TRADE & INDUSTRIAL POLICY STRATEGIES

LEVERAGING SOUTH AFRICA'S G20 ENGAGEMENT TO ADVANCE PHARMACEUTICAL MANUFACTURING: A STRATEGIC POLICY OPPORTUNITY

WORKING PAPER

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November 2025

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ABBREVIATIONS

AfCFTA	African Continental Free Trade Area
AMA	African Medicines Agency
APIs	Active Pharmaceutical Ingredients
APTF	Africa Pharmaceutical Technology Foundation
ARVs	Antiretrovirals
AU	African Union
DSTI	Department of Science, Technology and Innovation
DTG	Dolutegravir
FDI	Foreign Direct Investment
G20	Group of 20
GHG	Greenhouse Gas
GMP	Good Manufacturing Practice
IFC	International Finance Corporation
IHR	International Health Regulations
LMICs	Low-Income and Middle-Income Countries
OOP	Out of Pocket
PPPPR	Pandemic Prevention Preparedness and Response
R&D	Research and Development
RePORT	Regional Prospective Observational Research in Tuberculosis
SAHPRA	South African Health Products Regulatory Authority
SEZ	Special Economic Zone
UHC	Universal Health Coverage
UNTAD	UN Trade and Development
US	United States
WHO	World Health Organization
WTO	World Trade Organization

1. INTRODUCTION

Upheaval in the global external environment, including the recent COVID-19 pandemic, infectious disease outbreaks such as the Marburg virus, and the most recent development aid funding cuts, has created a sense of urgency among African nations to relook at health systems resilience and self-sufficiency in the supply of healthcare products.

In response to the COVID-19 pandemic, African Heads of State committed to increasing levels of local production of pharmaceuticals, which ensured political buy-in and support. This commitment as well as other enabling policies such as implementing of the African Continental Free Trade Area (AfCFTA) Agreement, and the operationalisation of the African Medicines Agency (AMA), piqued the interest of both local and international players. These two policy interventions have the potential to create the foundation for a substantial continental healthcare market. (Parikh Nupur, 2025)

However, the interest from investors and manufacturers became almost singularly focused on the vaccines market, dominated by the demand for COVID-19 vaccines during and post the pandemic.[1] As the pandemic ended, so did the demand for these vaccines. Several major manufacturing partnerships were jeopardised and, in some cases, cancelled. At the same time, focus and demand for other key products of public health importance were neglected. This has subsequently become even more important to address due to the significant impact of funding cuts for programmes such as the United States (US) PEPFAR programme. (Bryan, 2024: Parikh, 2025: Tim, 2022) There is much greater urgency now in increasing local manufacturing productivity in South Africa, arguably more than any time in the recent past.

This working paper focuses on how South Africa's strategic engagement in the Group of 20 (G20) could enhance its ability to mobilise international partnerships, influence global pharmaceutical policy, and attract investment for pharmaceutical[2] manufacturing to facilitate export-led sector growth. **Section two** discusses the evolution and globalisation of the pharmaceutical value chain and the feasibility of "self-sufficiency of local manufacturing" in the context of globally integrated value chains. **Section three** focuses on the changing context of the multilateral global health system which is impacting on financing of healthcare, especially in low and middle-income countries. **Section four** provides an assessment of G20 outcomes focused on health and more specifically local pharmaceutical manufacturing. It also provides insights from India and Brazil which have made significant progress in local pharmaceutical manufacturing and have previously hosted the G20. **Section five** provides concluding remarks and recommendations to guide G20 strategic engagement and proposals for a revised strategic approach to expanding local manufacturing.

2. EVOLUTION AND GLOBALISATION OF THE PHARMACEUTICAL VALUE CHAIN

Globalisation of pharmaceutical value chains saw multinational companies divest out of markets such as South Africa over decades, both for strategic and political reasons at the time.[3] Global players consolidated manufacturing into centres of excellence in different locations around the world. This improved efficiencies and economies of scale of production for pharmaceutical companies and allowed for market prioritisation, leaving African markets at the end of the queue in many instances.

[1] Narrow focus confirmed by several key informants.
[2] "Pharmaceuticals" is defined to include biopharmaceuticals, vaccines, medical technology.
[3] Multinational company exits could be due to the economic environment and lack of value addition.

Outsourcing has become prevalent at all stages of the pharmaceutical value chain, allowing for increased productivity and risk distribution. While this increased productivity and distributed risks, it also concentrated value chain control in a few countries. Historically, high-income countries dominated both manufacturing and innovation. However, production has shifted, with emerging markets becoming significant exporters. This has resulted in a centre-periphery structure, where core countries dominate high-value activities, while peripheral countries, including many low- and middle-income countries (LMICs), are weakly integrated or serve as low-cost manufacturing hubs with limited value addition and intellectual property retention. (Reis and Pinto, 2022)

The globalisation of pharmaceutical production has not been matched by harmonised regulatory systems, resulting in a fragmented market with varying quality standards. This exposes LMICs to a higher risk of poor-quality or substandard medicines, as regulatory oversight and quality assurance systems are often weak or inconsistent. Studies show that many local private distributors in LMICs do not comply with international quality standards, increasing the risk of degraded or ineffective medicines reaching patients. (Nguyen et al., 2015; Orubu et al., 2020; Ozawa et al., 2022) Limited local manufacturing, high prices, and substandard quality collectively hinder access to essential medicines and contribute to poor health outcomes in these countries. (Kaine, 2020; Ndagije et al., 2024)

LMICs have responded with a mix of strategies,[4] including promoting local manufacturing through industrial policy and leveraging public procurement to support domestic industry. Some countries like Nigeria, Ghana and Uganda have negative import lists and/or import verification fees which have not resulted in increased access, lower pricing to patients, or increased levels of local manufacturing. (Ndagije et al., 2024; Adebisi et al., 2022) On the contrary, in many cases, import restrictions have resulted in local manufacturers being locked into old manufacturing technologies and simpler molecules and formulations,[5] with more complex medicines still being imported. (Efefiom, 2025)

Up to 80% of Active Pharmaceutical Ingredients (APIs) used in Europe or the US come from China and India. India's dependence on Chinese APIs significantly impacts its pharmaceutical industry. Primarily, this dependency influences both supply chain stability and cost structure. The COVID-19 pandemic highlighted vulnerabilities in global supply chains, leading to discussions about reducing dependency on China for APIs. Countries have experienced supply disruptions, stressing the need for supply chain security and diversification of API sources. (Zhang, 2023; Hyer et al., 2024) For example, any geopolitical tensions or changes in trade policy, as seen in countries like Pakistan, can lead to shortages of APIs, thereby affecting medicine availability.

Technological innovation is also reshaping pharmaceutical value chains. Traditional batch manufacturing is giving way to continuous manufacturing,[6] particularly for small-molecule APIs and oral solid dosage forms. These systems promise better efficiency, safety, and quality control but are capital-intensive and require regulatory adaptation. In addition, the rise of complex and personalised medicines is driving investments in digital tools and advanced distribution processes, further transforming industry dynamics. (Harrington et al., 2017; Volgina, 2021; Gereffi, 2017)

Recent research conducted by Unitaid indicates that health value chains contribute approximately 4.6% of global emissions. The impact on the environment occurs through water use, waste water discharges, plastic waste and medicine manufacturing processes in general, which generate high

[4] There is a lack of comprehensive approaches across Ministries in LMICs.
[5] Sourcing of key production inputs for newer, more complex products is challenging, therefore local manufacturers rely on older, basic formulations.
[6] Other emerging manufacturing technologies mentioned by key informants included "point of care manufacturing" and "modular manufacturing".

