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A Compendium of

Health and Nutrition Supply Financing Challenges in Africa

Report produced by UNICEF Supply Division and Africa CDC, based on country experiences and documented evidence

May 2025

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Acknowledgments

This report was developed by UNICEF and Africa CDC. The lead author was Noemi Schramm Ndao. The concept and coordination were led by Marcia Freitas Attaran and Claude Kasonka. Other team members were Elias Asfaw, Mariam Gevorgyan, Ulla Kou Griffiths, Elvira Kabdulova and Gideon Olaja. Technical inputs were provided by Anthony Bellon, Hamadou Modibo Dicko, Tesfaye Hailemichael, Brendan Kwesiga, Bob Muchabaiwa, and Nadia Yakhelef.

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Photo: Painting by Aumdu Kiala depicting the various ways (bad) health financing is hindering health care. Seen in Kinshasa, Democratic Republic of the Congo

Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
AVAT	African Vaccine Acquisition Trust
COVID	Corona Virus Disease
HIV	Human Immunodeficiency Virus
IMF	International Monetary Fund
PEPFAR	United States President's Emergency Plan for AIDS Relief
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollars
VII	Vaccine Independence Initiative
WFP	World Food Programme

Executive summary

This compendium brings together evidence gathered by UNICEF and Africa CDC on supply financing challenges and potential solutions. The compendium was developed following assessments in 19 African countries, including discussions with more than 550 stakeholders. While the focus of the assessments were on vaccines, nutrition supplies and essential medicines, many of the findings are relevant across all health commodities. A total of twelve supply financing challenges were identified, which were divided into five broad areas:

(i) Ensuring sufficient and predictable resources
(ii) Making optimal use of resources by improving efficiencies that disrupt supply chain systems causing stock-outs
(iii) Aligning partnerships through improved coordination between governments and partners
(iv) Supporting sustainable transitions from external assistance
(v) Strengthening national supply chains, particularly for last mile delivery

Examples from countries on how they have addressed the challenges included gearing up high level political commitment for essential supplies, making changes to payment schedules, establishment of a reference group for health procurement, decentralizing spending power, and using pre-financing mechanisms to bridge temporary cash flow issues.

Based on country experiences, the recommendations for actions are:

1. Standardize quantification processes, align forecasting with budget timelines, and strengthen engagement with financing institutions.
2. Improve procurement efficiency, use pooled procurement options, and adopt financing tools like the Vaccine Independence Initiative (VII).
3. Enhance coordination among partners, establish integrated information systems, and promote evidence-based research on supply financing.
4. Develop integrated donor transition plans, engage political stakeholders
5. Leverage matching funds (e.g., UNICEF's Child Nutrition Fund Match Window).
6. Adopt digitalized systems for supply management and invest in workforce capacity for managing this.

Strategic Implementation of these recommendations will improve supply financing, ensuring access to essential health and nutrition supplies that finally lead to a safer, healthier and prosperous Africa.

Why and how was this compendium developed?

Many countries struggle to ensure the availability of quality commodities for essential health programmes in health centers at the time of need. This compendium provides an overview of supply financing challenges faced in Africa, while also highlighting best practices and offering ideas for improvements. It builds on experience of Africa CDC in building resilient health supply chains, and it also includes evidence collected in a series of country studies by UNICEF on supply financing challenges, especially for vaccines, nutrition supplies and essential medicines. It complements this knowledge with published journal articles on supply financing in Africa and insights from supply financing experts within UNICEF and Africa CDC.[1] UNICEF conducted assessments and mapped budgeting processes, budget execution processes and identified challenges across forecasting, quantification, budgeting, budget execution and procurement in 20 countries across the African continent. UNICEF is the world's largest purchaser of vaccines and Ready-to-Use Therapeutic Food (RUTF). The vaccines procured through UNICEF reach 45 per cent of the world's children under five years and 80 per cent of the global production of RUTF is purchased through UNICEF.

