its side effects (25%); doubts of its effectiveness (18%); and lack of trust and uncertainty. A small number raised doubt in the existence of COVID-19 or connected it to powerful group interests or to the occult.
Tanzania	In Tanzania , many Tanzanians are still undecided about getting vaccinated because of a complex web of moral, medical and political convictions. Resistance and suspicion of the science behind the vaccine is reported to have been stimulated by some politicians and clerics who oppose vaccinations on religious grounds, and rumours that the vaccine causes infertility. As one urban resident noted: <i>There are too many things that people say about COVID vaccines. It is hard to tell who is saying the truth.</i>

These [perceptions are reported to be dynamic](#). Increased and more reliable vaccine supply and improved communication outreach has been linked to reduced hesitancy, while new variants and disruptions in supply can fuel increased hesitancy. As noted earlier, there is thus a relationship between population concerns and the functioning of the supply and distribution system.

[As noted in one Uganda report](#), community members with concerns expect health personnel to fully answer their questions before they request their shot. Even before the pandemic, [WHO/UNICEF in 2018](#) recommended that countries develop strategies to increase acceptance and demand for vaccination, including through ongoing community engagement and trust-building, active engagement on issues leading to hesitancy, regular national assessment of vaccine concerns, and planning for and ensuring reliable vaccination services. Many of these inputs call for local authorities and civil society to have the resources and flexibility to implement communication relevant to their social contexts.

[Several countries are accelerating and expanding communication campaigns](#), backed by mass vaccination centres and procedures, and outreach measures to support access. These include pop-up clinics and vaccination busses for communities such as migrant and homeless people less likely to engage with static sites; walk-in centres and drive-through facilities in community venues, marketplaces and integrating COVID-19 vaccination services in existing services. Refugees have been registered in designated centres near their communities, such as in Cameroon and Senegal. The health professional community and CHWs have a key part to play in supporting distribution, vigilance on side effects and informing populations about vaccines, addressing concerns of clients and linking with civil society and media outreach. This implies that their own concerns are addressed, both in their role in delivery, in their own social protection and in relation to their views on vaccine safety and effectiveness. These are not one-off strategies. Social views need to be constantly monitored and information consistently communicated, through directed communication from trusted people to mass and social media, to address concerns and challenges, particularly with the emergence of new variants and approaches, and to counteract non-factual statements made on social media by influential individuals.

Listening to, engaging with and supporting active community and frontline worker roles are part of longer term comprehensive PHC strategies, rather than actions that suddenly begin during pandemics. Institutions with longer-term and more consistent health literacy and social engagement are more likely to be trusted and more able to pivot to pandemic needs, including on 'vaccine literacy'. Local non state actors are, however, often sidelined in pandemics when they are viewed as 'emergencies'. [Local non state actors in a 2020 dialogue](#) on pandemic responses expressed uncertainty that they are being heard and valued by continental and international institutions. Yet large international NGOs have greater power and finances, but lack the connection and understanding of communities that local institutions have. Positioning local non state actors only as 'translators' and 'outreach workers' loses and potentially weakens the longer term and more consistent interaction that builds effective communication and trust.

The combination of supply, distribution factors, uptake barriers and social perceptions can generate greatest inequity between need and coverage for the most marginalised groups. [WHO suggest, for example, that](#) innovative tailored approaches are needed to reach and engage with refugee and migrant communities that are unconnected with mainstream services. From a service lens, this may imply providing mobile, pop-up clinics and services in non-clinical venues, integrating vaccinated in wider health services or using mass vaccination campaigns, depending on the situation. WHO note that outreach for such groups needs to address social concerns, such as shielding those in irregular situations, or undocumented migrants from the possible transfer of their personal data to immigration authorities when they use health services. Decisions on how to organise outreach should thus proactively involve community-based organizations, migrants' rights and labour organizations and community leaders.

One of the strategies used to manage hesitancy in a range of different countries globally is using vaccine mandates, requiring proof of vaccination for access to employment, or particular public spaces. In November 2021, South Africa's President Ramaphosa announced that the government was examining [possible vaccine mandates](#), while some ESA countries have also proposed [vaccine mandates](#) and passes. [The Zimbabwe](#) government, in 2021, issued a notice requiring civil servants to get vaccinated against COVID-19 to come to work or lose earnings. The Kenya government has proposed requiring people to show proof of vaccination to access in-person government services; restaurants, bars and hotels; public transport, and to enter public spaces. These proposals for vaccine mandates have fuelled criticism and debate on both their

constitutionality and public health effectiveness, particularly in a context of supply and distribution issues, such as those noted in this brief, and the potential for mandates to exacerbate inequity. In Kenya, a court order was issued suspending the action. A decision on a compulsory public health measure like a mandate needs to take evidence, context, legal norms and available remedies into account, and this may differ across countries and groups. There is a view, reinforced by the [UN Syracuse principles](#), that such compulsory public health measures should be based on transparent public-domain evidence that shows compelling necessity and justification, and only used if reasonable, such as taking into account the availability, outreach, access and communication issues raised in this brief, and if other less restrictive measures to control risk are infeasible or have failed. A decision to apply mandates calls for evidence-based consultation, including with affected groups, and legal scrutiny, particularly to avoid exacerbating rather than addressing mistrust, misinformation, discrimination, and inequity.

