



Master of Public Health

Master de Santé Publique

Innovative solutions for Public Health: Exploring the AVMA Tool and its implications for Global Health Policies and Diplomacy

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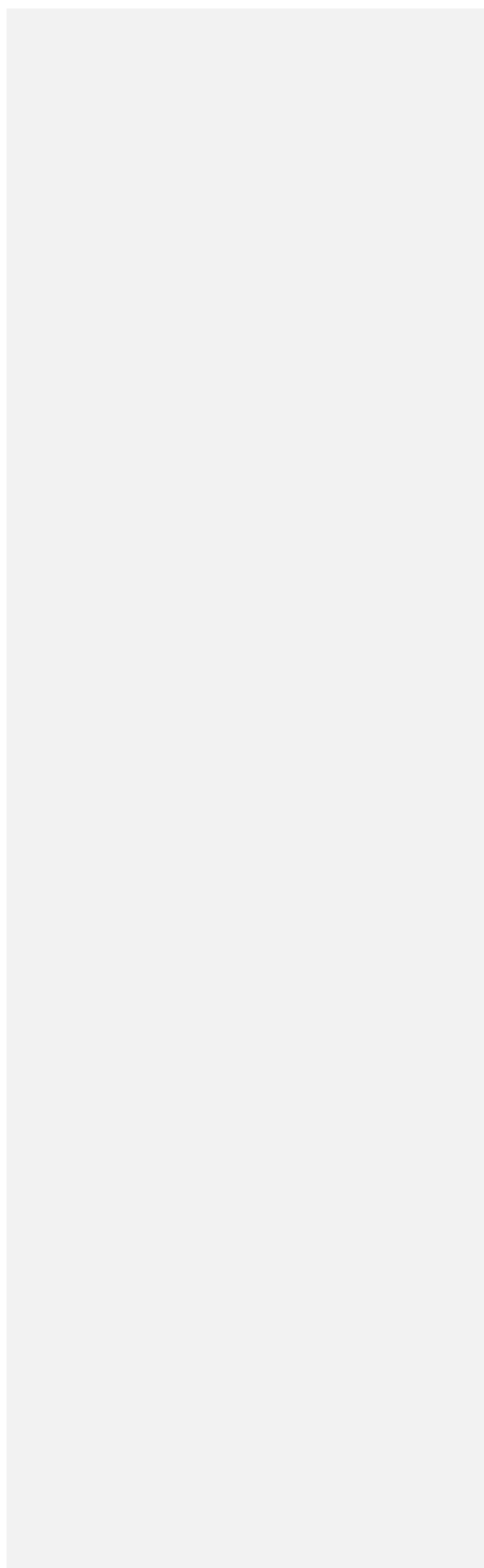
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LIST OF ACRONYMS

AVMA	<i>African Vaccine Manufacturing Accelerator: a new financing instrument aiming to help develop and strengthen sustainable vaccine manufacturing in Africa (Gavi, 2023)</i>
GAVI	<i>Gavi, the Vaccine Alliance, also known as the Global Alliance for Vaccines and Immunization: a public—private global health (Gavi, 2024)</i>
MERS-CoV	<i>Middle East Respiratory Syndrome: a viral respiratory disease first identified in Saudia Arabia (2012), (WHO, 2022)</i>
HICs	<i>High Income Countries: an income classification assigned by the World Bank based on the countries' Gross National Income. (World Bank, 2024)</i>
LMICs	<i>Low- and Middle-Income Countries: an income classification assigned by the World Bank based on the countries' Gross National Income. (World Bank, 2024)</i>
SARS	<i>Severe Acute Respiratory Syndrome: a viral respiratory disease caused by a SARS-associated coronavirus and was the first severe and readily transmissible new disease to emerge in the 21st century. (WHO, 2024)</i>
COVID-19	<i>Coronavirus disease: an infectious disease caused by the SARS-CoV-2 virus. (WHO, 2024)</i>
AU	<i>African Union: a continental union consisting of the 55 member states, launched in 2002. (AU, 2023)</i>
Africa CDC	<i>African Center for Disease Control: a continental autonomous health agency of the African Union, established to support public health initiatives of Member States and strengthen the capacity of their public health institutions to detect, prevent, control and respond quickly and effectively to disease threats. (Africa CDC, 2024)</i>
CDC	<i>Us Centers for Disease Control and Prevention: a health protection agency aiming to protecting health, safety and security threats, both foreign and US-based.</i>
EIDs	<i>Emerging and Re-Emerging Infectious Diseases: defined by the CDC as 'diseases of infectious origin whose incidence in humans has increased within the past two decades or threatens to increase in the near future.' (US CDC, 1994, p.1)</i>
PPPR	<i>Pandemic Prevention Preparedness and Respond Accord: an undergoing process to draft and negotiate a new convention due to the aftermath of the COVID-19 pandemic to ensure countries are better protected, have equitable access to tools needed to prevent pandemics (WHO, 2024)</i>
EVD	<i>Ebola Virus Disease: a rare but severe illness in humans, often fatal. (WHO, 2024)</i>
NPHIs	<i>National Public Health Institutes: entities which ensure a global network of efficient, coordinated health systems (CDC, 2021)</i>