Methodology

This compendium builds on several years of work across multiple countries. For the country reports, stakeholder interviews were held with actors from the Ministry of Health, Ministry of Finance (or related budgeting supervising entity), other relevant government institutions involved in supply financing, members of parliament and civil society organizations and partners. Across 20 countries, more than 550 stakeholders were interviewed. This qualitative information was combined with a review of countries' public financial managements laws, regulations, public procurement laws, budget documents and budget execution reports. The processes for supply financing were mapped out in each of the study countries. This helped identify pertinent challenges across the supply financing functions (forecasting, quantification, budgeting, budget execution and procurement). A total of 459 laws, articles, reports and documents were reviewed for the data analysis and literature review. In the literature review, relevant journal articles were identified in a non-systematic search of google scholar using multiple combinations of key words. Common themes were identified which form the basis of this synthesis. The summarized findings have been reviewed and cross-checked among supply financing experts of UNICEF and Africa CDC.


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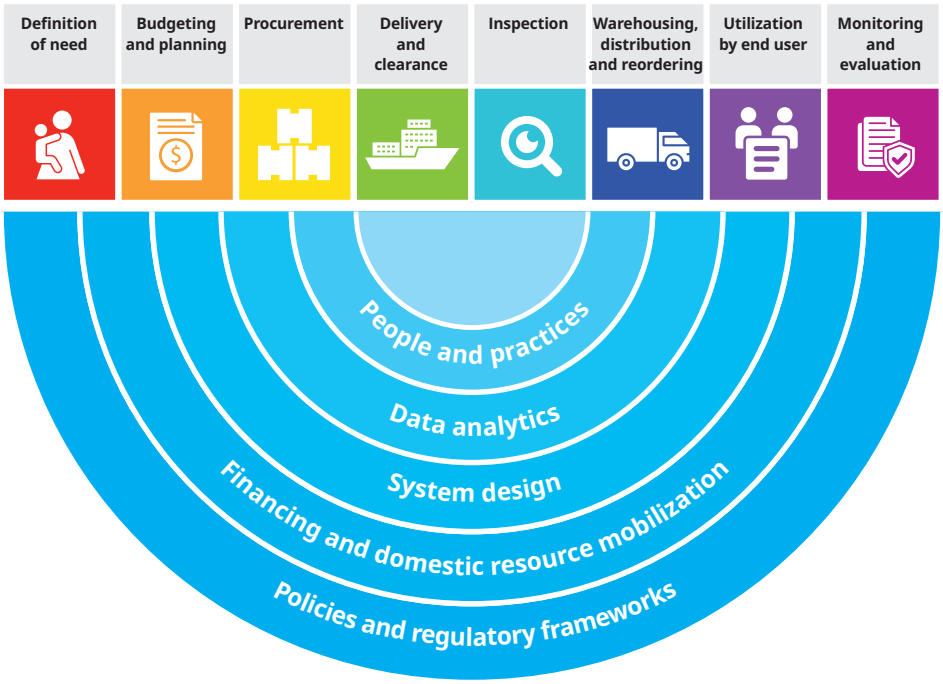
[1] Country reports are available for Benin, Cameroon, Chad, Congo-Brazzaville, Côte d'Ivoire, Democratic Republic of Congo, Eswatini, Gambia, Kenya, Ghana, Guinea-Bissau, Madagascar, Malawi, Mauritania, Mozambique, Niger, Sudan, Sierra Leone, Uganda, and Zanzibar.

Financing as enabler of supply chain of child health commodities

Supply financing in the context of this report refers to the sustainable provision of monetary resources aimed at facilitating the procurement, distribution, and aspects of management of supplies to provide health and nutrition services. It focuses on the various financial mechanisms and strategies employed to ensure the availability of commodities. The report considers financing mechanisms to cover the costs associated with sourcing supplies, including negotiation with suppliers, purchasing goods and international transportation related costs. It also – to a lesser extent – considers financing mechanisms for distribution of supplies from central warehouses to service delivery units. Aspects of financial mechanisms for other supply chain related costs such as inventory management, storage, infrastructure, training, end-user-monitoring and other costs are not the focus of this compendium but are treated in a separate paragraph to highlight key challenges and best practices.