volumes of harmful waste that require treatment. Focusing on specific products, the global projected demand of dolutegravir (DTG)[7] of 30 million patients by 2030 on a daily prescription, which is projected to contribute 2.7 megatons of GHG emissions annually worldwide. For Long-Lasting Insecticide Nets, (LLINs), 57 500 tons of plastic is used in manufacturing. Further downstream in the value chain, it is estimated that marine and air transport of health products contribute 1% and 17% of total transportation emissions. The research shows further that 40% of emissions can be abated without increasing costs. This makes a strong case for the adoption of green chemistry[8] in the manufacturing approaches of medicines and other health products. The downstream effects of the generation of waste products, e.g. from self-test kits and disposal of medicines at patient level can be problematic, especially in low-resource settings. Nevertheless, these impacts also need to be addressed to avoid long-term negative impacts on the environment. (Unitaid, 2023)

2.1. African pharmaceutical landscape: Opportunities and challenges

Africa's growing economic potential and long-term demographic dividend have attracted renewed global interest. Economic growth, historically driven by commodity demand, is now being accompanied by rising health service needs. Policymakers aim to harness improved public health to drive economic, social, and political benefits – particularly through the local manufacture of medicines. (Mansouri, 2021; Jayaram, 2020; Cruz-Gomes et al., 2019; Mackintosh et al., 2018; Bradley, 2021)

2.1.1. Market structure

The African pharmaceutical industry is expected to be worth US$56-US$70 billion by 2030 (Capmad, 2024), and yet remains largely dependent on imports for medicines, i.e., 70%-90% of medicines are still imported. In 2020, there were approximately 600 pharmaceutical manufacturers in Africa. Eighty percent of these manufacturers are based in eight countries: Egypt, Morocco, Tunisia, Nigeria, Ghana, Kenya and South Africa. Of these 600 pharmaceutical manufacturers, 25% belong to multinational companies and only four countries have more than 50 manufacturers. (Ussai et al., 2022)

Medicine shortages and stockouts are not uncommon across the African continent and remain challenging to address. More recently, the COVID-19 pandemic highlighted the fragility of healthcare systems in Africa and also the high levels of external dependency through the needs for pharmaceutical imports. (Kaine, 2020) This created an increased urgency and momentum to ramp up levels of local pharmaceutical manufacturing due to the urgent access gaps in access to vaccines as well as other medicines through globalised manufacturing and supply chains. However, once the pandemic ended and demand declined, many manufacturing projects and partnerships did not materialise. Those companies that did invest in manufacturing capabilities did not realise their commercial objectives due to reduced demand. The last few years post the pandemic have seen divestments of major pharmaceutical companies out of key markets, including Nigeria, Kenya and South Africa, exacerbating access problems.

2.1.2. Policy implementation and systemic barriers

While some African countries have formulated robust industrial and health policies, implementation remains weak. Financial constraints, poor regulatory enforcement, and inconsistent procurement practices hinder effectiveness.

[7] Toxic solvents are used to manufacture APIs; for example, 400kg of solvents are used to make 1kg of DTG.
[8] The adoption of green chemistry will cut raw material use by more than 50% for the manufacture of TB medicines.

In recent years, African policymakers have attempted to address access to medicines through the implementation of various policy instruments, including the Pharmaceutical Manufacturing Plan for Africa[9] (AU, 2013). This has yielded mixed results. Overall, the African continent remains a net importer of pharmaceutical products, with import levels of between 60%-80%, depending on the data source. (Kaine, 2020) Decades later the African pharmaceutical market remains fragmented, due to varying levels of development, differing socio-economic factors and differing regulatory and policy frameworks amongst other factors. The recent implementation of the AfCFTA Agreement has brought industrial policy as it pertains to pharmaceutical markets in Africa back into sharp focus. Industrialisation through the development of local manufacturing capabilities is pegged to address some of these challenges through various institutions and initiatives, including the Africa Pharmaceutical Technology Foundation (APTF), operationalisation of AMA, and the African Pooled Procurement Mechanism. (AfCFTA Secretariat and UNDP, 2021; UNECA, 2024; European Investment Bank, 2023)[10]

While poor policy formulation remains a challenge for many African countries, the persistence of social, economic and health problems on the African continent can largely be attributed to poor policy implementation strategies. (PATH, 2016) Financial constraints play a significant role in hindering effective policy implementation. Levels of policy implementation, enforcement of regulatory standards and the management of systemic risks differ, resulting in differing market outcomes, such as long procurement cycles through which government purchasing is carried out and unplanned variations in payment schedules which create uncertainty in the system. (Yadav, 2015) The evolution of disease burden in countries further contributes to market volatility through unpredictable demand and lack of accurate market and disease surveillance data.

African countries frequently face financial limitations that impede the rollout of Universal Health Coverage (UHC) and other health reforms. Despite prioritising UHC, the transition remains slow due to financial barriers and supply-side challenges such as a shortage of healthcare workers and insufficient medical supplies. (Langat et al., 2025) Similarly, health insurance schemes encounter obstacles due to high out-of-pocket costs and inadequate government resource allocation, which hinder care accessibility. (Aderinto et al., 2024) Infrastructural gaps – particularly in digital and physical systems – further limit the adoption of transformative health technologies like AI (Langat et al., 2025; Oladipo et al., 2024)

2.1.3. Localisation strategies

Despite many setbacks, regional manufacturing remains a promising avenue for Africa. Recent research highlights growing interest in pharmaceutical manufacturing in Africa as a means to improve access to essential medicines. Despite challenges, several African countries are developing pharmaceutical production capabilities. Localisation policies have been implemented in different ways by different countries in Africa through a mixture of incentive and punitive measures. (Fatokun, 2020; Adebisi et al., 2022). For instance, Nigeria introduced a Five Plus Five-Year Validity (Migration to Local Production) policy to encourage importers to produce medicines locally or face deregistration of their

[9]Endorsed by the Conference of the African Ministers of Health and the African Union Heads of State and Government in 2007, this prioritised local manufacturing of medicines and called for regulatory harmonisation.
[10] Key informants indicated that overlapping mandates of Pan Africa institutions with varying approaches and openness to stakeholder engagements make the landscape difficult to navigate.

medicines in time. Both Nigeria and Tanzania also have negative import lists, i.e., lists of medicines which are reserved for local manufacturers and therefore cannot be imported.

Ethiopia's national pharmaceutical manufacturing strategy is considered a success due to its focus on creating an enabling environment for attracting Foreign Direct Investment (FDI) in the manufacturing sector, which is yielding short-term economic benefits and showing promise for further industrialisation. (Hauge, 2019) Sudan, in contrast, has not been able to attract foreign investors due to economic instability and lack of planning from the government, which creates uncertainty and risk. (Lucero-Prisno III et al., 2020; Ali and Omer, 2008) South Africa has provided manufacturing incentives to local manufacturers for their production facilities and also has preferential procurement regulations in place which prioritises local manufacturers, among other requirements. (Dong and Mirza, 2016; Russo and Banda, 2015; Ussai et al., 2022; Mujinja et al., 2014)

Challenges that local pharmaceutical manufacturers face in Africa include compliance to international manufacturing standards,[11] keeping productivity levels up, forecasting and production planning, access to accurate and up-to-date market data, as well as access to export markets. Small local markets with unpredictable demand, opaque procurement processes do not allow for sustainable production.[12] In addition, they face cost disadvantages as finished pharmaceuticals are imported duty free, while duties are applied to APIs, which account for approximately 60% of the cost of the medicines. (Ussai et al., 2022) Other production inputs, such as pharmaceutical excipients and packaging materials, some of which have more general uses such as plastic for packaging, or glass for vials, attract high tariffs and therefore increase the overall cost of production.

