

Ethical Innovation for Global Health

Pandemic, Democracy and
Ethics in Research

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 Springer

Part I
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Global South and/or Asian Paradigms:
Brazil, South Africa, Taiwan,
South Korea, and Japan

Equitable Access to COVID-19 Vaccines, Vaccine Research, and Vaccine Apartheid on the African Continent: Challenges and Recommendations

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Introduction

- Similar to other regions in the world, Africa affected considerably by COVID-19 pandemic with health, economic and social impacts being most dire and unprecedented on individuals, families and communities - most brutal economic, social and health impacts of pandemic - on the most vulnerable world-wide.
- Globally no country prepared for the devastation - even countries with the best healthcare systems did not have public health capabilities to cope. Global challenge → several variants of concern → number of waves. Vaccine inequity (vaccine apartheid) - substantive cause of variants of concern - WHO → persistent injustice → variants that could evade vaccines
- Africa
 - already overburdened and in some cases failed health and other social systems.
 - with all attention on managing pandemic other viral infections and diseases re-emerged - Ebola (DRC) Lassa fever (Guinea & Liberia) Rift Valley Fever (Kenya) Marburg Virus Disease (Nigeria, Sierra Leone & Republic of Guinea)
 - absence of effective, affordable, easily available treatment regime, value of vaccinating populations widely underscored.
 - lack of established, well financed public health systems
 - poor to no infrastructure for development, supply and administration of vaccines
 - lack of confidence by individuals, communities and populations in the vaccine (vaccine hesitancy)
 - corruption re-emerging as a parallel plague at a number of levels
 - COVID-19 vaccine research issues ranging from moral imperialism to public health imperative to test novel COVID-19 candidate vaccines on the African population in background settings of the already struggling research ethics review processes being further pressurised.

Chapter Objectives

- Describe the context with regard to vaccine development and manufacture on the continent.
- Discuss the African Union and Africa CDC approach to ensuring access to COVID-19 Vaccines on the continent.
- Analyse the notion of COVID-19 vaccines as a global public good and discuss the reasons for vaccine apartheid.
- Examine impediments to access including corruption, vaccine hesitancy and poor uptake of COVID-19 vaccines.
- Explore the ethical issues associated with COVID-19 vaccine research in Africa.

The context with regard to vaccine development and manufacture on the continent

- For significant period, received only small doses→ supplies unpredicted, little warning when the vaccines would arrive & what type - Need for developing /augmenting local manufacturing capacity + ensuring procuring raw materials & available infrastructure for transport and administration
- Challenges to vaccine manufacturing include
 - weak investments by African Governments;
 - weak regulatory capacity for vaccine research, development and production;
 - low interest in vaccine production in Africa by global vaccine stakeholders;
 - uncertainties in the demands for vaccines made in Africa by African countries
 - manufacturers ceasing production as a result of inability to compete with imported vaccines;
 - dependence on global supply chains, which at times are hampered by intellectual property issues, trade barriers, monopolised supply and export bans;
 - dependability on external suppliers posing severe problems to Africa's health resilience;
 - preference by African countries and their governments for ready-made vaccines that they can import

The context with regard to vaccine development and manufacture on the continent

- Focus - securing deliveries rather than manufacturing → easier to secure funding or pool resources from foreign donors to facilitate payment & procurement as compared to the cost of vaccine development, preclinical testing and clinical trials.
- While significant investments and grants, backed by the state are made available to produce vaccines in wealthier countries, African manufacturers face the high costs of vaccine production with little or no funding support from the states and a lack of political commitment → problems of sustainability of initiative.
- African technological innovations undermined to create markets for the Western-led products
- Africa's reliance on foreign suppliers for vaccines, impacts public health security → Africa could remain last-in-line and face significant procurement challenges in future.
- Barriers in accessing important steps of the value chain, such as pre-clinical research and good manufacturing practice (GMP) batch manufacturing for clinical trials → currently not possible to move a vaccine concept from research through to clinical trials entirely & projects cannot be advanced and commercialised because of lack of required partners, sponsors, investors, technological transfer, and know-how. While expertise does exist in Africa, it is spread across the continent, with limited connections.
- Paucity of open and well paid posts, graduates of training programs frequently leave their countries for opportunities in higher-income regions