ABSTRACT

Despite the significant medical advancements in this last century, the importance of vaccines continues to be highlighted and brought to light, most recently with the Covid-19 pandemic. Additionally, the growing interconnectedness and interdependence our nations have been experiencing have required collaborative efforts and collective responses to face these unprecedented illnesses. As such, in this review, we explore some of the issues linked to vaccine production and capacity building. Given the subject of our internship, which focuses on global health partnerships and diplomacy, with actors such as Gavi, the vaccine Alliance, Unitaid or the Global Fund, we will also be exploring the impact and role of health diplomacy in the context of policymaking, and the development of international frameworks.

INTRODUCTION

The concept of vaccination can be traced back to Edward Jenner, a 18th century physician who first conducted an experiment confirming the efficacy of inoculation of a cowpox into a healthy individual, therefore preventing the individual from contracting smallpox. By artificially stimulating immune systems to combat and recognise pathogens, vaccines allow the humans to produce antibodies and memory cells, which have been linked to long-term protection against future infections.

Vaccination has therefore been a transformative practice for public health, such as the widespread efforts to eradicate smallpox, which was officially declared as such by the World Health Organisation in 1980. It remains one of the most effective public health interventions, reducing the incidence of infectious diseases and therefore preventing death for millions of people. This also has the added benefit of being cost-effective and prevent productivity losses linked to disease, overall reducing healthcare costs. As high proportions of individuals become immunised, this contributes to herd immunity, and vulnerable populations, that is, individuals who cannot be vaccinated, are also protected. According to a 2016 study from Ozawa et. al, it is estimated that between 2016 and 2030, 24 million deaths will be prevented in low and middle countries, and therefore saving \$1.43 healthcare costs for every dollar spent.

Despite these technological advancements, significant gaps and challenges remain, due to socioeconomic disparities, with remote and underserved areas often reporting lower vaccination rates. For instance, 23 million children have yet to be vaccinated with basic vaccines, according to the WHO. Some of these issues can be traced back to shortage of competent healthcare professionals, inadequate infrastructure, and supply chains challenges, as vaccine potency must be protected through a maintained cold chain. As such, vaccination campaigns are mainly linked to national policy and public health planning.

The Covid-19 pandemic has arguably revealed crucial flaws in the global health architecture. Despite the significant medical advancements in this last century, the importance of vaccines and programmes to implement them, continue to be highlighted and brought into the open. Indeed, although global health diplomacy has gained exposure and momentum, questions of equity, unequal access to facilities and health products have also been raised, particularly in between higher income countries (HICs) and lower/middle income countries (LMICs). Additionally, the growing interconnectedness and interdependence our nations currently experience, have required collaborative efforts and collective responses to face these unprecedented illnesses.

To what extent has the current status of the Global Health vaccine apparatus, as reported in the literature, prompted innovative solutions such as the African Vaccine Manufacturing Accelerator (AVMA) in efforts to reduce some of the challenges and bottlenecks of vaccine manufacturing?

BACKGROUND

In this review, we describe the status of the Global Health vaccine apparatus and appliance as reported in the literature, focusing on the challenges and bottlenecks of vaccine manufacturing that have led to innovative solutions such as the African Vaccine Manufacturing Accelerator (AVMA).

Geopolitically, differing interests between higher income countries, such as the closure of the Chinese and Indian markets during the pandemic for instance, have had unforeseen consequences on LMICs, particularly in the case of vaccine distribution and acquirement, causing international and nongovernmental organisations to renew efforts towards bridging these gaps. Indeed, in this article " The Economic Impact of COVID-19 around the World," the authors show how by September 2021, only 3% of people in low-income countries had received at least one dose of a COVID-19 vaccine compared to over 60% in high-income countries. The authors also highlight how the economic impact of these disparities remains substantial, with LMICs experiencing prolonged economic downturns, high public debt, and insufficient investment in other crucial sectors.

This is also proven by how COVAX (the "vaccines pillar of the Access to COVID-19 Tools (ACT) Accelerator), for instance, was created during the Covid-19 pandemic to "guarantee fair and equitable access for every country in the world" and as such, aimed to "accelerate the development and manufacture of COVID-19 vaccines." This came at a time where higher-income countries raced to invest in pharmaceutical companies working to develop these covid-19 vaccines, "signing unilateral deals with vaccine makers and (Time Magazine, 2021) COVAX's multilateral efforts were therefore cut short by wealthier countries" prioritising their populations. Various criticisms emerged, citing the idealistic nature of this project and criticising its failure to respect its pledge. Putting aside the criticisms that COVAX faced, this project confirmed the urgent need for collective action, intended to mitigate the discrepancies LMICs are facing.