Tariff structures are dependent on national industrial policies and whether countries use tariffs as a potential source of revenue.[12] The impact of these import duties is multifaceted. First, if used for the import of active ingredients or production inputs into the industry, it has the potential to raise the production costs for local pharmaceutical companies, making it challenging for local manufacturers to compete with foreign manufacturers that can export finished products at lower prices. This cost differential can severely impact the sustainability and growth of pharmaceutical industries, which play a crucial role in ensuring access to essential medicines. (Khan and Rauf, 2024) Even though many countries allow tariff free imports of pharmaceuticals, tariffs on key production inputs remain a barrier to advancing pharmaceutical manufacturing.[13]

These types of measures can result in local manufacturers being locked into older manufacturing technologies with little impact on reducing imports. (Efefiom, 2025)[14] Overall, while current import duty structures could pose significant challenges, strategic investments and supportive policies could pave the way for a more self-reliant and competitive pharmaceutical sector in Africa, thereby improving access to affordable medicines. (Khan and Rauf, 2024) Second, tariffs on finished products have the potential to protect an infant or nascent pharmaceutical industry but risk raising the cost of essential goods if the domestic industry is unable to produce them competitively. In addition, this may not address issues related to security of supply due to lack of economies of scale.

Then there is also the issue of the utilisation levels of existing production capacity. Data show low levels of productivity, which ranges between 30% and 60% compared to >70% in more developed markets. UNCTAD, 2025) The International Finance Corporation (IFC) estimates that a factory making

[11] Substandard and falsified medicines were cited as a key risk.
[12] Confirmed by key informants.
[13] There is a lack of trade agreements that specifically focus on the pharma sector.
[14] One key informant indicated support for more trade barriers and import restrictions.

tablets in blister packaging needs to manufacture around 1.0 billion to 1.5 billion tablets a year to be said to be operating at scale. (Gall et al., 2012) Indian and Chinese firms have often reached scale when firms in other countries have not. For example, IFC estimates that a third of the 30%-40% cost disadvantage that a leading Ghanaian final formulations manufacturer suffers versus high-scale Indian manufacturers is attributable to scale. (Banda et al., 2022; UNECA, 2020)

Different dosage forms require differing manufacturing infrastructure, based on manufacturing complexity and Good Manufacturing Practice (GMP) compliance requirements, e.g. sterile dosage forms such as vaccines require complex infrastructure and therefore is limited to a few advanced manufacturers. For vaccines, there is a risk of over-capacity in "fill & finish" capabilities relative to projected demand,[15] which signals under-utilisation or risk of unsustainable operations. Manufacturing capacity for drug substance is limited due to scarce tech transfers and limited operational infrastructure. (PATH, 2023) Other challenges include lack of skilled workforces, regulatory delays and cold chain limitations.

Overall equipment effectiveness is estimated at approximately 30%, which reflects major losses from production downtime, speed inefficiencies and yield loss. This is confirmed by a study conducted in Ethiopia where employees of local manufacturers indicated that major challenges included unplanned operations downtimes; limited physical infrastructure; inadequate access to foreign currency; shortage and high staff turnover of qualified experts; lack of commitment from top management; absence of a merit-based support system; and limitations in compliance with regulatory and quality requirements. (Marew et al., 2025)

While localisation strategies can bolster domestic production, regulatory system strengthening is critical to ensure that pharmaceutical manufacturers meet international standards. Protectionist policies alone do not guarantee high-quality output; rather, robust regulatory frameworks and effective oversight can help producers adopt best practices, achieve economies of scale, and supply consistent, affordable medicines across the continent. Overall, addressing these challenges requires multifaceted approaches, including increasing public funding, strengthening governance, enhancing infrastructure, and enforcing policy adherence. By implementing comprehensive strategies, African countries can potentially overcome these hurdles, enhancing policy effectiveness and societal well-being.

2.1.4. South African pharmaceutical landscape

South Africa is both highly import-dependent and home to one of Africa's most developed pharmaceutical manufacturing sectors. A small domestic market means that local manufacturers have challenges in creating economies of scale.[16] According to the Serum Institute of India, which became a key supplier of vaccines during the COVID-19 pandemic, economies of scale is a critical consideration for pharmaceutical manufacturing. Without economies of scale, it is not possible to keep prices affordable to ensure broad access. (Green, 2024) Low intra-African trade levels make it challenging to explore markets outside of the country to achieve economies of scale.

Over the last few decades, South Africa has seen a decline in pharmaceutical manufacturing investments, including a decline in the number of pharmaceutical manufacturers and, in particular, manufacturing operations owned by multinational companies. This has also been accompanied by

[15] If all plans to expand vaccine manufacturing in Africa are realised, capacity to form/fill/finish vaccines would more than double the projected African vaccine demand in 2030 – a level of capacity that risks the sustainability and commercial viability of all manufacturing projects.

[16] South Africa's current production capacity will not meet the needs of the continent.

changes in the global pharmaceutical sector with companies concentrating their manufacturing capabilities into "centres of excellence" located in a few markets which supply products globally, as described earlier. For countries like South Africa, this has meant an increasing reliance on pharmaceutical imports.

Despite this, South Africa still stands out as one of the most established pharmaceutical manufacturing hubs on the continent, boasting significant domestic production capabilities and robust export activities. An estimated 15%-20% of South African pharmaceutical products are exported to other African countries, including key markets such as Nigeria, Kenya, and Ghana. It is still regarded as a gateway to the rest of the African continent.

However, progress has been uneven, constrained by limited investment, regulatory bottlenecks, and fragmented regional coordination against a backdrop of an eroding manufacturing base. In addition, efforts to revive local manufacturing face challenges due to competition from established global producers, like India and China, which have developed significant export-oriented manufacturing sectors. (Khan and Rauf, 2024) Other challenges include optimal utilisation of existing manufacturing capacity vs secured demand and supply agreements, leading to idle infrastructure, import dependence, limited industrial scale API production, tech transfer and workforce gaps.[17] Slow tech transfer and procurement policy constraints through short public tender cycles could undermine long-term capacity planning. The erosion of South Africa's manufacturing base reflects the effects of both global value chain consolidation trends and local policy shortcomings.

To develop a competitive local and regional pharmaceutical manufacturing market, South Africa would need to pursue market expansion regionally and beyond. This market expansion would need to include expanding both manufacturing capacity and capabilities, to include new technologies. Establishing partnerships with international players to pursue contract manufacturing opportunities and attracting FDI can help to scale pharmaceutical manufacturing operations, transfer know-how and enhance market access. These types of partnerships have the potential to create win-win scenarios: South African companies expand markets and capabilities in a shorter time, while multinationals reduce logistical complexity and extend their footprint without major capital outlays. Some pharmaceutical manufacturers have already successfully pursued this strategy.

Despite many challenges, South Africa has the strategic potential to position itself as a potential gateway to continental markets. To realise this, it must: expand regional and international contract manufacturing partnerships; invest in capability building, including advanced manufacturing technologies; reform procurement systems;[18] and strengthen regulatory systems to meet global standards.

2.1.5. South Africa's policy ecosystem

Decades after South Africa's democratic transition, it remains the most unequal society in the world. This is also clearly evident in the two-tiered healthcare system in the country, consisting of a public and private sector – both with challenges in healthcare delivery. The quest for equity and universal health coverage continues. At the same time, the tension between industrialisation and public health objectives continue to challenge policymakers. The government has prioritised universal health coverage through the implementation of a national health insurance system – the implementation of

[17] Key informants noted limited capacity in tech transfer, formulation science that need to be addressed.
[18] Key informants recommended procurement incentives for products of public health importance.

this system continues to be debated against the backdrop of poor health access and outcomes by many, low economic growth, high unemployment rates, and an overburdened tax base.

Significant progress has been made in regulating the healthcare sector through the ongoing advancement of the South African Health Products Regulatory Authority (SAHPRA), which has achieved Maturity Level 3 status, as per the World Health Organization (WHO) Global Benchmarking Tool. (WHO, 2021) In addition, SAHPRA is playing a leading role in the operationalisation of AMA through participation and leadership of key technical steering committees.[19] Sound regulatory enforcement will be critical to the success of regional pharmaceutical manufacturing.