The context with regard to vaccine development and manufacture on the continent

- 99% of Africa's vaccines manufactured outside the continent & only .1% of global supply of vaccines is produced in Africa → millions of lives endangered and social and economic progress impeded. This market failure needs to be addressed urgently.
- 7/10 vaccines used in Africa are donated by Global Vaccine Alliance (Gavi) mainly for childhood immunization programs - manufactured in India or by multinational vaccine manufacturers in North America or Japan.
- These donations perpetuate dependence and add to the impediments to development of vaccines and other interventions against diseases in Africa. Donations could result in the perception amongst donees that the challenges resulting from patent law are no longer an issue that needs to be confronted. The COVID-19 pandemic underscored how fatal this dependency on imported vaccines could be. In addition, Africa cannot rely on fellow states in the Global South. This is well illustrated by India halting vaccine supplies to the continent early in 2021, at the height of the delta variant outbreak when only 1.5% of the African population had received a vaccine dose at that time

The context with regard to vaccine development and manufacture on the continent

- A foundation to provide financial and strategic support for the development of the pharmaceutical industry and the consolidation of regional vaccination programs in Africa has been established by the African Export-Import Bank and the African Development Bank. Currently, about 33% of African countries pay for their vaccine needs. The Partnership for African Vaccine Manufacturing (PAVM) projects that the value of the total African market could reach between \$3billion and \$17billion by 2040.
- Development and / or expansion of national vaccine industries commenced in several countries from 2020. Egypt, South Africa, and Senegal partnered with private sector manufacturers to expand volume capacity. Ghana reconfigured part of its pharmaceutical industry to make vaccines. Rwanda commenced on work to manufacture mRNA vaccines from scratch.
- Even though only 1% of vaccines used in Africa are manufactured on the continent, there are more than 30 new vaccine manufacturing initiatives underway, with momentum gathering to make the expansion possible.
- Nevertheless, there is a need for coordination at a continental or even regional level to assist with ensuring long-term sustainability and equitable access to vaccines

The AFRICAN UNION and AFRICA CDC approach to ensuring access to COVID-19 vaccines on the continent

- New Public Health Order - aims to safeguard the health and economic security of the continent, with a key pillar being that of expanding the local manufacture of vaccines, diagnostics, and therapeutics.
- Partnerships for African Vaccine Manufacturing (PAVM) established by AU to deliver on the goal of enabling the African vaccine manufacturing industry to develop, produce, and supply over 60 percent of the total vaccine doses for Africa by 2040 with interim goals → 10 percent by 2025 and 30 percent by 2030.
- For New Public Health Order to be realised → integrated ecosystem approach necessary. Investment will be required in all steps of the vaccine manufacturing supply chain. This includes research and development (R&D), drug substance, and fill and finish. R&D will need to increase to include pre-clinical and clinical trials. Supporting industries will need to grow as well for the provision of raw materials, active ingredients, inactive ingredients and consumables like vials, sterile bottles, syringes, and rubber stoppers. Key benefits of developing an enabling environment include reducing production costs and increasing sustainability of vaccine production on the continent thereby promoting self-reliance and health security.

AU & ACDC Framework for Action

- Program 1: Creating an African Vaccines Procurement Pooling
- Program 2: Establishing a vaccine manufacturing Deal Preparation Facility and supporting fundraising for ecosystem enablers
- Program 3: Strengthening National Regulatory Agencies and Regional Centres of Regulatory Excellence to build vaccine regulatory excellence
- Program 4: Supporting the transfer of vaccine technologies and intellectual property through a TT & IP Enablement Unit
- Program 5: Creating Regional Capability and Capacity Centres to support talent and critical skills development
- Program 6: Putting in place Vaccine Research and Development Centres and a Research and Development Coordinating Platform
- Program 7: Undertaking Advocacy for enabling trade policies for vaccines
- Program 8: Ensuring an effective Continental Strategy for delivery and oversight

New Public Health Order

- Plan by the AU and Africa CDC is laudable albeit ambitious.
- It will require positive political will and shared responsibilities from within individual countries on the continent to see it executed successfully.
- Pandemic of corruption in Africa poses a significant impediment to achieving the envisaged New Public Health Order.
- What is also required to successfully implement this plan are ethical African leadership and governance.

