

# U4 Helpdesk Answer

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U4 Helpdesk Answer 2022:21

## Corruption risks related to investment in vaccine manufacturing facilities in Africa

The establishment of vaccine manufacturing facilities in Africa can help reduce inequities seen in global Covid-19 vaccine distribution. Diversifying manufacturing will nonetheless require a large-scale of investment of resources, which brings significant corruption risks.

These risks start with the capture of manufacturing policy, through to the operationalisation of facilities and the distribution of vaccines.

Development funders supporting diversification have an important role to play in helping responsible firms invest in manufacturing. Funders can work with international health organisations and national governments to reduce the opacity around vaccine development and production, which has harmed the pandemic response to date.

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# Query

Please provide an overview of the corruption risks associated with investment in new vaccine facilities in Africa, with a focus on Egypt, Morocco, Senegal and South Africa.

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## Caveat

This answer provides an overview of sectoral risks based on a review of existing literature. It includes examples from the four countries of interest but does not provide a detailed assessment of risk by country.

## Introduction

Vaccine inequity is one of the most harmful and deplorable aspects of the global response to the Covid-19 pandemic. As of 7 November 2022, World Health Organisation (WHO) figures show 74% of people in high-income countries have received at least one dose of a Covid-19 vaccine compared to 20% in low-income countries. Africa is the region with the lowest vaccination rates globally with 24%

## MAIN POINTS

- Africa is the region that has suffered most from inequity in the global distribution of Covid-19 vaccines. Limited regional vaccine manufacturing capacity has been a contributing factor.
- Corruption risks are present across the value chain for manufacturing. Pharmaceutical firms are in a position of power, which can be exploited to capture policy for narrow commercial interests. Financial structures, including forms of blended finance, need to be fully transparent to prevent conflicts of interest and the misuse of funds.
- The literature points to registration of vaccines and public procurement processes as being key areas of risk. These systems have been disrupted in the pandemic response. Clearer guidelines are needed in this new context to lower vulnerabilities to corruption.
- Geographic shifts in vaccine manufacture should be accompanied by an increase in transparency. Different groups of actors must collaborate to make more information available for scrutiny, including on the public funding and financial incentives offered to manufacturers to diversify, clinical trial and pricing data, as well as contractual terms.

of the population having received at least one vaccination (WHO 2022). There are multiple reasons for these stark inequities, which include vaccine hoarding by wealthy countries, the organisation and structure of global manufacturing capacity and supply chains, capacity issues in national health care systems, and problems of demand and vaccine hesitancy (Covid-19 Vaccine Delivery Partnership 2022).

In addition, as Hussmann (2021) emphasises, secrecy and opacity in Covid-19 contracting, both at national levels and in the Covid-19 Vaccines Global Access Facility (COVAX), make it difficult to know how many vaccines will become available to different countries at different points in time. Moreover, a lack of publicly available information about bilateral donations by vaccine-producing countries reinforces the perception that vaccine distribution is subject to foreign policy interests, a phenomenon referred to as ‘vaccine diplomacy’ (Shok 2022). All this hinders the equitable distribution of vaccines to where they are most needed.

As international actors look at ways of addressing these structural issues, the focus of this brief is on investment into national manufacturing facilities in Africa and the corruption risks that could undermine this effort.

The need for increased vaccine manufacturing capacity in Africa has long been apparent but has been brought into sharp relief by the Covid-19 pandemic. African countries import 99% of the vaccines used in the region. While there are 14 manufacturing facilities across the region, these do not cover the whole end-to-end production process. Overall manufacturing capacity is exceptionally limited (Kagina 2022). As of February 2022, the

Covid-19 Vaccines Global Access Facility (COVAX) reportedly accounted for 60% of the vaccines distributed in Africa. The facility is partly supplied from country donations and has made available vaccines manufactured by international firms such as AstraZeneca, Moderna, and the Serum Institute of India (Nature 2022).