South Africa has prioritised industrialisation of the sector through the Master Plan process, which is aimed at sector growth through investment in local manufacturing, among other supporting measures. The Master Plans are regarded as "micro-sectoral plans" that form an important part of South Africa's industrial policy. (Parliamentary Monitoring Group, 2025b) The final objectives of the Master Plans were derived through broad, intensive consultation and engagement with industry stakeholders, i.e. established business and organised labour, on various platforms. The Master Plan process has proven to be successful in other sectors such as the automotive sector.[20] A significant portion of the Department of Trade, Industry and Competition budget has been allocated to incentives in the auto sector (Parliamentary Monitoring Group, 2024b). However, a revised industrial policy is a priority of the new administration. It has been argued that the Master Plans would form part of the industrial policy. (Makgetla, 2024)

During 2024, TIPS conducted an evaluation of Master Plans and it was noted that the Master Plans had not evaluated the impact of tariffs and local procurement on prices, costs, and government services, nor had they opened new opportunities for small businesses on a large scale. (Makgetla, 2024) An urgent need for supportive policies to foster high-impact, high-growth startups has also been highlighted. The urgency arose from South Africa's support of the adoption of the African Union (AU) Startup Model Law. This comprehensive law was specifically tailored to support the growth of start-up companies, aligning with the AU's proposed guidelines, and it has been recommended by experts. (Parliamentary Monitoring Group, 2024a)

Furthermore, there is a need for the government to implement sustainable industrial policy. Government departments need to coordinate with each other, rather than single-mindedly pursuing individual mandates.[21] Consistency is needed regarding milestones and timelines, which are specific and outlive changes in political leadership. In addition, it is important for policymakers to stay abreast of sector changes, especially in the rapidly evolving pharmaceutical sector, through engaging with key stakeholders to develop innovative solutions. Clear political mandates that are well resourced and navigate the tensions between government and labour are needed.

Historically, one of the key challenges to intra-African trade has been the lack of infrastructure development, particularly in relation to transport and logistics – this remains a barrier in many markets across the continent, including challenging rail systems, congested ports, expensive air travel, connectivity and digital infrastructure. South Africa's trade into Africa amounts to R546 billion, with R300 billion being South African exports. Imports from the continent total R167 billion, mostly

[19] SAHPRA has improved its own systems and efficiencies and is also playing a leading role in regulatory harmonisation on the continent.

[20] Key informants indicated that comparisons of the healthcare sector to the automotive and sometimes construction sectors are inappropriate and influence policy negatively.

[21] Key informants indicated that policymakers lack understanding of financials and market operations of vaccine manufacturing.

concentrated in oil from countries like Angola and Nigeria. In addition, 59% of South Africa's exports to the rest of continent are value-added products, compared to 36% of its exports to the rest of the world. (Parliamentary Monitoring Group, 2024c)

South Africa's trade policy remains focused on promoting value-added exports, while protecting space for industrial development, and strengthening commitments under the AfCFTA, including promoting intra-African trade and addressing non-tariff barriers. From a foreign policy perspective, South Africa aims to be the leading force in Africa, championing the continent's interests that will support regional integration and industrialisation in Africa. (Parliamentary Monitoring Group, 2024c)

According to a recent report by the UN Trade and Development (UNCTAD), special economic zones (SEZs) can help boost pharmaceutical manufacturing and expand access to affordable medicines in Africa through targeted incentives, infrastructure and policy support, and attracting critical investment into the continent's pharmaceutical industry. Such pharmaceutical-focused SEZs could allow local pharmaceutical manufacturers to scale up, cut costs and improve quality by clustering investment, infrastructure and services, offering access to wider regional markets, and supported by initiatives like AfCFTA and the AMA. (UNCTAD, 2025) Many countries in Africa have started implementing SEZs. In South Africa, there has been a slow uptake of SEZ incentives, which has highlighted the need for a comprehensive programme that combines financial and non-financial incentives. (Parliamentary Monitoring Group, 2024c)

The South African Department of Science, Technology and Innovation (DSTI) has made progress in developing a Vaccine Innovation and Manufacturing Strategy, the aim of which would be to enhance the country's capacity to develop vaccines, therapeutics and diagnostics targeting various diseases relevant to the Global South, with particular emphasis on the African continent. The DSTI will also focus on raising the levels of collaboration in vaccine research, technological innovation, human resources and infrastructure development linked to wider efforts to bolster the resilience of South Africa's health economy. By doing so, the DSTI aims to contribute to South Africa's pandemic preparedness. (Parliamentary Monitoring Group, 2025a) South Africa's Research and Development (R&D) Tax incentive further enhances its ability to attract investment in R&D.

The development of regional pharmaceutical manufacturing in Africa hinges on coordinated policies, sustained investment, and strengthened institutions. While protectionist measures offer short-term relief and growth of infant industries, long-term competitiveness will depend on regulatory robustness, market integration, investment and innovation. South Africa's role within this ecosystem is critical. With the appropriate policy adjustments and strategic international engagement, it can serve as a hub for regional pharmaceutical development, supporting health security and industrial growth across the continent.

3. MULTILATERAL GLOBAL HEALTH ENVIRONMENT – TIME FOR A RESET?

Out of the 47 countries in the WHO African region only eight, on average, met the recommended threshold of spending a minimum of US$249 per capita on health during the period from 2012 to 2020. In 2020, this achievement was observed in only five countries while the remaining countries spent less than US$249 per capita, with health expenditures ranging from US$16.4 to US$236.6, highlighting significant disparities across the region. South Africa is the only country that achieved and sustained the Abuja Declaration target of allocating and spending at least 15% of government expenditure on health from 2014 to 2020. Out-of-pocket (OOP) payments[22] accounted for an average of 35.8% of

[22] Should not exceed 15%-20% of current health expenditure.

current expenditure on health from 2012 to 2020, indicating that OOP remains a key funding source for health expenditure.

Many countries in Africa still rely heavily on external funding, which constitutes more than 20% of current health expenditure in 50% of countries.[23] External funding sources account for more than 40% of current health expenditure in five countries, nearly two-thirds in South Sudan, and more than half of current health expenditure in Mozambique and Zimbabwe. (WHO, 2024) For South Africa, PEPFAR funding was supporting 27 high-burden districts and key high-risk populations. After PEPFAR funding cuts, key high-risk patients and their files were moved over to public healthcare facilities. There was minimal impact on supply of antiretrovirals (ARVs), as 90% of ARVs were procured from the government's fiscus, supported by 10% from the Global Fund, with the latter pledging an additional R1 billion for ARV procurement to ensure a sustainable supply of ARVS.

The multilateral global health system has long supported countries in Africa, with some being heavily dependent on international funding and technical support to meet public health priorities. Countries in the Global North used this type of aid as "soft power", which is characterised by cultural influence, diplomacy and values to achieve desired outcomes in international relations through strategic deployment of health aid and support. (Lee, 2021) Multilateral institutions often prioritise economic development over health concerns, but the integration of health into broader development agendas remains a strategic focus. Through partnerships with African nations, these institutions aim to build health systems robust enough to tackle not only the frequent epidemics but also the broader developmental challenges faced by these countries. (Chattu et al., 2021) Health diplomacy can be a catalyst for building more stable and cooperative international relationships, as it often involves capacity-building efforts, health system strengthening, and community engagement – all of which are aligned with the goals of sustainable development. (Kevany, 2014)

Public-private global health initiatives , like the GAVI Alliance, have played a pivotal role in shaping global health policies by bringing attention to specific health issues and driving the health systems strengthening agenda, although their effectiveness and alignment with local health systems can sometimes be controversial, as critics argue that their disease-focused orientation can distort national health priorities, overburden local systems with vertical programmes, and strain already limited resources – particularly when health systems strengthening efforts are poorly defined or implemented. (Storeng, 2014; Patel et al., 2015) These initiatives have also been instrumental in addressing diseases like HIV/AIDS by rapidly scaling service delivery and engaging multiple stakeholders, thereby influencing global health policies and the direction of health systems development. (Storeng, 2014; Biesma et al., 2009)

(Fergus, 2022) highlighted a fundamental shift in power dynamics within global health, with increased influence from private entities, philanthropies, non-governmental organisations and public–private partnerships, and a decline in public funding over the past three decades. Power through global health is intertwined with financial resources, with actors exerting influence as to where and how public health interventions and programmes are implemented, which public health issues are prioritised, as well as accountability and progress reporting.