COVID-19 VACCINES: A GLOBAL PUBLIC GOOD VS VACCINE APARTHEID

- The COVID-19 pandemic exposed the excessive self-egotism and greed of many of the globe's rich countries who, in this unprecedented crisis entirely disregarded the global nature of the problem.
- By March 2021, globally, 559 million doses had been administered; with 10% of the economies, accounting for 77% of the total number vaccinated.
- This situation made apparent the depth of unfairness globally and that the right to health for all was once again being denied.
- As with other crises, exacerbations of pre-existing inequalities across the world became patently evident, with the most vulnerable being effected the most.
- Even the United Nations strongly stipulated that vaccine equity affirms human rights and that vaccine nationalism denies it, stating also that vaccines must be a global public good, accessible and affordable to all

Global Public Good

- A good whose impacts are equitably spread across the globe without causing division.
- No price can be placed on the benefits of these goods and hence the principle of exclusion cannot be applied to them.
- When one individual uses these goods, their availability to others cannot be allowed to be reduced.
- The good and its benefits are not marketable and therefore must be available at negligible or zero cost to all in the global village.
- Two criteria determine a public good:
 - non-rival in consumption - consumption by one person must not interfere with the goods being available to others equally
 - non-excludable - suppliers cannot deny them to those who are unable to pay its market price.
- In the arena of public goods and costs, climate change is often quoted as an example. Climate change is usually caused by unsustainable practices of the richest countries but impacts all regions and in particular the poorest.
- Because of the transboundary implications of public goods, international cooperation and action is ethically imperative.

VACCINE APARTHEID

- Derived from the South African Afrikaans language and means ‘the state of being apart’ or ‘separateness’ - illustrates the situation of systematic institutionalized racial discrimination that was present in Southwest Africa and South Africa until their transition to democracy
- Separateness from vaccine access and programs for LMICs. From late 2020, while many high-income countries (HICs) reduced severe outcomes against COVID-19 with vaccination, LMICs globally and in particular in the poorest countries suffered due to vaccine inequity, vaccine nationalism, vaccine shopping and hoarding
- WHO, concern - spearheaded a coalition, the COVID-19 Vaccine Global Access (COVAX) facility with the Global Alliance for Vaccines and Immunisation (Gavi), and the Coalition for Epidemic Preparedness Innovations (CEPI). This was an ambitious effort to create equitable access to effective vaccines globally. It tried to create a global risk-sharing mechanism for pooled procurement and equitable distribution of the vaccines when registered for use. However, several signatories to the facility, including Canada, the UK and the European Union, by negotiating bilateral deals directly with industry through advanced market commitments, undermined COVAX’s goal to counter vaccine nationalism, and hence payed lip-service to its principles of global equitable access and fairness
- By mid-January 2021, more than 39 million doses were administered in 49 higher income countries, but almost no vaccines had been administered in low-income countries.
- DG of WHO - “catastrophic moral failure” in the sharing of COVID-19 vaccines
- Already, at that stage, it was shown that twice as many deaths could have been averted, and it could cost the global economy up to USD 1.2 trillion in GDP if vaccine inequity continued and LMICs were not granted equitable access to this public good

COVID-19 VACCINES: A GLOBAL PUBLIC GOOD VS VACCINE APARTHEID

- Additional complexity to COVID-19 interventions being a public health good was the “business as usual” implementation of intellectual property rights (IPR) by vaccine manufacturers.
- Several HICs robustly opposed the application lodged by South Africa and India to the World Trade Organization (WTO) for a temporary waiver of IPR for COVID-19 vaccines during the pandemic.
- A waiver, together with technology transfer and building of infrastructure would assist in ensuring fair and equitable access to the much-needed public good.
- Given that manufacturers were resistant to sharing, and that they were supported by HICs, the non-excludable criterion for the vaccine being a public good was impeded. They did not even consider the many calls made by the UN and WHO for global equitable access to the vaccines. Moreover, they seemed oblivious to the UNESCO’s Statement on Global Vaccine Equity and Solidarity which, refers to the COVID-19 vaccines as a “Global common good” (article3). The Statement firmly rejected vaccine nationalism as a “predatory rush”, raised ethical concerns on the regulation of patenting and ownership rights and stressed that responses to the pandemic needed to be built on equality, justice and solidarity. For true equity in the global access to the vaccines, a shared understanding of health as a global common good without territorial limits, and new global legal instruments for economic and political treaties were required. The Statement further highlighted that the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) and the agreements of the WTO were not designed to manage situations such as pandemics (29).

