



How the African vaccine manufacturing accelerator can assist in strengthening Africa's response to global health challenges

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Dear Editor,

The African Vaccine Manufacturing Accelerator (AVMA) is a novel financial scheme developed from the collaboration between the Vaccine Alliance (GAVI), the African Union (AU), and the Africa Centre for Disease Control and Prevention (Africa CDC) to advance the vaccine ecosystem in Africa [1]. The objective is to empower the African vaccine manufacturing sector to cultivate, manufacture, and distribute more than 60% of the necessary vaccine doses within the continent by 2040. This endeavor aims to ensure Africa's self-sufficiency in the event of any health crisis or outbreak affecting the region [1].

Africa relies heavily on vaccine importation, manufacturing a mere 1% of the vaccines it utilizes and 0.1% of the world vaccine supply [2]. During the coronavirus disease (COVID-19) pandemic, African countries keenly experienced this deficiency, facing shortages of COVID-19 vaccines and other essential health products [1]. The COVID-19 vaccine inequity severely affected Africa as the vaccines were not made available to the continent in the early parts of the pandemic [3]. This establishes the state of the African continent as it depends on vaccine supplies from other countries [1].

The biotech industry in Africa remains in its early stages, and it will require time for emerging manufacturers to develop the production capacity necessary for sustainability. AVMA operates by providing two forms of incentive payments aimed at mitigating some of the initial high production costs [3]. The initial form of payment, termed a 'milestone payment,' will be activated once a manufacturer producing one of the vaccines listed in the GAVI priority vaccine market group achieves WHO prequalification. Manufacturers achieving prequalification for vaccines with advanced 'pandemic ready' technology (such as mRNA or viral vector vaccines) will receive the highest milestone payments of \$25 million. Conversely, those obtaining prequalification for 'fill and finish' manufacturing of vaccines in the priority market category will receive the lowest milestone payments of \$10 million. The 'accelerator payment', the second payment type, will be provided per dose as an extra supplement to the standard market rate awarded to manufacturers from successful GAVI-United Nations Children's Fund (UNICEF) tenders. These supplements, reaching approximately \$0.50 per dose, will be most substantial for manufacturers engaged in end-to-end production of

priority market vaccines and those utilizing 'pandemic ready' technology platforms [3].

The AVMA financing mechanism is bound to successfully fulfill its objective, drawing insights from a similar approach to COVAX (COVID-19 Global Access), a global initiative, that collaborates with vaccine manufacturers to ensure fair access to safe and effective vaccines globally upon licensing and approval [4]. The African Vaccine Manufacturing Accelerator (AVMA) aims to provide up to \$1 billion over the next decade to bolster Africa's manufacturing infrastructure sustainably. This initiative has the potential not only to bolster global vaccine markets but also to enhance outbreak and pandemic prevention, preparedness, response, and resilience [3].

AVMA's support will promote local vaccine manufacturing which will help in addressing some prevalent diseases that are peculiar to the African region, through a focus on market vaccines for diseases like cholera, malaria, measles-rubella, yellow fever, Ebola, pneumococcal, and Lassa fever [3]. Less than 10 African manufacturers currently produce vaccines, operating from five countries: Egypt, Morocco, Senegal, South Africa, and Tunisia. Upstream production is significantly limited, with most local companies primarily involved in packaging and labeling, and occasionally handling fill and finish steps [5]. AVMA will contribute to a resilient health system and enhanced global health security. In addition, the Coalition for Epidemic Preparedness Innovations (CEPI) and the African Union Commission have recently agreed on a memorandum of understanding also aimed at significantly enhancing vaccine Research and Development (R&D) and manufacturing in the continent, hereby positively influencing Africa's involvement in the development of safe and effective vaccines [6].

The AVMA will also facilitate the development of a high-value biotechnology sector in Africa while concurrently bolstering its efforts in pandemic and outbreak prevention and response. It is expected that interest in investment in local vaccine manufacturing should rise significantly. This can stimulate economic growth, create an avenue for skills development and knowledge transfer, and enhance research capacity in Africa. By 2040, the African vaccine market is expected to expand to a range of \$2.8 billion to \$5.6 billion, encompassing both current offerings and anticipated products [6]. Furthermore, the

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establishment of a robust vaccine manufacturing sector in Africa can impact the global vaccine markets positively and significantly address the issue of vaccine inequity, availability, and distribution in Africa. Through this, United Nations agencies and country states can obtain vaccines that have been pre-qualified by the World Health Organization (WHO) [7]. Likewise, AVMA-produced vaccines can achieve affordability through: Collaborative investment in cost-effective manufacturing processes between the government and private sector; Expanding vaccine production to meet higher demand; Accelerating regulatory approval processes; Facilitating bulk purchasing agreements through regional or international partnerships; and implementing governmental subsidies or price controls to ensure accessibility for the population.

In addition to the benefits offered by the AVMA, potential challenges to this novel development encompass, but are not confined to: the lingering issue of insufficient funding for research and infrastructure development; and a scarcity of proficient workers in vaccine development. Also, shortcomings in infrastructure, notably unreliable power supply and deficiencies in the cold chain; regulatory approval processes characterized by complexity and protraction; violations of intellectual property rights; and formidable competition in the market from established multinational vaccine manufacturers can challenge the AVMA implementation processes.

In conclusion, the African Vaccine Manufacturing Accelerator (AVMA) represents a pioneering initiative set to revolutionize vaccine development and production in Africa. By fostering collaboration between key stakeholders and providing financial incentives, the AVMA aims to bolster the continent's vaccine manufacturing capacity, reduce dependence on imports, and enhance resilience against health crises. While facing challenges such as funding constraints, infrastructure deficiencies, and regulatory hurdles, the AVMA holds immense potential to drive economic growth, facilitate knowledge transfer, and address vaccine inequity in Africa. With concerted efforts and strategic investments, the AVMA is poised to transform Africa into a hub for vaccine innovation, ensuring equitable access to life-saving vaccines for its population and contributing to global health security.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

No data was used for the research described in the article.

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