Vaccine manufacturing in Africa

Investing in self-sufficiency is crucial for global health security

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Globally, vaccine manufacturing requires radical reconfiguration. Its current extreme geographical skew must change to ensure health security for all. Africa produces only 0.1% of the world’s total vaccine supply, but self-sufficiency would make its health systems more resilient and better prepared for public health emergencies, promote social cohesion and economic progress, and insulate countries from external actions.

Africa continues to be left behind in access to countermeasures in the ongoing covid-19 pandemic. It is the continent with the lowest vaccination levels: just 30% of people have received a complete initial course.1 2 It was disrupted by funding shortfalls, “vaccine nationalism,” and hoarding by richer countries.3 6

Lack of local vaccine manufacturing impedes polio elimination and leaves populations vulnerable to outbreaks of measles, malaria,7 human papillomavirus disease, and Ebola.8 A more evenly distributed system of manufacturing and stockpiling, informed by regional needs, could be more responsive to regional public health emergencies, including those driven by climate change events such as Cyclone Freddy in east Africa, where lack of cholera vaccines is a current concern.9

Political and financial commitment

African leaders, the private sector, and partners must commit to, and plan for, long term medical self-sufficiency. In 2021 the Africa Centres for Disease Control and Prevention published the Partnerships for African Vaccine Manufacturing framework for action, calling for 60% of vaccines required by African populations to be made in Africa by 2040—up to 1.7 billion doses annually.10 The framework also considers research and development, regulation, pooled procurement, technology transfer, intellectual property, and financing. Political and financial commitment are essential for the systemic changes needed to create an enabling ecosystem.

To establish a sustainable market, and in return for longer term health security, African countries will initially have to pay more to cover higher local manufacturing costs,11 underscoring the urgency of fully implementing the 2001 Abuja declaration12 to contribute 15% of gross domestic product to health.

Covid-19 accelerated the African vaccine manufacturing efforts of companies, including Aspen, Biovac, and the Institut Pasteur de Dakar.13 These efforts are mainly filling and packaging vials with vaccines made elsewhere (fill and finish); end-to-end production remains an aspiration. However, Africa’s pharmaceutical regulatory ecosystem is fragmented, and until countries operationalise the fledgling African Medicines Agency the benefits of regulatory harmonisation and coordinated licensing by national regulators remain remote.14 15

The Developing Country Vaccine Manufacturing Network16 has made substantial strides in supporting low and middle income countries, but further public-private sector collaboration is needed to improve vaccine access and affordability in these regions.17 Development costs for vaccine manufacturing can range from $500m to $1bn, depending on scale.18 To mobilise funds, governments and stakeholders must seek creative solutions and engage with global and regional financial institutions, including private capital. The African Export-Import Bank19 and the African Development Bank have initiatives supporting financing for vaccine manufacturing,20 with the development bank establishing the African Pharmaceutical Technology Foundation.21 Africa must invest in itself if others are to follow.

Partnerships in the global south

Africa can learn from sustainable production in similar settings—for example, the Serum Institute of India,22 the world’s largest vaccines manufacturer. India offers a blueprint for creating the physical infrastructure and enabling environment (rule of law, fair tax regimes, low corruption), that African leaders must prioritise to assure investors. African manufacturers will need to engage across 55 independent countries to achieve the same market share, however.

Knowledge and know-how from India could be exploited through collaborations among countries of the global south to build local capacity.23 Expanding African scientific and technological know-how is vital, through indigenous innovation, licence waivers, technology transfer, or licensing.24 The partnership between BioNtech and Rwanda and Senegal to provide modular vaccine manufacturing is innovative but not sufficient to create a truly domestic manufacturing industry.25 Africa could develop its own technology through strategic collaborations among low and middle income countries.

Collaboration, not competition, is necessary to overcome the many challenges on the journey to self-sufficiency. The African Union’s African Vaccine Delivery Alliance, which has evolved into the African Countermeasures and Readiness and Response Alliance, enables such discussions. Similar arguments apply to diagnostics, therapeutics, and the other medical supplies needed in pandemics.
African leaders must prioritise investment in vaccine manufacturing, distribution, and delivery to ensure universal coverage and pandemic preparedness. They must replace aid reliance with investment in regulatory frameworks, health systems, supply chain management, and sustainable financing mechanisms, especially where countermeasures cannot be produced locally. The transition to self-sufficiency will require difficult decisions, but the prize is a more equitable future for Africa.

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