Impediments to access of COVID-19 Vaccines

- Poor infrastructure for the development, supply and administration
- Vaccine apartheid
- Poor health infrastructure
- Negatively politicising the vaccine in some countries
- Corruption
- Vaccine hesitancy
- Poor Uptake

Corruption

- Abuse of trust and intentional violation of duty by the ‘use, misuse or abuse’ of public office or resources for private gain - may be actual or potential, financial, or even political.
- Impacts negatively on population health outcomes, in particular for the poor and disadvantaged.
- Devastating effects of the COVID-19 pandemic were worsened by widespread and pervasive corruption in Africa some of which were from funds from multilateral organisations. Several donor agencies supported African governments with various financial packages. Together, the International Monetary Fund and World Bank provided about \$57-billion to help Africa.
- Procurement of personal protective equipment, essential goods and services, and vaccines were fast-tracked. Given that most of these items were procured under a certificate of emergency, public scrutiny was evaded and accountability measures to monitor the use of these funds were relaxed. Corruption related to COVID-19, mainly in procurement, was seen across the continent.

CORRUPTION

- Cameroon - misuse of \$333-million meant for the pandemic response in 2020
- Malawi some government officials colluded with the private sector and squandered \$1.3-million of COVID-19 funds through procurement and allowance irregularities.
- Kenya - \$400-million meant to buy medical equipment was allegedly stolen by the Kenya Medical Supplies Authority; Kenyan Ethics and Anti-Corruption Commission revealed further irregular expenditures of about \$71.96 million & the Kenyan Auditor-General's report on COVID-19 expenditure revealed that over \$69-million of COVID-19 funds misused.
- Nigeria - Federal Ministry of Health allegedly bought 1,808 face masks for \$96,000.
- Uganda - four top officials arrested for allegedly overpricing COVID-19 food relief items, leading to a loss of \$528,000.
- Zimbabwe - health minister dismissed reportedly for illegally awarding a multimillion-dollar contract which resulted in inflating the cost of medical equipment.
- Ghana, health minister purchased the Russian Sputnik Vaccine @ \$19 instead \$10 factory price
- South Africa - health minister placed on leave, then resigned - irregular contracts of about \$10-million were being investigated + suspected inflation of government contracts for purchase of \$900-million worth of medical supplies.
- Public anger, responsive civil society and media

Vaccine Hesitancy

- Once vaccines available for use, achieving immunity in communities largely dependent on their willing uptake. Any initiative towards allocating vaccines fairly would fail if people were unwilling to receive them. Vaccine hesitancy, i.e. the reluctance to receive vaccines → one of top ten threats to global health
- Instrumental factors propelling vaccine hesitancy - context-specific, include:
 - concerns about safety and efficacy,
 - lower education,
 - mistrust in science, health authorities, governments
 - Misinformation
 - limited efficacy of COVID-19 vaccines in preventing infection against new circulating variants.

Vaccine Hesitancy

- Africa – additional factors:
 - bad experiences during previous frequent unethical medical experiments
 - poor inconsistent messaging – out of touch with reality of context
- Improved access to technology → use of social media increased
 - spread of misinformation across different social networks proliferated through the anti-vaccination movement.
 - Where social media was used to spread healthy messages by healthcare workers, compliance with public health strategies improved.
- Socio-demographic factors – higher: in males in Nigeria / not having a university degree in South Africa / those earning more than the median income in Ghana.

Vaccine Hesitancy

- As we continue our journey through COVID-19 and prepare for the next pandemic, it would be prudent for us to include programs to counter resistance to public health measures, including early, honest, culturally appropriate and focussed messaging by our governments and health authorities. This should not only be through mainstream media but also via use of technologies including social media. Policies to counter spread of misinformation could be considered. Most importantly though, is that governments need to work very hard at regaining trust, because vaccine hesitancy is high where there is mistrust of governments. For the trust deficit to be eradicated, it is requisite that governments exercise political will to tackle corruption head-on.