In March 2022, the Africa Center for Disease Control and Prevention (Africa CDC) set a target for Africa to manufacture 60% of vaccines needed within the region. Its Framework for Action for Partnerships for African Vaccine Manufacturing is organised around eight programmes that cover issues ranging from technology transfer and the creation of research and development (R&D) centres to supporting the establishment of 3-4 Covid-19 vaccine plants (Africa CDC 2020).

International health organisations, namely Gavi, the Vaccine Alliance, and the WHO have also announced plans to support regional manufacturing in low and middle-income countries (Berkley 2022). In 2021, the latter established an mRNA technology transfer hub in South Africa to provide manufacturers in low and middle-income countries with the technology needed for vaccine manufacture. Following a call for expressions of interest, the WHO selected a South African consortium to operate the hub.<sup>1</sup> The hub receives support from the WHO, the Medicines Patent Pool and the Act-Accelerator/COVAX. Clinical trials are expected to start in late 2022, with the first approvals sought in 2024 (WHO 2022a).

There are additionally different financing instruments that have been initiated or are under consideration to facilitate diversification of vaccine manufacture to Africa. These involve public and private actors and range from direct subsidies or

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<sup>1</sup> The consortium comprises the pharmaceutical firm Afrigen Biologics, the South African Medical Research Council (SAMRC) and Biovac, a South African vaccine producer.

technical grants to manufacturers (local and/or international) from governments and/or donors, concessional finance to manufacturers provided by development agencies and/or development finance institutions (DFIs) to joint ventures and public-private partnerships (Gennari et al. 2021; Jerving 2021). The latter types of support can be categorised as a form of blended finance, defined by the OECD (2018) as “the strategic use of development finance for the mobilisation of additional commercial finance towards the SDGs in developing countries”.

There are significant challenges involved in an endeavour that is essentially seeking to “creat[e] a multi-million industry from scratch” (Berkley 2022). These hurdles include securing financing, ensuring the commercial competitiveness and sustainability of facilities, intellectual property issues and generating demand for vaccines (Covid-19 Vaccine Delivery Partnership 2022).

The task of diversifying manufacturing falls to several key groups of actors, namely:

- pharmaceutical companies, both international and national, as well as distributors
- funders such as banks, development agencies, DFIs and investment funds
- national governments, in particular, health regulatory agencies and procuring authorities
- international public health organisations
- civil society

This paper references these actors at different points throughout the brief and, in the final section, considers how each can contribute to reducing the risk of corruption.

## Risks across the value chain

There are a number of existing research studies of high relevance to this brief. These cover a range of issues, including:

- corruption risks in the pharmaceutical sector generally (Kohler et al. 2016; Cohen, Mrazek and Hawkins 2007)
- issues that have arisen during the Covid-19 pandemic regarding the quality of medicines (Steingrüber and Gadanya 2021)
- specific risks associated with vaccine development and roll-out (Cepeda Cuadrado et al. 2022; Hussmann 2021; Rahman 2021; Transparency International Global Health 2022; UNODC 2020).

This brief synthesises the risks most relevant to the diversification of vaccine manufacture and organises these risks along the value chain for vaccine development.

The risks need to be considered in the context of the broader challenges facing national health care systems in Africa. While circumstances differ, most African countries experience, to varying levels, problems associated with the capacity to provide universal health coverage, inconsistency in financing, circulation of substandard and falsified medical products, and myriad disease profiles (Amu et al. 2022). The Covid-19 pandemic exacerbated these issues and created favourable conditions for corruption, as many oversight bodies were constrained in their operations by emergency decrees and lockdowns.

## Policy capture

Incentivising vaccine manufacturers to diversify production sites may involve changes to legal and regulatory frameworks in the countries concerned. Issues such as safety standards, intellectual

property rights, indemnification of firms, preferential pricing and payment terms, local content rules, competition laws and tax regimes may all be areas that involve negotiations between states and private companies.