While development assistance for health doubled from 2000 to 2020, it has not effectively strengthened health systems, often substituting for domestic funding. Recent global shifts, including US and European funding cuts for key health programmes, leave a major gap in public health systems

[23] African governments must step up to fill the global health funding gaps; political dynamics must be delinked from public health priorities.

across the continent and has emphasised the urgency for a reassessment of funding strategies to enhance health system resilience in Africa. (Nonvignon et al., 2024; Uwaezuoke, 2020)

Procurement for health commodities in many of these programmes is performed through various global procurement mechanisms, including international competitive bidding, which is normally restricted to manufacturers with WHO prequalification and/or US Food and Drug Administration approval for healthcare products that make up most of the supply. Because only a handful of Africa-made products meet these standards, most local manufacturers are locked out of this significant market. Procurement decisions are made in developed markets where global health agencies are domiciled. This skews procurement decisions to suppliers with close access and creates a dependency on a few international suppliers – ultimately disadvantaging pharmaceutical manufacturers in Africa.[24]

Achieving and enforcing production standards that meet international manufacturing compliance benchmarks is an explicit goal for African governments, as laid out in the Business Plan for the accelerated implementation of the Pharmaceutical Manufacturing Plan for Africa. (AU, 2013) Investment in quality improvements and advanced manufacturing processes and technologies for production of new, more sophisticated products for local and regional consumption is imperative to drive growth in the sector. However, this is also a key barrier for manufacturers which experience challenges in transitioning manufacturing capabilities to more complex products, and securing financing for infrastructure upgrades, in many cases lack the technical know-how to meet international GMP standards. Many local manufacturers still use manual workarounds for key manufacturing processes. This affects their levels of production as well as their attractiveness to international investors.[25] These types of challenges hinder substantial progress that can be made in regional manufacturing.

Due to recent changes in the global trade environment driven by US trade policy changes, the level of uncertainty in the global pharmaceutical sector has increased. These changes include planned tariff structure revisions and planned pricing pressure on pharmaceuticals in the US, which will have a knock on effect on pharmaceutical markets around the world. Several global pharmaceutical companies have made announcements of major investments to reshore manufacturing that was previously outsourced, back to the US. (Manufacturing Today, 2025) However, skilled labour and infrastructure for biopharmaceutical manufacturing remain challenging. The outcome of these policy interventions on the African pharmaceutical market is uncertain.

4. G20 FOCUS ON HEALTH

Global health calls for cooperation between developed and developing economies for mutual benefit. G20 health initiatives significantly impact global health policies and frameworks and integrate international commitments like the OECD conventions and align with frameworks such as the United Nations Global Compact, which can enhance corporate social performance and align with broader global health objectives. (Ghazwani, 2025) The Oslo Ministerial Declaration of 2007 emphasised the significance of health as an essential aspect of foreign policy.

The G20 placed global health firmly on the agenda for the first time in 2017 when the G20 Health Ministers' Declaration reiterated the WHO's central role in global health. (G20 South Africa, n.d.) Prior to this, focus on global health within the G20 context was limited. As was seen during the COVID-19

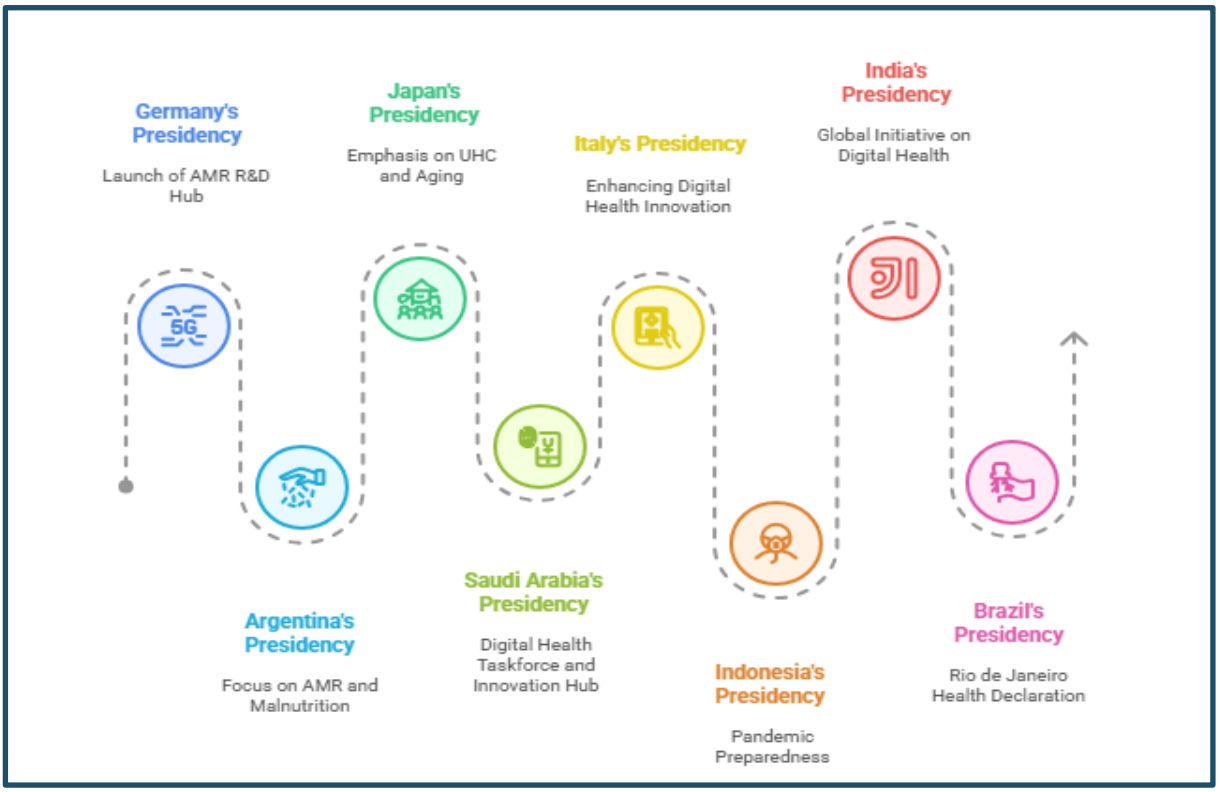
[24] Global health procurement standards, structures and processes were cited as a key barrier for local manufacturers.

[25] Key informant shared that many local manufacturers use manual processes for key manufacturing processes to compensate for lack of appropriate equipment and technical expertise.

pandemic, global health threats know no borders and impact various aspects like the environment, economy, trade, social development, human rights, and national security. (Singh and Radha, 2023)

Since its inception, the G20 has progressively integrated health into its agenda, evolving from a primarily economic focus to addressing global health challenges. Over the years, countries that have hosted the G20 have prioritised various aspects of global health – initially focusing on responses to global health threats such as antimicrobial resistance, malnutrition and aging population, and then shifted to more forward looking topics such as digitalisation, value universal health coverage, pandemic preparedness, and local pharmaceutical manufacturing.