Challenges linked to vaccine development

Vaccine development is characterized by its complex process, which first relies on extensive research, through clinical evaluations, regulatory reviews and manufacturing. Decades can go by in this process, with multiple phases, laboratory studies, pre-clinical and several phases of clinical trials, and finally regulatory applications to be commercialised, in order to ensure safe

products are delivered. As such, government agencies play a crucial role in vaccine innovation and promoting research and funding, as they collaborate with both the private and public sector, namely academic, to explore new vaccine candidates. Other challenges include the financial risk that vaccine development signifies, given that developing vaccines necessitate upfront investments for the entire process. As we consider some of the interconnecting complexities that link these economic consideration, regulatory bodies and the imperatives public health requires, some actors continue to promote scientific innovation, and reduce some of the inequities in this particular field.

Gavi, the Vaccine Alliance

Gavi is a public-private partnership created under the impulse of the Bill and Melinda Gate Foundation with various state and non-state actors such as governments, WHO, UNICEF, the World Bank, vaccine manufacturers and diverse NGOs. Its mission lies in encouraging "manufacturers to lower vaccine prices for the poorest countries in return for long-term, high-volume and predictable demand from those countries" and as such, plays a vital market-shaping role. This alliance has and continues to enhance immunisation coverage and facilitate the affordability and availability of vaccines.

However, given the weight of Gavi as a vaccine buyer, questions about vaccine sovereignty have arisen, notably from health experts and advocates, which have voiced preoccupations surrounding economic and sovereignty issues.

Economic preoccupations

Economically, capacity building for vaccine manufacturing would also allow countries to better control production and supply chains, in crisis situations or not.

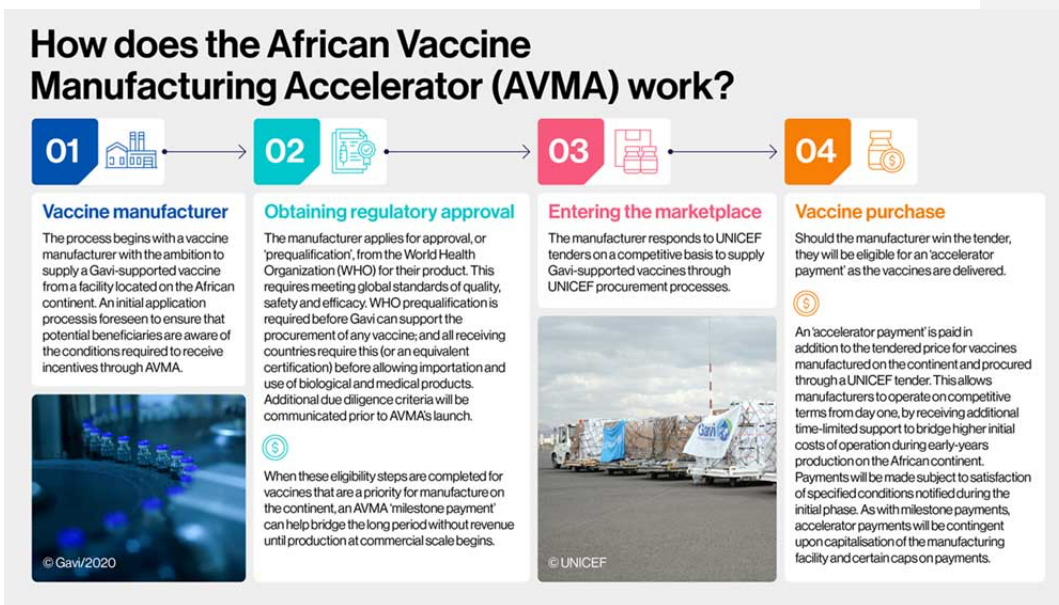
Indeed, the autonomy of being able to develop local manufacturing capabilities allows countries to respond to crises without having to depend on external sources, which can be restrictive or binding, depending on the political or economic context. This can also lead and is linked to economic growth and stimulus as well as saving on imports and costs while strengthening one country's ability to participate in global health initiative.

Capacity building in vaccine has therefore become a source of empowerment for countries regarding their public health, general economy and national security.

In this context, the development of vaccine production in regional areas can become crucial in understanding the actions global organisations are taking towards achieving set goals, such as the SDG2030s, especially surrounding vaccination. Vaccines, illness and pandemics are also key indicators in the context of climate change and global warming, as there is a link between these and the emergence and spread of said diseases.

What is AVMA?

Figure 1: Inner mechanisms of the African Vaccine Manufacturing Accelerator(AVMA)



Source: Gavi, the Vaccine Alliance, 2023

As seen through this diagram, Gavi pledges to offer two types of payments as incentive to mitigate some of the financial expenses that medical products manufacturing initially requires. The incentives will be performance based and will "enable African manufactures to gain access to the global vaccines market", as selected manufacturers will qualify for milestone fund and accelerator payments as they meet regulatory and competitive tender targets, respectively (Awosusi, 2024).