There are often power imbalances in these negotiations created by information asymmetries between firms and states. Companies have the technical and pricing details, and there is limited public disclosure globally that would allow states to compare this information (Hussmann 2021). Intense pressure on states to secure security over vaccine supply further tips the balance of power in negotiations toward firms (Gorodensky and Kohler 2022).

State capture – here understood to take place when “pharmaceutical companies shift laws, regulations, or policies about their products away from the best interest of patients and the public, toward the companies’ private benefits” (Gorodensky and Kohler 2022) – is the prevalent risk at this stage of the value chain. Firms may exploit power imbalances to create a legal and regulatory framework which is unduly favourable toward firms at the expense of the public interest. This need not necessarily involve illegal activity, such as bribery, but can use legal and grey mechanisms such as lobbying and political donations to influence negotiations. State capture in the formation of law and policy may then extend into implementation (how laws and policy are enforced) and diminish the accountability ecosystem (the potential for other actors to hold firms to account) (see Dávid-Barrett 2021 for an overview of the contemporary phenomenon of state capture).

In an August 2022 paper, Gorodensky and Kohler presented evidence that Covid-19 vaccine manufacturers have engaged in state capture in their negotiation of financial indemnification from national governments procuring vaccines. They found that low and middle-income countries

(LMICs) had changed legislation to allow national governments to cover the financial losses that might be incurred by vaccine sellers as a result of lawsuits brought in the case of severe adverse events caused by their products. These changes were not required in most high-income countries, delaying access to vaccines in LMICs and contributing to global inequity in vaccine distribution (Gorodensky and Kohler 2022).

Incentives such as tax breaks for firms re-locating manufacturing sites, guaranteed preferential procurement of vaccines and restrictions on competition might conceivably be open to policy capture. These types of incentives may be a legitimate means of attracting firms; however, when negotiations take place behind closed doors with limited public scrutiny, there is a risk of abuse. When a small number of private companies become dominant actors in a market, the risks of capture are also enhanced (Gorodensky and Kohler 2022).

The track record of the pharmaceutical industry in terms of lobbying transparency is poor (Kohler et al. 2016). International health agencies and donors encouraging manufacturers to diversify must be mindful of the risk of policy capture. These actors can also play a role in mitigating the risks by sharing critical information and helping to mediate negotiation processes (see Section 3).

#### **Pressure on vaccine indemnification in South Africa**

Over the last two decades, South African authorities have been involved in several high-profile disputes with global pharmaceutical firms in relation to lobbying on legislation for the manufacture of generic medicines (Motsoeneng 2014). Negotiations between the Department of Health and Pfizer for the procurement of the Covid-19 vaccine were reportedly tense (Davies and Furneaux 2021). As reported by the Bureau of Investigative Journalism, Pfizer had demanded that South Africa put up sovereign assets as a guarantee for legal indemnification from civil



claims brought against the company. This demand covered each step in the supply chain with Pfizer and other international firms demanding “complete confidentiality” around the negotiations. Experts consulted by the Bureau of Investigative Journalism regarded the demand as unreasonable. The company eventually dropped the requests but this led to a delay to vaccine delivery dates (Davies and Furneaux 2021).

### **Capture of the pharmaceuticals market by the Egyptian military**

The Egyptian military exercises extensive control over the national economy. Military-owned businesses have expanded under the current Egyptian President, Abdel Fattah el-Sisi (2014 – present), who has also appointed a high proportion of former military officers to civilian roles. The military’s influence is evident in the pharmaceutical sector and has been built on the capture of the legal framework (Sayigh 2019).