Figure 1. Health priorities across G20 presidencies



Source: *Author.*

Indonesia hosted the G20 forum in 2022 and focused its agenda on three pillars, one of which was the global health architecture. India's G20 presidency in 2023 was hailed as being important for progressing key health topics impacting LMICs, in particular UHC, digital health innovation, better healthcare architecture and service delivery as primary drivers in achieving robust healthcare systems in the 21st century. (Singh and Radha, 2023) India introduced the concept of "One Health" under the theme "One Earth, One Family, One Future",[26] which emphasised the interconnectedness of humans, animals, plants, and microorganisms on Earth and in the broader universe. (Chopra et al., 2024)

Lessons learnt from the Japan G20 health meetings included the need to utilise other concurrent major health meetings and initiatives to gain efficiencies, and the need for collaboration with other G20 tracks such as finance to facilitate inter-sectoral collaboration. (Matsumura et al., 2019) The Open Research Foundation speaks of the need for international coordination, cooperation, and collaboration between different stakeholders across the world to realise the full potential of digital health. (Basu, 2024) During Saudi Arabia's presidency, the Digital Health Taskforce was launched,

[26] Vasudhaiva Kutumbakam, the Sanskrit text from Maha Upanishad

resulting in the first G20 report on digital health interventions under the leadership of the WHO. The aim of the Taskforce was to strengthen international collaboration on leveraging digital health interventions, addressing challenges in access to foundational requirements, and supporting policy making. (WHO, 2020) Brazil's unified health system (Sistema Único de Saúde [SUS]), created in 1990, is an example of progress made towards universal health coverage as well as digitalisation of health systems. However, this system has been 30 years in the making. Lessons learnt from this initiative over this period highlight the importance of establishing political, legal, organisational, and management-related structures, with clearly defined roles. (Da Silva Barbosa and Fagnani, 2022; Castro et al., 2019)

The COVID-19 pandemic exposed stark inequities in public health outcomes and highlighted the need for coherent collaboration among global health governance actors. Citizens in low-, middle- and high-income countries, including those in the G20, were affected by greenhouse gas (GHG) processes, decisions, WHO guidance, and public health measures taken by governments. Within the G20, this experience underscored the urgent need to implement transformative and comprehensive policies that focus on prevention, equity, resilience, and sustainable health practices that can guide collective action and strengthen the global health architecture. (Mac-Seing et al., 2023)

The G20 has since emphasised strengthening global health diplomacy to improve international cooperation and tackle public health crises. This includes ensuring that diagnostics, therapeutics, and vaccines are available as global public goods to mitigate inequalities and protect vulnerable populations. By focusing on strengthening health systems and promoting equitable development, the G20 aims to address disparities exacerbated by geopolitical competition and insufficient international cooperation. (Javed and Chattu, 2020) Experiences during the COVID-19 pandemic have informed these priorities, highlighting the need for effective health planning and equitable community-based interventions. (Song et al., 2024)

In addition, the G20 has worked towards setting research priorities to enhance future pandemic preparedness and response. This involves improving health systems, expediting vaccine and treatment development, and enhancing international cooperation and surveillance efficiency. (Song et al., 2024) There is an urgent need to implement transformative and comprehensive policies that focus on prevention, equity, resilience, and sustainable health practices. (Mac-Seing et al., 2023) This aligns with Declaration of the G20 Health Ministers from the 2024 G20 Health Working Group, which emphasised pandemic prevention, preparedness, and response, with a strong focus on enhancing local and regional production of essential medicines, vaccines, diagnostics, and strategic health supplies. (G20 Health Ministers, 2024)

Aligning national and international health objectives has the potential to lead to stronger health systems and more cohesive global health policies. (Javed and Chattu, 2020; Rushton and Williams, 2012; G20 Health Ministers, 2024)

Table 1: Summary of opportunities and achievements vs limitations and challenges of G20 health policy impact

OPPORTUNITIES AND ACHIEVEMENTS	LIMITATIONS AND CHALLENGES
Elevated health on the global agenda, focusing on UHC, digital health, and pandemic preparedness, which are crucial for LMICs (Singh and Radha, 2023; Nishizawa et al., 2020; Neupane et al., 2018)	The effectiveness of G20 platforms like the Compact with Africa depends on strong country

	ownership and inclusive leadership, which is not always achieved (McBride et al., 2019)[27]
Initiatives like the Financial Intermediary Fund and the Compact with Africa aim to close financing gaps and improve coordination among development partners, potentially benefiting LMICs by mobilising resources and harmonising priorities (Jatmiko, 2023; Dieleman et al., 2019; Fabiani et al., 2023)	There is a lack of binding, time-bound commitments and clear accountability mechanisms, which limits the translation of G20 declarations into concrete outcomes for LMICs (Neupane et al., 2018; McBride et al., 2019)[28]
The G20's health ministerial meetings have led to commitments on UHC, health security, and responses to population aging and antimicrobial resistance, which are relevant for LMIC health systems (Singh and Radha, 2023; Nishizawa et al., 2020)	Nationalism, fragmented governance, and insufficient coordination have hindered effective responses, especially during COVID-19, disproportionately affecting vulnerable groups in LMICs (Mac-Seing et al., 2023)

India and Brazil have strategically leveraged international platforms like the G20, BRICS, and the World Trade Organization (WTO) to bolster their domestic pharmaceutical manufacturing sectors. Their efforts focus on gaining greater representation and advancing reforms in global governance structures to accommodate the needs of emerging markets and enhance their economic growth capabilities. Both India and Brazil, as part of BRICS, work within these alliances to challenge the traditional dominance of Western powers and advocate for reforms that support emerging markets. The cooperation in BRICS involves reforming international financial institutions and global regulation systems to make them more responsive and representative of emerging economies' needs. (Larionova and Shelepov, 2022) However, there are complexities within BRICS that result in challenges in achieving consensus on issues such as preferential trade agreements, market access, and technology transfers. (Parliamentary Monitoring Group, 2024c) There is a view that major markets within BRICs still consider South Africa and the broader African continent as markets for their products rather than equal partners.(Shaw, 2015, Harrison, 2014)[28]

Brazil and India have considerable influence within BRICS and use these power dynamics to strengthen their domestic sectors. (Hembre et al., 2025, Rodwin et al., 2018) This coalition allows them to collectively push back against established powers, as seen in their successful disruption of traditional negotiations in platforms such as the Doha Round at the WTO. This joint front has helped India and Brazil create a platform from which they can advocate for policies and reforms favoring their industrial interests, through their mobilisation and leadership of developing country coalitions, including the pharmaceutical sector. This enabled them to exercise influence above their economic weight, ensuring that their demands for fair trade practices and reductions in trade barriers are considered, which is crucial for the expansion of their domestic pharmaceutical sectors (Hopewell, 2015; Hopewell, 2017) By using these platforms, India and Brazil have aimed to transform their domestic pharmaceutical industries to compete on a global scale.

[27] Confirmed by key informants

[28] Key informants expressed the view that South Africa and the rest of the African continent are viewed as "consumer markets" for the BRICS nations rather than as equal partners.

During India's G20 presidency, it played a significant role in global health initiatives. India's engagement in collaborative ventures, such as the Regional Prospective Observational Research in Tuberculosis (RePORT) initiative, highlights its commitment to advancing tuberculosis research through global collaboration, thus supporting global health research capacity. (Suhas et al., 2023; Hamilton et al., 2015) Brazil has leveraged its global influence to foster health initiatives and partnerships that extend its impact beyond national borders. Its efforts in health technology assessment and data linkage have demonstrated its modern approach to integrating health policy, research, and data for improved health technology evaluation and policy decisions. In addition, public-private partnerships have become a cornerstone of Brazil's global health governance strategy, though such partnerships also raise concerns about equity in health outcome distributions. (Ali et al., 2019; Ruckert and Labonté, 2014) Both India and Brazil have been active BRICS participants fostering health cooperation, focusing on areas such as communicable diseases, access to medicine, and universal health coverage, which are pertinent health challenges in their nations. Their involvement in BRICS showcases their commitment to enhancing health system cooperation to benefit middle- and low-income populations. (Liu et al., 2023)

Gaps remain in governance and coordination among G20 countries, as noted during COVID-19, which highlighted the need for equitable and coordinated health policies and governance. (Mac-Seing et al., 2023) The G20, as a major multilateral platform offers significant opportunities to influence health policy and outcomes in LMICs.[29] However, its effectiveness is mixed[30] and depends on how well it addresses equity, financing, and coordination challenges. The G20 has potential to positively influence health in LMICs, but its impact can be limited by narrow agendas, lack of binding commitments, and challenges in implementation and equity.