As mentioned above, meeting regulatory standards, such as achieving prequalification (PQ) by the World Health Organisation (WHO), can be challenging, expensive and is required “before a manufacturer can win a Gavi-UNICEF” tender. The AVMA aims to further encourage a competitive bio-tech sector for the African continent and offer some pre-emptive action for pandemic prevention and preparedness response (PPPR), as enforced by the WHO’s pandemic prevention, preparedness and response accord.

The AVMA has also emerged in light of the Partnerships for African Vaccine Manufacturing (PAVM) Framework for Action, established by the Africa CDC, which has denoted reports on the current African vaccine environment and has listed recommendations in efforts to encourage a New Public Health Order, which “will safeguard the health and economic security of the continent as it strives to meet the aspirations of the Agenda 2063”. (African CDC).

Therefore, using the Kingdon’s Multiple Streams Framework, from John W. Kingdon,¹ this thesis aims to adequately explore the policymaking context from which the African Vaccine Manufacturing Accelerator emerged. Through this structured model, we will be exploring some of causes that enabled this innovative tool and investigate the potential success of AVMA, about addressing the raised healthcare challenges in Africa.

¹ John W. Kingdon is a Professor Emeritus of Political at the University of Michigan. His model first appeared in “Agendas, Alternatives, and Public Policies (1984, 1995, 2011).

METHODS

This narrative review consisted of a systematic search of secondary data and included articles from January 2019 to June 2024. Three electronic databases were used to conduct public health and news articles research (Google Scholar, Cairn and PubMed). Included studies were required to have following keywords part of their policy analysis: “vaccine dependency”, “Africa”, “feasibility”, “infectious diseases”, “capacity-building”, “vaccine manufacturing”, “global health diplomacy”, “AVMA”, “gavi” “vaccine access.” Data was analysed using the Kingdon’s Multiple Streams Framework.

RESULTS

The emergence of the African Vaccine Manufacturing Accelerator solidifies strong requests from multiple actors to produce vaccines and other medical products on the African continent. Kingdon's Multiple Streams Framework allows us to explore the steps that have led to AVMA being created, and we will be analysing this emergence through a problem, policy and politics stream. According to this model, these streams converge to create a "policy window" policy, under which financing incentives – a policy tool- such as the AVMA appears.

1. Kingdon's Problem Stream, applied to the AVMA

Kingdon's work on this subject analyses the conditions which then become political issues on the government agenda following crises, the development of new knowledge, or the worsening of a situation. For instance, the hepatitis C pandemic is a measured social fact that initially remains a latent problem whose severity is minimized. The problem only becomes public when actors mobilize and bring it into the public space so that something can be done to address the "condition." This issue then becomes a political matter once the proposed solution involves political power. Thus, there is the construction of a public problem, resulting from an external problematization, independent of the State.

We can then mobilize the notion of the "window of opportunity." It is in "Agendas, Alternatives, and Public Policies," published in 1984, that the author attempts to answer several questions such as: what are the conditions and contexts that make public policy changes possible? How does a course of action become (or not become) a decision? Why do some problems lead to decisions while others do not? Why do pressing issues at a given time simply fade away? We will later use this concept to answer our own questioning regarding AVMA.

The first stream is that of problems (problem stream). According to Kingdon, political problems can be discussed as soon as "people are convinced that something can be done to improve the situation."

Three mechanisms make problematic situations visible:

- **Indicators**, which are data points used to measure the scope and magnitude of a problem. In our case, those statistics include infection rates, mortality rates,

and vaccination rates. During the pandemic of Covid-19, Johns Hopkins University provided real-time data on how the virus spread globally.

- **Events**, which are significant occurrences that draw attention to a problem, the prime example here is the outbreak of Covid-19, and then its variants.
- **Feedback**, which are the results of an evaluation, comes from reports, evaluations, and public opinions regarding the effectiveness of policies. Numerous reports were commissioned and published during the pandemic by different organizations, both national and international, such as the WHO, UNICEF etc..

As such, one can argue that the growing attention to capacity building for vaccine manufacturing and equal access to vaccines to be able to have global health equity and stability, is not innocuous.

We have previously explored some of the factors that have led to the emergence of capacity building for vaccine manufacturing. In the past several years, states have witnessed and battled various disease outbreaks, such as the Severe Acute Respiratory Syndrome (SARS), the Middle East Respiratory Syndrome Coronavirus (MERS-CoV), Influenza, the Ebola virus and most recently, Coronavirus Disease 2019 (COVID-19). These diseases have disproportionately affected countries, after severely affecting mortality, global economies, security, and have resulted in growing awareness for public health measures (Nkengasong and Tessema, 2020).