In 2016, the Ministry of Defence (MOD) won an exclusive right to procure “strategic” medical supplies, including vaccines, for the Ministry of Health. The MOD has been able to position itself as a key supplier to public health authorities due to favourable legislation which exempts it from paying customs duties on imports. The MOD is also not obliged to observe limits on non-competitive procurement, and its contracts are protected from legal challenges from third parties. The Engineering Authority of the Egyptian Armed Forces has in addition won numerous high-value contracts for construction work in the health sector, including upgrading work on 54 medical facilities in Upper Egypt in 2018 (Sayigh 2019: 270).

### **Financing arrangements**

As summarised in the introduction, there are different financing arrangements under consideration to support the diversification of vaccine manufacture. Some of these instruments fall under the category of blended finance, the use of development finance to mobilise additional

commercial finance for investments in low and middle-income countries.

While the exact nature of the risks will vary depending on the transaction structure, there are some common integrity considerations which are relevant to blended finance (for a full discussion of the issues see Jenkins 2018; Jenkins 2022). Particular attention should be paid to risks related to the misappropriation and/or misuse of funds provided to support development objectives, ownership structures that include politically exposed persons (PEPs) with conflicts of interest, and co-investors investing illegitimate sources of funds into transactions. These risks stem from several factors including a lack of transparency around the terms of concessional financing and the ways in which the recipients of funds are selected; transaction structures that channel resources through financial intermediaries such as investment funds, which makes it harder to monitor the use of funds; and the routine use of offshore financial centres in blended finance structures (Jenkins 2018; Jenkins 2022; Shipley 2022).

Public funders of manufacturers and financial intermediaries further need to consider the risk of misalignment of incentives. Manufacturers and funders need to be aligned on the objectives of the project so that developmental goals are not deprioritised behind commercial objectives (Jenkins 2022). Conflicts might arise, for instance, in vaccine pricing and distribution strategies, where commercial logic would prioritise countries with the highest capacity to pay to the detriment of more vulnerable communities. According to Robbins (2021), Moderna allegedly adopted this tactic by “supplying its shots almost exclusively to wealthy nations, keeping poorer countries waiting and earning billions in profit.”

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## Constructing and operationalising manufacturing facilities

The production of vaccines at scale in the region will require the construction of new manufacturing sites as well as the adaptation or expansion of existing facilities. Some of the corruption risks apparent at this stage of the value chain therefore overlap with those prevalent in the construction sector. Land acquisition for sites and, if required, the conversion of land use rights for industrial purposes, entail significant corruption risks (Zúñiga 2018). Certain forms of corruption, such as bribery and bid-rigging, may take place in tender processes for contractor selection. In executing the project, construction firms may also make small bribe payments to workplace inspectors to avoid oversight, while fraud in expenditure and materials can lead to financial leakage from the project (Global Infrastructure Anti-Corruption Centre 2022).

The Good Manufacturing Practices (GMP) certification represents an international framework for the quality and safety of pharmaceutical products. To be licenced, manufacturers must meet these minimum standards, while national drug regulatory agencies are typically responsible for monitoring compliance (WHO 2014). Previous research studies have highlighted the risk that manufacturers may make bribe payments to regulatory officials to obtain and/or maintain the GMP certification (Kohler, Martinez and Sale 2016). Bribery of officials undermines the fair assessment of facilities in critical areas for vaccines such as safe storage, the sanitation and hygiene of premises, and quality assurance mechanisms.

According to WHO data from 2018, less than 30% of national regulatory agencies have the capacity to guarantee patient access to medicines, vaccines and other products which do not cause harm (Steingrüber and Gadanya 2021). In contexts where regulatory capacity is weak, this places more

emphasis on self-regulation by firms to ensure quality in manufacture. In the case of international firms, while there are reputational incentives that would encourage firms to maintain even global standards, there is a risk that standards can lapse in less regulated jurisdictions. Some firms might seek to increase profit margins in countries with poor testing capabilities by using a lower level of active pharmaceutical ingredients and cheaper materials that fall below GMP requirements (Steingrüber and Gadanya 2021).