Supply chains are one of the fundamental building blocks of the health, nutrition, education, and water, sanitation and hygiene (WASH) systems that must work to meet children's rights so that every child can meet their full potential. Supply chains are dynamic and involve the constant flow of information, products and funds between different stages. The supply chain rainbow (**Figure 1**) illustrates the different components of the supply chain, beginning with a definition of need and ending with monitoring and evaluation. It sets out the 'enablers' – the core supportive capability functions that are required to effectively manage supply chains (including people and policy, data analytics, system design, financing and regulations) and shows how they come together to form an end-to-end supply chain.[2]

Figure 1. The UNICEF supply chain rainbow



[2] Supply Chains Save lives – UNICEF 2023 Supply-chains-save-lives.pdf (unicef.org)

Health and supply financing situation in Africa

The macroeconomic context of African Union member countries is characterized by a complex blend of challenges and opportunities. Despite possessing significant shares of the world's mineral reserves, Africa still grapples with high levels of poverty, with 35 per cent of its population living below the international poverty line of USD 2.15 per day.[3] Income inequality is stark, with the wealthiest 10 per cent of the population earning up to 31 times more than the bottom 50 per cent.[4] Moreover, infrastructure deficits remain significant, with an estimated USD 53-96 billion annual investment gap limiting the continent's development.[5] African economies are vulnerable to external shocks, as evidenced by the impact of the COVID-19 pandemic, which pushed an additional 26-40 million people into extreme poverty.[6]
Every year, Africa loses USD 2.4 trillion in economic output due to inadequate health investments.[7] Furthermore, 21 of 55 African Union member states were classified as fragile or conflict-affected countries in 2024.[8] In the 2023 Corruption Perception Index, which ranks countries from perceived least corrupt state to most corrupt state, only ten of 55 African Union member states were placed among the less corrupt states.[9] Despite these challenges, Africa's economic prospects are promising, with an average annual growth rate of 3.8 per cent in 2024.[10] While average government effectiveness has not increased in the last five years,[11] tax-to-GDP ratios have increased, indicating a bigger fiscal space for governments.[12] However, over the same time, due to increasing burden of debt, interest payments have increased by 132 per cent,[13] risking reducing the fiscal space for other government expenditures such as for health. Already, 25 African countries, spent more on interest payments than on health between 2019 and 2021.[14] In 2021, USD 125.8 billion was spent on health in the African Union member countries. USD 50.4 billion thereof was spent by governments, with external partners contributing USD 13.3 billion and the rest being paid out of pocket. While the continent's Gross Domestic Product increased four times in the last twenty years, health spending increased 4.3 times,[15] showing increasing importance for health. The health sector now contributes 5.15 per cent to the continent's GDP.[16] Health financing in Africa has undergone notable changes over the past two decades, driven by a combination of global health initiatives, policy reforms, economic growth, and evolving health challenges. While specific changes vary across countries, some general trends and developments have shaped the landscape of health financing in the continent.

Global health funding has increased through initiatives like the Global Fund, Gavi, and PEPFAR that have injected significant funding into African health systems, with overall external funding for health increasing nine times from USD 1.5 billion in 2000 to USD 13.3 billion in 2021.[17] These initiatives aim to address specific health challenges, and while they helped reduce morbidity and mortality rates, they also maintained the strong verticalization of health programmes. As countries move towards middle-income status, they lose eligibility to access these global initiatives and must start self-financing

[3] World Bank. (2022). *Poverty and shared prosperity 2022: correcting course.* The World Bank.
[4] Chancel, L., Piketty, T., Saez, E., and Zucman, G. (Eds.). (2022). World inequality report 2022. Harvard University Press.
[5] Infrastructure Consortium for Africa. (2022). Infrastructure Financing Trends in Africa 2019–2020.
[6] Yonzan, N., Lakner, C., Mahler, D. G., Aguilar, R. A. C., and Wu, H. (2021). Available data and estimates of the impact of the COVID-19 pandemic on global poverty.
[7] WHO. A heavy burden: the productivity cost of illness in Africa. Brazzaville: WHO Regional Office for Africa. (2019)
[8] World Bank. (2024). Financial Year 2024 List of Fragile and Conflict Affected Situations.
[9] Transparency International. (2023). *Corruption Perception Index 2023*.
[10] IMF. (2023). Africa: Special Issue – In Pursuit of Stronger Growth and Resilience.
[11] World Bank. World Governance Indicators 2017–2020.
[12] OECD and African Union Commission. (2023). *Revenue Statistics in Africa.*
[13] UN Global Crisis Response Group. (2023). *A world of debt: A growing burden to global prosperity.*
[14] UN Global Crisis Response Group. (2023). A *world of debt: A growing burden to global prosperity.*
[15] All health expenditure data is from the Global Health Expenditure Database, WHO. Data from all African Union member countries was used to undertake the analysis.
[16] World Health Organization. (2023). Global Health Expenditure Database release for 2021.
[17] World Health Organization. (2023). Global Health Expenditure Database release for 2021.