According to the World Health Organisation Regional office for Africa,² the African continent remains vulnerable to infectious diseases, as the majority of the 10 million estimated deaths per year occur in this area. Although Africa continues to house excess burden of disease, which have been linked to economic and developmental delays, countries have maintained a considerable dependency on imported vaccines, as Africa relies on importation for most of its medicine (Chaudhuri and West, 2015). To face this, capacity building for vaccine manufacturing, that is, producing vaccines in a specific region or country, as opposed to solely relying on importation, has been presented as a credible solution to shorten supply chains and allow better distribution, cheaper medical products for areas in need of support. In Adongo et al.'s 'Decolonising vaccine production: Unpacking Ghanaians' support for made-in-Africa

Commented [MOU1]: footnote w/source: A Heavy Burden: The Productivity Cost of Illness in Africa WHO Regional Office for Africa (2019)

² 'A Heavy Burden: The Productivity Cost of Illness in Africa', WHO Regional Office for Africa (2019)

vaccines' contend, through a qualitative survey, some of the reasons behind said solution. Adongo et al. examine the "delayed" assistance low and middle income countries (LMICs) faced during the crisis. Indeed, advanced countries such as the United States, France or the United Kingdom returned to 'corn laws'³ and covid-19 vaccinations took place significantly later in most LMICs. Although COVAX was presented as a favourable solution, authors such as Atanga Adongo et al. argue that due to this reliance on other countries, through "donor-funded vaccines to lower income countries", Africa has remained ill-ready to "confront pandemics of that magnitude head-on."

Through the problem stream, we are therefore able to conclude that public health crises, unequal distribution and timely access to vaccines, as well as additional supply chain issues have served as signals of caution to remedy reliance on medical supplies.

2. Kingdon's Policy Stream, applied to the AVMA











The Kingdon policy stream provides us an useful lens to comprehend the creation process and is mobilized to demonstrate that existing public policies are inadequate and that a change or additional action is necessary. This is how the current of solutions (policy stream) develops independently, within which alternatives circulate carried by entrepreneurs within public policy communities, creating and growing. In this case, the AVMA mechanism has emerged as an incentive to shift the tide. Several public health experts, from the African Vaccine Manufacturing Initiative (AVMI) for instance such as Chidi Victor Nweneka and Tolu Disu have highlighted the necessity for local vaccine production to reduce Africa's dependency on foreign supplies and improve pandemic preparedness. The Africa Centres for Disease Control and Prevention (Africa CDC), the Pharmaceutical Manufacturing Plan for Africa (PMPA) or international organisations like the WHO have previously called for the development of local vaccine manufacturing in Africa.

In a 2021 report, the Tony Blair Institute for Global Change, have presented some policy recommendations for implementation of medical products manufacturing in Africa. They advocated for greater self-sufficiency and highlighted some of the consequences of delays and uncertainty.

³ Corn laws were "any of the regulations governing the import and export of grain." (Britannica) In this context, the race to producing covid-19 vaccines led to the return of increased restrictions "regarding the production and marketing of vaccines" (Atanga Adongo et. al, 2023)

Some of the main concerns around question Africa as a viable market for medical products, and more precisely vaccines. While it is currently estimated at \$1.3 billion, by 2030, it is expected to reach a value of up to \$2.35 billion (Institute for Global Change). Given that stakeholders are conscious of the stakes that rapid population growth induces, particularly in sub-Saharan Africa, it is urgent to rethink and strengthen existing health systems.

Figure 2 - Companies in Africa operating across the vaccine-manufacturing value chain, 2021

Manufacturer	Products	R&D	Manufacturing of drug substance	Fill & finish	Pack & label	Import for sale
IP Dakar	 Yellow Fever		●	●	●	
Vacsera	 BCG, Tuberculin, Tetanus, DTP, Typhoid, Cholera			●	●	
IP Tunis	 BCG		●	●		
Biovac	 BCG6, Measles6, Pneumococcal conj.3, Hepatitis B3, Hexavalent Vaccine7		●	●	●	●
Aspen	 Covid-19 candidate			●	●	
IP Maroc	 BCG, DT, Yellow Fever, Typhoid, Influenza, Rabies					●
EPH	 Plan to produce vaccines		●		●	●
Biovaccines	 Plan to produce Hepatitis-B Plan to produce Tetanus Plan to produce DTP+Hep-B Plan to produce Yellow Fever Plan to produce Measles		●			
Innovative Biotech	 HIV	●			●	
IP Algeria	 Rabies		●			●

Key: ● Work completed ● Work in progress or planning

Source: McKinsey, FCDO, Press, Manufacturers' websites.

Source: Tony Blair: Institute For Global Change McKinsey, FCDO, Press, Manufacturer's websites (2021)

As shown through this figure, several manufacturing companies are already implemented across the African continent. However, given the lack of commitment for research and development, most of their current activity revolves around transforming pre-made products.

Importance of WHO pre-qualifications

As mentioned previously, the WHO prequalifications (PQs) remains a crucial process that manufacturers must abide by to ensure the quality, safety and efficacy of health products, particularly medicines and vaccines, in regard to existing international standards. For international entities such as UNICEF, Gavi and the Vaccine Alliance, these PQs are essential as they procure benchmarks to adequately select products for procurement.

Therefore, these regulatory processes ensure that only quality-assured products can reach healthcare systems, and ultimately diminishes the risks for drug resistance, treatment failure and potential patient harm. As this positively impacts and facilitates the implementation of positive public health policies, confidence and trust can be established between donors, healthcare practitioners and patients.