The consequences of corruption are perhaps among their clearest at this stage of the value chain. Corruption may result in the construction of substandard and unsafe facilities, loss of funds and the creation of substandard vaccine products (Kohler et al. 2016).

### Bribery of a health official in Morocco

The case of Fresenius Medical Care AG & Co. KGaA (Fresenius), a Germany headquartered medical services company, illustrates risks that can arise as international firms seek to build an operational presence in new markets. In 2019, Fresenius paid US\$231 million in penalties to the US Department of Justice for violations of the Foreign Corrupt Practices Act in multiple jurisdictions. In Morocco, Fresenius was looking to build new dialysis centres at state-owned military hospitals. Court documents show that between 2006 and 2010 Fresenius paid approximately US\$3.7 million to a Moroccan state official to secure the contract. The company disguised the commissions as bonus payments to a Fresenius employee (US Department of Justice 2019).

### Vaccine registration

Several previous studies identify the registration of pharmaceutical products as a pinch point for corruption risk (Rahman 2021; Kohler et al. 2016; Cohen, Mrazek and Hawkins 2007).

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At this point in the value chain, firms will have invested significant resources in product development, resulting in financial pressure to obtain approvals. Fast-track registration processes for Covid-19 vaccines may additionally diminish the level of scrutiny normally accorded by national regulators.

The types of corruption risks present at the product registration stage include:

- presentation by firms of false research and trial data to support registration
- bribery of officials to obtain approval
- conflicts of interest held by responsible officials with links to pharmaceutical firms
- lobbying by firms to water down registration processes
- lobbying to impede entry for competitors

Technology transfer between firms may facilitate registration processes in the case of Covid-19 vaccines. The Africa CDC Framework for Action for Partnerships for African Vaccine Manufacturing (2022) also envisages a role for a Vaccine Technology Transfer and Intellectual Property Enablement Unit, designed to support manufacturers in early engagement with regulators and promote “pooled licencing” across countries (Africa CDC 2022).

The involvement of international actors may to some extent help mitigate corruption risks in registration processes. However, this will depend on how these processes are managed. To date, there has been low transparency around technology transfer in areas such as pricing around licencing agreements, clinical trial transparency, and the use of public funding for vaccine development (Hussmann 2021; Transparency International Global Health 2021).

### Weaknesses identified in Egypt’s pharmaceutical registration system

An academic study published in 2021 identified several vulnerabilities to corruption in Egypt’s medicine registration processes (Ragab Abd Elsalam 2021). Using a methodology developed by the WHO (2009) for measuring transparency in the pharmaceutical sector, the study found that Egypt ranked poorly compared to 14 comparable countries. The study identified specific concerns around the registration committees responsible for approving medicines. These concerns included opacity around the selection criteria for committee members, the absence of guidelines around decision-making in committees, and a lack of guidance for committee members on conflicts of interest. This has contributed to a registration system that allows substantial discretion for individual committee members. The committee has reportedly struggled to adequately apply changing regulatory frameworks related to medicine registration (Ragab Abd Elsalam 2021).

### Public procurement

Manufacturers need to develop an understanding of the corruption risks in public procurement processes in the markets where they want to sell vaccines. Public procurement is one of the highest-risk areas for corruption in health systems, with a high proportion of spending on public medicine procurement being lost to corruption (WHO 2009).

The Covid-19 pandemic had a disruptive impact on the organisation of public procurement in health systems. Many countries established dedicated task forces for pandemic related procurement, which led to greater centralisation. Further, countries had to invoke emergency procedures to secure medicines and supplies, overriding competitive bidding requirements (Wright and Darby 2020). As the pandemic has evolved, it has clouded many of the rule-based norms around public procurement processes. Increasingly, information has come to



light across the globe that demonstrates that this provided an opportunity for corruption.