Ethical issues associated with COVID-19 vaccine research in Africa

- Globally, there are many challenges to conducting research during a pandemic. Some of these challenges are specific to LMICs.
- A pandemic in itself puts pressure on the need for research, in particular where treatments options are limited and mortality and morbidity are high.
- While expedience is necessary, it does not justify unethical practice.
- Local contexts need to be understood, voices from the community and other relevant stakeholders heard and included, dignity respected and rights upheld

Ethical issues associated with COVID-19 vaccine research in Africa – Ethics Dumping

- April 2020 - two French doctors participated in a television debate where they discussed whether COVID-19 vaccine trials should be done in Africa. They suggested that the trials should be done on the continent considering there were no masks, no treatments, no resuscitation, and hence the populations would be highly exposed. Considering that this would not be acceptable in HICs, these two doctors proposed a perpetuation of the double standard in research. Despite these two doctors being forced to publicly apologise, what became patently clear was:
 - that ethics dumping from HICS continues in Africa despite international and local norms, standards and guidelines.
 - also underscored is that moral imperialism and colonialist thinking in some multinational clinical trials persists and
 - perhaps researchers from HICs see no need for ethical guidelines to apply in regions like Africa where research that will not be allowed in their countries can be outsourced to the continent

Ethical issues associated with COVID-19 vaccine research in Africa - Ethics Dumping

- Africa communities remain suspicious of researchers from HICs + reluctant to participate in multinational clinical trials.
- Building trust – essential
- Community engagement & consultation critical early on during the planning of research, in particular pandemic vaccine research.
- Because of pressure for research to be carried out speedily, balancing benefits vs the harms to individuals and communities will be requisite.
- Respecting autonomy and dignity must be ensured albeit language and cultural barriers→ research participants will need to be properly informed and understand the risks and benefits before being enrolled in the study

Ethical issues associated with COVID-19 vaccine research in Africa

- REC Capacity: review and approve the research in a timely manner.
- African governments and institutions not adequately invested in setting up RECs
 - poor infrastructure leading to delays and inefficiencies in the administrative processes.
- Pandemic - rapid review and approval of novel approaches necessary to avoid delays.
 - RECs on the continent did struggle to respond to the needs of the COVID-19 pandemic.
- REC over-reach and paternalism was also a problem.
 - for example, in one of the sites in South Africa, after unblinding in the Chadox/AstraZenica vaccine study, participants under 30 years were not allowed by the REC from receiving the investigational product, contrary to the regulatory and other REC approvals

Ethical issues associated with COVID-19 vaccine research in Africa

- Unconscionable vaccine nationalism - essential for principle of proportionality to be implemented
- Vaccine trials conducted globally and included LMICs.
- Both HICs and LMICs contributed to the development of the vaccines.
- Justice as in fairness makes it an ethical requirement that all countries contributing to the research are given a fair chance to access these interventions if proven efficacious.
- Proportionality principle could facilitate the application of fairness by making it necessary for countries to be given the opportunity to purchase the vaccines in line with the proportion of research participants enrolled and their contribution to the studies. This could mean that Africa would not be last in the queue to purchase vaccines, as has been the case until now.

CONCLUSION

- National pandemic preparedness has been low on the priority list of most African countries where failing or failed healthcare infrastructure was further exposed by COVID-19.
- Equitable access to health care and in particular to interventions developed for management of pandemics as a global public good need to be considered a priority with regard to international policy making.
- Ethical leadership and governance and the eradication of corruption is necessary, especially if the populations are to take public health preventative measures seriously.
- African governments must be trustworthy and must ensure accurate, reliable messaging for citizens to transition from vaccine hesitancy to vaccine confidence.
- Ethical imperialism and ethics dumping in Africa and other LMICs has to be safeguarded against.
- It is hoped that the initiatives emanating from the African Union and Africa CDC are successfully implemented and not left as paper to gather dust on the shelves of the respective organisations.