Here, considering the requisite procedures for vaccine production, sustainability and feasibility is often put into question by countries and companies looking to expand and create new avenues for medical manufacturing. In Makenga et. al's 'Vaccine Production in Africa: a feasible business model for capacity building and sustainable new vaccine introduction', the authors present a thorough literature review and online questionnaires to investigate the feasibility for investment in African vaccine production, and some recommendations aimed to enhance affordability.

Kingdon's concept of policy communities also applies here, as we have observed engagement from various stakeholders, which have converged to formulate action plans and potential solutions. In Makenga et. al's 2019 paper for instance, online questionnaires were sent to specific organisations and African countries, to gauge interest in developing regional manufacturing in Africa. Through this study, the authors were able to conclude that the natural interest from African governments is to be supplemented with outside efforts. The perception of Africa as a minor market for vaccines continues to prove itself as a barrier to potential investors, and global stakeholders such as Unitaid, GAVI or UNICEF could be vital to shift these tendencies.

It is important to note that the Kingdon model praises those who innovate, policy entrepreneurs, as they invest their resources, knowledge and time to propose alternatives to current well-established structures, in exchange for subsequent anticipated benefits. These policy communities, which are defined by Kingdon as a network of network or group of stakeholders⁴, which are characterised by their shared interest, expertise and collaboration as they implement and evaluate health policies. In this context, current stakeholders such as Gavi, the AU, UNICEF and the WHO support African countries in vaccine procurement, capacity building and technical assistance. However, other stakeholders such as the National Immunization Technical Advisory Groups (NITAGs), are expert groups within countries in Africa, that provide evidence-based advice to governments on vaccine policy decisions and operate independently. Gavi has also supported the Expanded Program on Immunisation (EPI) which coordinates vaccine procurement and vaccination schedules, for instance. Furthermore, the African Vaccine Manufacturing Initiative (AVMI), similarly aims to strengthen regional production, and reduce vaccine dependency. Finally, Community Health Workers provide communities with educational campaigns on vaccines, vaccination campaigns, identify and register eligible children for immunisation, which has been recognised as a vital component to building resilient health systems.

3. Kingdon's Politics Stream, applied to the AVMA

The last stream that Kingdon mentions is the Political Stream. Indeed, this stream considers the readiness and support from political leaders, policymakers and stakeholders to adopt proposed policies. AVMA has and will requires political attentiveness at both national and regional levels, to allocate resources, create regulatory framework and prioritise vaccine manufacturing as a strategic health policy.

In this stream, events unfold according to pre-decided rules and a timeline specific to political life. Specifically, this stream encompasses public opinion and its fluctuations (national mood swings), electoral politics (election campaigns, political parties' events), changes in government and administration (shifts in political party, personal changes) as well as action from pressure groups (lobbies). In this context, the African Union has previously established

⁴ This includes government officials, experts, researchers, advocacy groups, healthcare providers, and sometimes industry representatives.

the “Agenda 2063⁵”, which aims to “prioritise inclusive social and economic development.” As Africa continues to burden with endemic diseases, the estimated 227 million years of life lost have been estimated to produce over \$800 billion in productivity losses. Through the Agenda 2063, African countries have been urged to further invest in their healthcare systems, in efforts to reduce this excess burden of diseases, in the wake of its rapid population growth (currently, Africa represents 1.5 billion people but is expected to reach 2.5 billion by 2050). The creation of the Africa CDC has been crucial in supporting and combatting disease outbreak in the past two decades. Nkenngasong and Tessema, two public health experts from the Africa CDC, cite the EVD outbreaks in North Kivu, Democratic Republic of Congo, “by deploying over 65 epidemiologist, laboratory experts, logisticians, infection control experts and risk communicators’, as well as supporting the DRC government in surveillance, healthcare workers training and supplying equipment, establishing cross-border collaboration. The establishing of the African Agency, who’s mission lies in providing regulatory guidance, improving safe access to medical product and health technologies, and the strengthening on “drug-manufacturing efforts across the continent (Nkenngasong and Tessema, 2020) are promising steps from the Africa CDC.

This has enabled coalition-building from diverse actors, given that AVMA inherently supposes building of coalition among African governments, international donors, research institutions and pharmaceutical companies, to mobilise political support, financial resources, technical expertise respectively, to advance vaccine manufacturing initiatives.

All in all, superseding global pandemics have brought to light the vital and complex issues surrounding vaccination, and these need to be understood and framed within the context of a global informational regulatory movement.

Through the politics stream, we have overseen some of the complexities that come with the practical creations of a policy tool such as AVMA. Continuing to apply Kingdon, we can observe a convergence and a policy window, which has signalled optimal timing to introduce a new tool such as AVMA.