In considering corruption risks in public procurement, it is important to look at the procurement cycle holistically, from the designation of needs through to the tendering processes and the delivery of vaccines (Cohen, Mrazek and Hawkins 2007). A distinction can also be drawn between systemic corruption in public procurement, where the system is rigged in favour of small groups of elites, and a procurement system that is affected by more isolated examples of rule-breaking (Kohler et al. 2016). Vaccine manufacturers based in Africa looking to export to other countries in the region must recognise that the nature of corruption in procurement will vary across markets.

The most common types of corruption issues seen in public procurement processes in health systems are (Onwujekwe et al. 2020; United Nations Office on Drugs and Crime 2020):

- improper needs assessment to inflate expenditure
- manipulation of technical criteria to favour certain bidders
- collusion between bidding firms
- bribery of officials with influence over contract awards
- conflicts of interest held by officials with influence over contract awards, such as connections to bidding firms
- abuse of lobbying rules to put undue pressure on decision-makers in relation to public contracting
- delivery of products inferior to contract specifications to increase profit margins

The risk of these types of issues has been exacerbated around the world by opaque procurement procedures for vaccines. Research

published by Transparency International Global Health found that in May 2021, only 6% of vaccine contracts between developers and public buyers had been published through formal channels. A mere 0.5% of the total had been published without redaction. The consequence is that critical information that would allow for fair scrutiny of the contracts, such as the number of doses secured and timetables for delivery, is generally not publicly available (Transparency International Global Health 2021).

#### **Corruption in Covid-19 procurement in South Africa**

In January 2022, the Special Investigating Unit (SIU), a South African law enforcement agency, announced that it was investigating Covid-19 contracts valued at around US\$137 million for suspected corruption and fraud. The allegations concern multiple government departments and relate to various types of procurement, such as personal protective equipment and emergency food relief (Winning 2022). The allegations have implicated South Africa's former minister of health, Dr Zweli Mkhize (2019-2021). He has been accused of improperly interfering in the award of a Covid-19 communications contract to a business run by close associates (Magome 2021).

These allegations follow established patterns of corruption in procurement in the health sector in South Africa. The state capture scheme led by the former president, Jacob Zuma (2009-2018), extended to the regional level. Previous studies have shown how several regional health authorities, including in Free State and Gauteng provinces, were headed by Zuma loyalists. They saw high levels of irregular expenditure between 2010 and 2017 (Spotlight 2017). In one particularly shocking case, a whistleblower who flagged nearly £43 million in potentially fraudulent transactions at Tembisa hospital in Gauteng and had later acted as a key witness for special investigators was shot dead outside her home in 2021 (Farmer and Thornycroft 2022).

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Following the recent SIU investigation, the government has established an interministerial committee to manage the response to allegations of corruption in Covid-19 procurement. It will reportedly ensure that contracts on Covid-19 are made public, as well as increase the level of information provided to the auditor-general and law enforcement agencies (South Africa Standing Committee on Public Accounts 2020). However, in March 2022, the Africa Criminal Justice Reform Unit found that 386 cases relating to corruption in Covid-19 related procurement in South Africa were still pending from the 2020/21 financial year (Davis 2022).

### Corruption in Covid-19 procurement in Morocco

Morocco has also seen multiple investigations into procurement related to the Covid-19 pandemic. In March 2022, the public prosecutor in Morocco charged 31 individuals with suspected fraud and corruption in procurement processes for the health care sector. The individuals charged are accused of diverting funds intended for the acquisition of medical equipment in public hospitals. The group allegedly operated as a network organised across central and regional health authorities (Medias24 2022).

### Delivery, targeting, and distribution

Previous U4 briefings have examined the specific corruption risks related to the delivery, targeting and distribution phases of vaccine roll-out (Rahman 2021; Cepeda Cuadrado et al. 2022) as well as the associated challenge of substandard and falsified medical products (Steingrüber and Gadanya 2021).