5. RECOMMENDATIONS

South Africa is the first African nation to host the G20, which represents not only a key opportunity to South Africa, but also the African continent.[31] The current G20 health themes[32] underscore the necessity of building on the focus of previous G20 Summits to enhance global cooperation and promote investment in regional pharmaceutical manufacturing. This includes leveraging the G20 Coalition for Local and Regional Production, Innovation, and Equitable Access to Vaccines, Therapeutics, Diagnostics, and other Health Technologies. This foundation serves as a crucial enabler in achieving the objectives of pharmaceutical manufacturing. It is imperative that political will is complemented by the execution of policies and strategies that are both focused and timely, with appropriate allocation of resources and financial support.

The G20 can serve as a platform that unlocks key resources, including the facilitation of an enabling global health environment to support pharmaceutical manufacturing. This needs to be accompanied by firm action plans that will drive implementation well beyond the G20 Summit.[33] Leveraging policy opportunities created by various policy instruments and initiatives, including APTF, the

[29]There is an overall lack of private sector engagement and inclusion in key priority setting and initiatives.

[30] Key informants expressed skepticism about the role and effectiveness of the G20 in advancing Africa's health agenda; some described the platform as a "talk shop".

[31] South Africa has a dual function as the host country of the G20 to shape local dynamics and regional objectives.

[32] Under the theme Accelerate Health Equity, Solidarity, and Universal Access, South Africa's G20 Health Working Group will focus on the following priorities: Accelerating UHC through a primary health care approach; Strengthening human resources for health; Stemming the tide of non-communicable diseases; Pandemic Prevention Preparedness and Response (PPPR); Science and innovation for health and economic growth.

[33] The need for sound strategic approaches that are inclusive of the private sector and prioritise implementation beyond the G20 are needed.

implementation of the AfCFTA Agreement, developments in operationalising AMA offer a unique opportunity to leapfrog to create a competitive local industry.

The recommendations include:

Make data and digitalisation central to achieving health goals: Building on the Brazilian G20 Presidency data and digitalisation would see up-to-date, accurate and comprehensive data that covers healthcare markets, disease burden and surveillance, and healthcare infrastructure. These issues remain challenging across the continent with an opportunity for the South African G20 presidency to drive them. However, lack of information hinders the evidence-based decision-making needed for the investment, planning and implementing public health initiatives, and the production planning for local manufacturing. At this critical time of industrial development in Africa, stakeholders have the benefit of technology and data that offers digitalisation and AI as key enablers for meeting industrial policy and public health goals. Consensus would be required among G20 members on accelerating digital transformation in healthcare, specifically: investing in health data infrastructure and interoperability standards; promoting the adoption of digital health technologies; using big data and AI for disease surveillance; and digital skills training for healthcare workers across the healthcare value chain. Another aspect of using digital tools is in drug development – there are many capabilities that South Africa can achieve with digital technologies, including: predictive modelling in drug development to reduce unnecessary in vivo and in vitro tests and also accelerate drug development;[34] use of AI in pharmaceutical manufacturing including the adoption of real-time release testing; and use of AI in drug regulation including dossier review for marketing authorisation. These would be enabled by ethical governance frameworks for data, digitalisation and AI in healthcare and enhancing supply chains and combatting counterfeit medicines through the use of digital tools.

Champion broad-based, sustainable financing mechanisms to improve access:[35] Financing health should be viewed as an investment in our collective future. (Government News Agency, 2025) Debt levels and limited national budgets limits LMIC's ability to invest in healthcare and the infrastructure needed for sector development and achieving public health goals. (Axel van Trotsenburg, 2025) Therefore, the base of financial tools and approaches used in financing healthcare, including local manufacturing should be broadened. These include insurance systems that are inclusive of mechanisms such as "pay for performance" for diagnostics and treatments that improve health outcomes and broaden access. Health bonds, similar to green bonds, can be used to raise capital for financing key health initiatives such as local manufacturing. These types of financing mechanisms have the potential to attract private sector investment. Perceptions and measurement of risk associated with such investments need to be recalibrated to be reflective of the current and future health market environment in Africa. The G20 platform could be used to recommend such alternative financing options to unlock much needed financing for healthcare while recognising the importance of the private sector.

Procurement mechanisms to support public health: Local pharmaceutical manufacturers have historically faced challenges in accessing global procurement mechanisms for key public health commodities, which are mainly managed by donor and development organisations. In the past few years, global development organisations involved in health have publicised "localisation strategies", however, these are yet to prove accessible to LMIC manufacturers. Recent funding cuts in key public

[34] Examples include pharmacokinetic modelling, predictive stability modelling, bio-equivalence modelling, and general pharmacometrics. These can help in developing generic drugs, accelerate drug development, identifying potential drug candidates and optimising clinical trial design.

[35] Innovative financing models are needed for sustainable local manufacturing; long-term financial and economic imperatives beyond health should be considered; there is a need for blended financing and derisking mechanisms for financing health projects.

health programmes have created further public health and market uncertainty. Fewer resources are available to development actors to continue these key programmes and provide opportunities to revisit resourcing and implementation approaches for gains in efficiencies, including increased private sector participation. These rapidly changing market dynamics underscore the importance of locating manufacturing closer to patients as well as the need for pooled procurement mechanisms that aggregate demand[36] to create higher levels of market certainty and economies of scale in production. G20 partners should be engaged to establish a consensus on policies that aim at advocating for global procurement mechanisms by global procurers, such as the GAVI Alliance, the Global Fund and others that are more inclusive, create efficiencies through digitalisation, and are more accessible to local manufacturers by lowering barriers to domestic procurement and improving supply chains.[37] Implementation approaches should include advanced market commitments, volume guarantees, and strategic stockpiling for medical countermeasures that incentivise manufacturers to increase production levels.

Champion a climate resilient approach to pharmaceutical manufacturing and supply: Research indicates that climate change will disproportionately impact populations in LMICs. In addition, it is noted that health value chains contribute to significantly to global emissions. (Unitaid, 2023) Climate resilient approaches to pharmaceutical manufacturing and supply should be endorsed by the G20. Building on the Brazil G20's Ministerial Declaration on Climate Change, Health, Equity and One Health which emphasised the need for climate resilient, low carbon, sustainable health systems, which embed health equity across sectors and the Global Coalition for Local and Regional Production, Innovation, and Equitable Access, launched by the G20 Health Working Group which aims to localise manufacturing of essential health products and bolster equitable access, (Carapinha João L., 2024) will be critical enablers for for pandemic preparedness[38] [39]. This should include upstream approaches, such as the adoption of green chemistry in the manufacturing of medicines and other health products and downstream approaches which include effective management of waste products, especially in LMICs where waste management resources are scarce. G20 nations should prioritise environmental sustainability through policies that integrate technological advancements for reducing ecological footprints, crucial for long-term economic growth. (Zhao et al., 2025)

Recognition of common global regulatory standards:[40] In a time when supply chains are globalised, regulatory oversight needs to keep up with the intricate processes of cross-border production and trade networks.[41] Robust regulatory frameworks are pivotal to unlocking Africa's potential for local and regional pharmaceutical manufacturing, increase intra-African trade levels, and combat substandard and falsified medicines. Enhancing regulatory systems is essential for ensuring access and facilitating trade of medicines that meet required standards of quality, safety and efficacy. Differing regulatory regimes across the African continent have led to fragmented environments that impede

[36]Success of pooled procurement mechanisms is dependent on the ability to aggregate demand; lowest price procurement mechanisms favour imports

[37] Key informants advocated for the introduction of local price preferences, improving transparency and efficiencies in tendering and procurement procedures, advance purchase commitments for key public health commodities, and longer contract periods to support investment for health sector priorities.