We have therefore observed how the convergence of the issue of vaccine dependency in Africa, which has been brought to light through the advent of previous health crises such as

⁵ Agenda 2063: The Africa We Want: “encapsulates the Africa’s Aspirations for the Future but also identifies key Flagship Programmes which can boost Africa’s economic growth and development and lead to the rapid transformation of the continent”. This agenda was created as presidents and governments signed the 50th Solemn Declaration, during the Golden Jubilee celebration of the formation of the Organisation of African Unity, the predecessor of the AU. (AU, 2013)

the COVID-19, with recommendations from experts and engagement from stakeholders, as well as political will and advocacy, have converged and opened a policy window. This has signalled optimal timing to introduce a new tool, such as the African Vaccine Manufacturing Accelerator. As we await its official launch through Gavi, and the Vaccine Sovereignty and Innovation Forum (July 20th 2024), Kingdon's streams provide a rational explanation of how it has come to be.

DISCUSSION

Emerging wariness and criticisms

AVMA's financing capabilities have yet to be seen, however, criticisms and forewarnings have already emerged. The Center for Global Development has issued warnings after the November 2023 announcement, showing scepticism in its ability to truly manage sustainable vaccine manufacturing, and calling for a rethinking of Gavi's operational model and priorities, naming, for instance, the eligibility criteria Gavi has previously established. Indeed, Keller et. al, suggest that there are significant challenges ahead to establish a supportive ecosystem such as AVMA, and that the timeline for these long-term sustainability goals must be realistic, give the very real complexities of developing the vaccine market as well as the intricacies biotechnology patents and transfer represent.

Other authors such as Abiodun E Awosusi, a General Management PhD student from the Ivey Business School, have issued similar concerns related to the announced structure of this tool. Awosusi argues that this "novel financing instrument" must fall into objectives of the Partnerships for African Vaccine Manufacturing, and that it "should not be a decoupling tool to appease the institutional environment of the global vaccine market." Through this article, the author comments on existing expenditures such as the African Medicines Regulatory Harmonisation Initiative and the African Vaccines Regulatory forum, which he argues are "well positioned to work with regional economic communities". He also suggests that there are unique opportunities to enhance vaccine production capacities in various countries, while maintaining the health of both regional and global markets. In this context, existing national regulatory authorities in countries such as Egypt, Ghana, Nigeria, South Africa and Tanzania, of which only two have vaccine-producing status (Egypt and South Africa), should, according to the author, be supported. As such, consolidating efforts into few, large-scale African manufacturers should be prioritised to maximise efficient, while integrating local product suppliers and distributors, to avoid unhealthy market dynamics.

AVMA as seen through the lens of Global Health Diplomacy

With the significant increase in globalisation, the previously Westphalian⁶ world order has had unprecedented consequences for global health. For instance, it can be argued that the 2003 SARS epidemic has been a strong catalyst in helping individuals and governments increase awareness on infectious diseases – it was ‘first post-Westphalian pathogen’ and transcended some historical principles based on “national sovereignty and non-intervention” (Harding & Lim, 1999). We are now living in a time where post-Westphalian public health has taken precedence, and transnational corporation and non-state actors participate in some of the health agenda. The Bill and Melinda Gates foundation remains a strong example of this, as it is a main contributor to global health, and it currently sits on the board of a range of global health organisations, such as “the WHO, the GAVI Vaccine Alliance, the World Bank, the Global Fund to Fight Aids, Tuberculosis and Malaria” among other non-governmental and supranational organisation.

Our current global system has increased our reliance on one another, and through the complex interdependence theory, numerous health determinants have spread globally (diets, lifestyle), which have led to shared health challenges and risks. Global health diplomacy has gained momentum within countries’ foreign policy and is intricately linked to geopolitical and national interest (EMRO, WHO, 2024). Strong advocates for the combining of development to global health such as Suerie Moon, Julio Frenk and Octavio Gómez-Dantés, have called for the adequate promotion of health in this era of global governance, where security, climate change and trade have significant impact on nations’ public health policy.

Existing major public health agencies mainly emerged following the disease outbreaks, such as the United States Centers for Disease Control and prevention (US CDC), founded as a response mechanism to control malaria. While established in 1946 as the Communicable Disease Center in Atlanta Georgia, its mandate has presently expanded to “include all communicable diseases” and currently has established world-leading disease surveillance. (Nkenngasong and Tessema, 2020). These authors also cite the China CDC (established 2002), the Public Health Agency of Canada (established 2003) and the European CDC

⁶ Westphalian: a Eurocentric concept implicated in the colonization of Indigenous people in settler societies. It has shaped the international political landscape for centuries, and refers state-centered, structures of political authority, notably through the Treaties of Westphalia. Here, it signifies a ‘particular geopolitical arrangement that ties the sovereignty to act independently to territorial statehood.’ (Bauder, Mueller, 2021)

(established 2003), as responses to the SARS outbreak. The Africa CDC's creation from the Ebola virus outbreak has a similar mandate, and potential to continue advocacy work in strengthening NPHIs (National Public Health Institutions).

Similarly, the recent COVID-19 crisis has incited demands for better transparency from governments, a reinvesting in public health infrastructures and better work conditions and overall recognition for healthcare workers. As seen through a 2021 study conducted by Billings et. al,⁷ However, in these 'post-Westphalian' public health structures (Fidler, 2004), we have seen a shift in this previous agenda solely focused on disease control, influenced by global governance.