Key corruption risks at this stage include:

- theft and resale of vaccines from the supply chain

- bribery by firms to secure logistics contracts and/or conflicts of interest around logistics contract awards
- nepotism by elites to secure vaccine access or vaccine certificates
- clientelism in vaccine targeting, with certain populations favoured for political reasons rather than on the basis of medical need
- infiltration of substandard and falsified medical products into the supply chain
- bribery of health care professionals by patients to secure vaccine access or vaccine certificates
- bribery of customs officials to facilitate onward export of vaccines

Vaccine manufacturers need to be alert to the problem of substandard (poor quality products manufactured or distributed without intention to deceive) and falsified medical products (products of poor quality and deliberately misrepresented).

Falsified products manufactured by illegitimate or unlicensed suppliers as well as organised crime groups represent a direct form of corruption. They have long presented a global challenge for the pharmaceutical sector, and the need for vaccines presents a new opportunity for criminal actors. The majority of drug regulatory agencies worldwide do not have the capacity to adequately monitor the supply chain to prevent circulation of substandard and falsified medical products (Steingrüber and Gadanya 2021). Manufacturers may be exposed either through the unlawful replication of their product and/or the theft of vaccines which are subsequently stored and administered in unsafe conditions.

These are challenges which can be hard to control given the nature of medical supply chains in Africa. Populations are spread over vast geographic areas and many countries face critical infrastructure

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gaps. International firms importing medical products into the region have additionally tended to rely on third-party distributors to reach health facilities and populations (Asoko Insight 2020). Responsibility for the day-to-day management of corruption risks in delivery, targeting and distribution of vaccines may therefore rest with a subcontracted third-party firm. Conflicts of interest, such as distributor firms whose owners include politically exposed persons (PEPs), may also be apparent at this level of the supply chain (Rahman 2021).

Third-party distributors and logistics firms have a key role to play in the onward export of vaccines. The Africa CDC's (2022) roadmap for vaccine manufacture envisages regional manufacturing hubs that export into different markets. Corruption issues that affect the cross-border movement of products, such as facilitation payments and bribery of customs officials are also therefore important considerations for manufacturers and their funders (Fjeldstad 2020).

#### **Distribution challenges in Senegal**

In Senegal, the purchase and national distribution of Covid-19 vaccines is managed by the Pharmacie nationale d'approvisionnement (PNA), the national supply pharmacy. The PNA has encountered major challenges in distributing Covid-19 vaccines to all regions, stemming particularly from a lack of cold chain storage capacity and transportation issues (Ollivier 2021).

Political economy analysis commissioned by USAID further highlights governance challenges at the PNA, which impede its ability to effectively manage supply chains (Fox 2020). Senegal compared unfavourably to Cameroon and Burkina Faso in areas such as bookkeeping and inventory management. At this time, there was little evidence PNA had conducted quality assurance of the suppliers. The agency also lacked financial records to justify payments made (Fox 2020).

While Senegal has increased the number of trained pharmacy inspectors, the inspection regime over the administration of pharmaceuticals remains weak. One root cause lies in neo-patrimonial influences over hiring processes for staff. Positions across the health sector are often awarded due to networks of patronage rather than on the basis of meritocratic hiring. This contributes to corruption problems observed in the health care sector in Senegal such as absenteeism and requests for small bribe payments, which present barriers to accessing vaccines (Fox 2020).

#### **Fake Covid-19 vaccines in South Africa**

Recent enforcement action taken by South African authorities provides evidence of the real threat presented by the circulation of falsified Covid-19 vaccines. Following an Interpol alert, in March 2021 South African police seized 400 ampoules (equivalent to 2,400 doses) of fake Covid-19 vaccines at a warehouse in Gauteng. This coincided with the arrest in China of 80 suspects connected to an organised crime group selling falsified Covid-19 vaccines. At the time, Interpol issued a press release stating that this was likely to represent "the tip of the iceberg" for fake vaccine circulation in Africa (Interpol 2021).