[38] Asia-Pacific Economic Cooperation (APEC) developed a set of non-binding principles aimed at facilitating the movement of essential goods and people during pandemics. These principles are part of broader efforts to enhance supply chain resilience and pandemic preparedness across the Asia-Pacific region.

[39] A global mapping of supply chains for key products and production inputs for pandemics should be completed to allow for increased and easier access to diagnostics and treatments and improved supply chain resilience during public health emergencies.

[40] The need for regulatory harmonisation, innovative financing models, and supportive policies was emphasised by key informants.

[41] The burden of registering products in multiple countries impedes access.

access to health products. Multilateral institutions such as the WHO have provided leadership and technical expertise to standardise and strengthen regulatory systems through implementing the Global Benchmarking Tool. This is especially important in the context of pandemic preparedness. The Pandemic Accord plays a critical role in regulatory capacity and manufacturing during health emergencies by addressing gaps in global collaboration and enforcement of the International Health Regulations (IHR). It focuses on enhancing health security through improved preparedness, response capabilities, and international cooperation. One vital aspect of the Pandemic Accord is the emphasis on robust health governance for PPPR. This encompasses rule-setting, resource mobilisation, and facilitating access to medical countermeasures. Improving these areas is crucial for streamlining regulatory processes and bolstering manufacturing capacities during emergencies. (Miyamoto et al., 2025) In addition, the Pandemic Accord underscores the need for effective international collaboration and communication. By enhancing the implementation of IHR core capacities, the Accord aims to improve surveillance systems, risk communication, and human resource capacity. This is essential for a coordinated global response and for ensuring that manufacturing and regulatory frameworks can quickly adapt to emerging health threats. (Queiroz et al., 2023)

Furthermore, the Accord is part of the negotiation processes at the WHO on amendments to the IHR and establishing the protocols for declaring health emergencies. These negotiations are critical for ensuring that global response mechanisms are effective, which includes guaranteeing that countries have the necessary legislative foundations to support health emergency responses and manufacturing needs. (Wenham and Stout, 2024) The G20 should endorse and support multilateral institutions such as the WHO that play a key role in health and regulatory systems strengthening globally.

Strengthening the healthcare ecosystem:[42] For local manufacturing to thrive, a broader supportive ecosystem is required.[43] The development of a new industry requires simultaneous investments in various sectors, systems, processes and standards that are supportive to healthcare value chains.[44] Linkages between health, finance, industrial policy and climate change goals need to be deepened to create an enabling environment for the healthcare sector to thrive. Examples include infrastructure development, digitalisation, green manufacturing practices, and the adoption of common international standards. South Africa, along with the support of G20 nations, should play a leading role in convening discussions on the participation of various economies in healthcare value chains[45] to develop resilient, regional health value chains that leverage country capabilities to optimise value chain efficiency, adaptability and competitiveness.

Linking research and development with local manufacturing: Scientific discovery, no matter how groundbreaking, is not enough to translate into sustainable local or regional manufacturing.[46] Translating molecules into medicines requires capital, infrastructure, and expertise in clinical development. As pharmaceutical innovation progresses, both in developing new technologies for treatment and management of diseases (Acemoglu and Linn, 2004; Dubois et al., 2015), so is the world of pharmaceutical manufacturing technologies. To ensure that Africa's manufacturing investment is

[42] Policymakers need to focus on an ecosystem approach to developing the manufacturing sector; this will drive further economic development and job growth as well as reducing external dependencies for inputs into manufacturing value chains.
[43] Current policies and initiatives are too narrowly focused on local manufacturing and do not consider broader ecosystems within which local manufacturing occurs. Ecosystems need to help to create an enabling ecosystem for local manufacturing.
[44] Ghana has recently released its 24-hour economy and accelerated export development programme. This strategy focuses on transformation through a sector agnostic approach which allows for value-chain and cross-sector planning to maximise interlinkages and synergies
[45] For example, Ghana has conducted a feasibility study on developing a pharmaceutical packaging industry; this highlights an example where countries can develop capabilities to support health value chains beyond formulation and manufacturing.
[46] If local manufacture of newer products is not supported, then the risk of using illicit products will increase due to demand; more focused collaboration is needed.

agile and adaptable to innovation, it is important that clear linkages are established between governments,[47] regulatory agencies, academia and the private sector.[48] Greater collaboration is needed in the global scientific ecosystem, especially those in the Global South where such collaboration can greatly contribute to responsiveness to emerging public health threats. It is critical that South Africa leverages its extensive experiences in managing HIV/AIDS and TB to expand its capabilities into other disease areas, participation in global research and development and new product development as well as joint ventures for clinical research and contract manufacturing. South Africa's bioeconomy strategy progress should be leveraged through the G20 to build strategic partnerships, forge collaborations with other emerging economies on pharmaceutical R&D and manufacturing and to advocate G20 partners to support technology transfer[49] and capacity building across the pharmaceutical value chain.

Futureproofing the health workforce for advanced manufacturing:[50] It is critical that countries in Africa and beyond focus on developing the health workforce of the future through an approach of integrating workforce development, innovative technology adoption, and strategic international collaborations to address current skills shortages and maximise economic and social benefits. South Africa should work with the G20 to prioritise areas of skills development that will be critical for advanced manufacturing: ensure workforce readiness for leveraging robotics and AI in manufacturing (Adebayo et al., 2024); cross-border knowledge exchange to encourage technology licensing and international collaborations to enhance economic returns from R&D investments and improve the skills of the local workforce (Bianchi and Lejarraga, 2016) By focusing on these strategies, G20 nations can collectively support the futureproofing of their health workforce. This will ensure they are well-equipped to leverage advancements in health manufacturing technologies, ultimately enhancing their capacity to meet global healthcare demands and any emerging public health threats.

5.1. Concluding remarks

In summary, G20 health initiatives impact global health policies by promoting international collaboration, influencing governance systems, and prioritising health issues on national and international agendas. They strive to integrate global health governance with initiatives that tackle health security, disease prevention, and health system strengthening, despite facing challenges in harmonizing with local health systems and international frameworks.

By strategically using its G20 presidency to advance these priorities, South Africa can create momentum for developing its pharmaceutical sector while contributing to broader health and development goals for Africa[51] and other emerging economies.[52] South Africa can leverage its position in the G20 to drive meaningful progress in pharmaceutical manufacturing and healthcare access. Through targeted advocacy and partnership-building, the country can promote policies that support local production, enhance regulatory harmonisation, and foster innovation aligned with regional health priorities. By taking a holistic approach that balances public health and economic objectives, South Africa can contribute to shaping a more equitable global health ecosystem.

[47] Better coordination is needed among Pan African institutions and national governments with clear involvement of the private sector.
[48] There should be more focus on technology transfer, voluntary licensing agreements.
[49]Technology transfer agreements should be mutually beneficial; the needs of multinational and local companies should be balanced.
[50] According to key informants, several manufacturing skills gaps need to be urgently addressed. These include formulation skills, tech transfer skills, regulatory skills, manufacturing site design skills, and GMP skills, among others. These skills will be critical to the success to achieving manufacturing objectives.
[51]The G20 declaration should include explicit support for implementing the AfCFTA and its role in local manufacturing.
[52] South Africa is the voice for all LMICs .

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