5: Addressing equity- from vaccines to vaccinated populations

Supply constraints continue to pose a major challenge to more equitable vaccine outreach in the ESA region, and to particular groups within countries. Unpredictable supplies not only undermine effective organisation of outreach at country level. The evidence indicates that this also undermines population confidence to spend time and resources visiting vaccination centres, especially for those who have least resources. The brief points to a number of ways that have been proposed to address donated supply challenges, but suggests that the only sustainable way to ensure that the ESA region has access to the vaccines it needs for this and future pandemics is to enable and invest in local production in the region, including through the TRIPS Waiver.

While five ESA countries have a fifth or more of their populations fully vaccinated, they are a minority in the region, and others have half or less of this share. Notwithstanding efforts to reach those most vulnerable, supply constraints mean that some countries and communities are less protected, with deficits and delayed vaccination costing lives, wellbeing and income.

There is a policy intention in ESA countries to vaccinate those with highest need. For example, health workers are prioritised in their vaccination plans. However, only 27% of African health workers had been fully vaccinated by late 2021. Elderly people, those with underlying conditions and weakened immunity, pregnant women, and workers with high levels of public interaction are further groups identified to need particular attention for equity in vaccine uptake, including in vaccine dissemination plans and budgets, as do remote populations, refugees, displaced and homeless people and migrant, mobile and pastoral workers and communities, and those in conflict zones, all of whom face unique barriers to service access, and many of whom make up large numbers in ESA populations.

Challenges in cold chain logistics, infrastructures, storage technologies and transport affect 'last mile' vaccination outreach, especially for these more remote and disadvantaged communities. Having a portfolio of safe and efficacious vaccines that are stable at room or regular fridge temperature or can be applied in a single dose regimen would help to overcome some of these distribution challenges. At the same time overcoming inequities does not simply demand technology options. The brief captures some of the creative strategies used in ESA countries, drawing on existing experience and capacities, and decentralising outreach through a range of ways of taking services into remote areas and community settings that are accessible to and familiar for marginalised groups. Many of these approaches have worked because they are locally embedded and include effective interaction between services and communities, implemented by frontline workers, CHWs, civil society, community activists, local authorities and 'influencers' that have a more sustained relationship with communities.

Information is a vital part of the mix, but so too is overcoming costs, time, transport and other barriers. Migrant workers are, for example, often not explicitly addressed in national plans, and undocumented migrants may fear reporting for vaccination as exposing them to deportation. Several ESA countries are accelerating and expanding communication campaigns, while noting that these work when backed by measures to overcome barriers and support access. For many groups social media has played an important role in uptake, for sharing both information and misinformation, and needs to be engaged with. However, not all groups access or use digital

media, and the evidence also points to the importance of more direct information from trusted sources. Community members with concerns expect their questions to be answered, including by health workers, for their uptake of vaccination.

At the same time, the reasons for pockets of vaccine hesitancy, found in almost all countries globally, do need to be understood and acted on, especially where they exacerbate other factors driving COVID-19 inequities. Surveys indicated that willingness, or not, to take a COVID-19 vaccine depended mostly on trust in vaccines and authorities, and concerns on vaccine safety and efficacy. Addressing this goes beyond one-off strategies. Reported experiences point to the value of more consistent engagement and communication with different groups through trusted actors, particularly given the dynamic and changing nature of the pandemic and responses. Some ESA countries are exploring or implementing vaccine mandates, on the basis of duties to protect public lives. Compulsory immunisation has been sparsely used in the past in the ESA region, such as to vaccinate children against measles when high epidemic rates pose a risk to child survival and where the state fulfils its duties to minors. In these circumstances it has been time limited and accompanied by measures to consult and engage social groups resisting uptake, including through their community leaders. In the context of the still present supply, distribution and uptake barriers in ESA countries, there is debate on both the legal justification and public health effectiveness of COVID-19 vaccine mandates and their impact on equity, including whether they will address or exacerbate the barriers, mistrust, misinformation and other factors generating inequity in uptake.

The evidence in the brief counters rhetoric from some sources that vaccine hesitancy has overtaken supply constraints as a major factor affecting the roll out in Africa. Increased and more reliable vaccine supply and improved outreach has been linked to reduced hesitancy, and conversely disruptions in supply are seen to increase hesitancy. The brief highlights that by the end of 2021, a combination of supply, distribution, uptake and social factors continued to generate inequity between need and coverage between countries and communities.

Learning over the past two years on this global pandemic and the conditions generating new variants indicate that , as stated by the AU, that no country (and indeed community) will be safe until all countries (and communities) are protected, and that vaccines, while a key measure, are not a singular strategy, and need to be located within a wider set of systems and measures for promotion, prevention, care and social protection.



The evidence in the brief suggests that beyond a singular campaign focus, and in this prolonged pandemic, equity in vaccine outreach, uptake and coverage builds on, needs to be planned for and located within longer-term comprehensive PHC strategies, rights, duties and capacities.