## **Priority mitigating measures**

Addressing corruption risks is essential if manufacture diversification is to achieve its ultimate goal of improving responses and preparedness for pandemics in Africa. The final section of this paper sets out potential mitigating measures, which are organised by the main types of actors involved in manufacture diversification. This is a non-exhaustive list of measures that draws upon existing research on these themes (Cepeda Cuadrado et al. 2022; Hussmann 2021; Rahman 2021; Steingrüber and Gadanya 2021; Transparency International Global Health 2022; UNODC 2020).

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Actor	Priority anti-corruption mitigating measures for vaccine manufacture
Pharmaceutical manufacturers (international and national firms)	<ul style="list-style-type: none"> <li>• assess and update organisational standards on integrity and anti-corruption, including standards applicable across the supply chain and to subcontractors</li> <li>• conduct corruption risk assessments for manufacturing sites and export markets</li> <li>• conduct due diligence on the reputation and anti-corruption controls of third-party distributors</li> <li>• explore the use of technology such as blockchain to lower diversion risks in supply chains</li> <li>• publish clinical trial data, pricing information and contracts for Covid-19 vaccines</li> </ul>
Funders (banks, development agencies, DFIs, investment funds)	<ul style="list-style-type: none"> <li>• conduct due diligence on manufacturers selected for funding that covers their track record on corruption issues, ownership structure and the standard of anti-corruption controls</li> <li>• publish information on the developmental objectives of investments and plans for monitoring these objectives</li> <li>• promote increased vaccine contract transparency covering terms such as pricing, indemnification clauses, delivery commitments and scheduling</li> <li>• make available technical assistance funding for anti-corruption measures</li> <li>• adopt protocols for responding to integrity incidents by firms, including withdrawal of funding</li> <li>• establish gender-sensitive and appropriate whistleblowing mechanisms, ensuring reporters are protected from any harm</li> </ul>

<p>National regulatory authorities and procuring bodies</p>	<ul style="list-style-type: none"> <li>• publish information on incentives offered to firms to diversify manufacture</li> <li>• conduct regular audits of manufacturing facilities</li> <li>• make proactive attempts to disrupt the activities of organisations producing and disseminating substandard and falsified medical products</li> <li>• adopt and public clear criteria for emergency procurement measures for COVID-19 vaccines</li> <li>• make available and resource channels for reporting corruption related to COVID-19 vaccines</li> <li>• establish gender-sensitive and appropriate whistleblowing mechanisms, ensuring reporters are protected from any harm</li> </ul>
<p>International health organisations</p>	<ul style="list-style-type: none"> <li>• promote increased vaccine contract transparency covering terms such as pricing, indemnification clauses, delivery commitments and scheduling</li> <li>• support information sharing between countries and firms on pricing and technology transfers</li> <li>• provide templates for vaccine contracts and guidance on good practice in negotiations</li> <li>• publish guidance on public health emergency procurement rules</li> <li>• support lesson sharing between countries in advancing integrity in COVID-19 vaccine manufacture</li> </ul>
<p>Civil society</p>	<ul style="list-style-type: none"> <li>• investigate and publicise cases of corruption related to the COVID-19 response</li> <li>• monitor vaccine rollouts against commitments made by firms and governments and highlight discrepancies</li> <li>• build coalitions with firms and governments to advance integrity in vaccine manufacturing</li> <li>• undertake nationally specific research on corruption risks in vaccine manufacture</li> </ul>



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The U4 anti-corruption helpdesk is a free research service exclusively for staff from U4 partner agencies. This service is a collaboration between U4 and Transparency International (TI) in Berlin, Germany. Researchers at TI run the helpdesk.

The U4 Anti-Corruption Resource Centre shares research and evidence to help international development actors get sustainable results. The centre is part of Chr. Michelsen Institute (CMI) in Bergen, Norway – a research institute on global development and human rights.

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