The African CDC continues to spearhead efforts to build sustainable health systems and disease surveillance, supported by the African Union. Key players such as the Institut Pasteur de Dakar, Aspen Pharmacare, Biovac, Vacsera, Sothema, and Biovaccines Nigeria have global partnerships. BioNTech has also significantly advanced its efforts in Rwanda, and Afrigen hosts the mRNA technology transfer hub, which "aims to develop novel technologies to address health needs in developing countries" (Awosusi, 2024). Through the International Vaccine Institute, and the African Pharmaceutical Technology foundation, collaboration has allowed progress and the AVMA should aim to further said progress through its mandate.

As previous infectious disease epidemics have emerged, the extent of the economic repercussions have been felt by many. While vaccines have helped in reducing disease transmissions, protect vulnerable groups and have allowed, in the context of the COVID-19 crisis, some countries to "return to normal", and rejoin the global markets quicker", this has not been a [equitable]

"Politisation" of Global Health?

It can therefore be argued that global health has become a field where political interest plays a significant role. Increased politization can be observed through competing agendas for policymaking on both a national and global level. In the case of AVMA, this tool has the unique characteristic of being a financing incentive brought forth by a non-state actor, Gavi, which is itself governed by the Bill and Melinda Gates Foundation, UNICEF, WHO, the World Bank and other public and private stakeholders. Despite their commitment to acting on some health indicators and working towards the Sustainable Development Goal of Universal Health

⁷ "Experiences of frontline healthcare workers and their views about support during COVID-19 and previous pandemics: a systematic review and qualitative meta-synthesis (2021)

Coverage (UHC), contributors have competing, sometimes overlapping agendas. Furthermore, health policies can reflect broader political agendas, with health initiative presented as tools to enhance diplomatic relationships or achieve strategic geopolitical goals. Through international organisations and regional institutions such as the European Union, countries must abide by specific principles and agreements to secure their integration. The term global health diplomacy is therefore inherently linked to the politicisation of said global health, as aforementioned initiatives and proposals often serving as instruments to foster increased international cooperation. For instance, the AVMA launch will be taking place at the Global Forum for Vaccine Sovereignty and Innovation, on June 2024, which will bring together the AU, Gavi, and the French government, as well as many officials from NPHIs and partner organisation, in efforts to raise awareness and funds to accelerate sustainable vaccination and innovation. With the added benefit of the French Olympic Games, this window of opportunity will allow vaccination sovereignty to penetrate the geopolitical agenda. We can therefore note how the influence of powerful nations or organisation shifts global health priorities, which can lead to disparities in addressing health issues. In turn, governance structures of global health organisations play a key role in influencing said agenda, and they can be positively or negatively impact by everchanging political context, influencing transparency and accountability.

Finally, it is important to note that although the AVMA has been framed as a major tool aiming to aid countries reach their goals for reduced medical product dependency, vaccine hesitancy, and growing scepticisms have been identified as additional barriers, and must be adequately considered. Authors such as Atanga Adongo et. al,⁸ have also called for joint solutions, to enable channels which work alongside some of the country-specific, ethnic-specific cultural specificities, and it will be states' responsibility to find ways to nobly implement these and allow these new markets to thrive.

⁸ "Decolonising vaccine production: Unpacking Ghanaians' support for made-in-Africa vaccines", 2023

CONCLUSION

Vaccines remain a pillar of public health, as they are crucial to prevent infectious diseases and ensure global health security. Despite significant advancements, challenges such as vaccine hesitancy, logistical barriers, and disparities in access continue to hinder vaccination efforts, and have disproportionately affected LMICs. As such, organisations such as Gavi have produced innovative tools such as AVMA, the African Vaccine Manufacturing Accelerator, to sustainably address some of these issues, presenting regional vaccine manufacturing in Africa as a solution. Through Kingdon, we have overseen the problem, policy and politics stream, that have converged and allowed a policy window enabling the creation of the AVMA apparatus. We have yet to fully see its effects, but this novel instrument promises to address these issues, aiming to produce African vaccines created on the continent, to support strengthened healthcare systems and ultimately reducing disease burden.

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ABSTRACT IN FRENCH

« Solutions Innovantes au service de la Santé Publique: Explorer l'outil AVMA et ses Implications pour les politiques de santé Mondiale et de diplomatie de la santé. »

Dans cette revue, nous allons présenter la mise en place de l'outil AVMA, dont le lancement est prévu ce jeudi 20 juin 2024 à Paris. A travers l'analyse de données secondaires, et du modèle de la fenêtre d'opportunité de Kingdon, ces trois courants nous ont permis de mettre en évidence le besoin critique de la production régionale en Afrique, en particulier dans le domaine de fabrication des vaccins et partage des biotechnologies, et souligne le rôle de la diplomatie sanitaire Mondiale, dans l'amélioration de l'accès au vaccins en Afrique.