supplies. The Global Fund spends annually around USD 2 billion on medical commodities,[18] and Gavi spends USD 2.5 billion on vaccines[19] (figures from 2022). Outbreaks of diseases such as Ebola, Marburg, and the COVID-19 pandemic have highlighted the vulnerabilities in health systems. These events have prompted discussions on the need for resilient health systems and **increased investments in pandemic preparedness and global health security**.

With the **shift towards Universal Health Coverage**, many African countries showed a growing commitment to expand access to essential health services, improve financial protection, and reduce inequities in healthcare access. As part of these efforts, the past two decades have witnessed the **expansion of health insurance schemes** in various forms in several African countries,[20] with others aiming to replicate this progress. Economic growth in some African countries has contributed to **increased domestic resource mobilization for health** (absolute government spending on the continent increased from USD 11.6 billion to USD57.5 billion between 2000 and 2021).[21] Governments are recognizing the importance of allocating more funds to health to address the diverse health needs of their populations, with the Abuja target agreed in 2001 being an important objective and the 2019 Declaration of the Africa Leadership Meeting committing to increase health financing to attain Universal Health Care. There has been a renewed emphasis on **strengthening primary healthcare** as a foundation for achieving broader health goals. This includes investments in community health workers, preventive services, and essential medicines.

Governments are increasingly **exploring partnerships with the private sector** to improve healthcare delivery and financing. Public-private partnerships have been utilized to build infrastructure, manage health facilities, and leverage private sector resources, with mixed results.[22]

The International Monetary Fund (IMF) has had financing agreements with nearly all African countries in the last twenty years. This has implications for public financial management systems, as the IMF usually includes structural benchmarks that are related to internationally recognized best practices. This, together with the World Bank's various public financial management and governance projects, has likely led to **a convergence of certain public financial management practices on the continent**. Budgeting, budget execution, public procurement and other public financial management processes show similarities from one country to another, but their implementation is distinct and depends on the institutional setup and organization of government. In the IMF's more recent past, they included social spending floors in their financing agreements,[23] which forces a prioritization of government expenditures in favor of social sectors such as health. The social spending floors usually exclude salaries and often also infrastructure investments, and focus on recurrent costs, such as paying for medical supplies. This is a reaction to governments often prioritizing salary expenditures and capital expenditures.

However, there are specific challenges related to financing supplies, which the IMF has also noted, as several countries have problems meeting the social spending floors[24] due to lengthy procurement processes, or a lack of capacity of health staff to express their need with supporting evidence, and having sufficient knowledge about public financing rules to budget adequately and expend their budget for medical supplies. For goods such as vaccines, reporting by Gavi indicate that even in years when most African economies were growing (2011-2014), fifteen countries were not paying their co-financing requirements on time.[25] This points to structural issues with financing supplies even beyond limited financial resources. Improving supply financing will ultimately lead to improved outcomes in health, while also triggering access to additional resources, such as IMF credits.

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[18] The Global Fund, https://www.theglobalfund.org/en/sourcing-management

[19] UNICEF Supply Division Annual Report 2022.

[20] Barasa, E., Kazungu, J., Nguhiu, P., and Ravishankar, N. (2021). Examining the level and inequality in health insurance coverage in 36 sub-Saharan African countries. BMJ global health, 6(4). And: Ly, M. S., Bassoum, O., and Faye, A. (2022). Universal health insurance in Africa: a narrative review of the literature on institutional models. BMJ Global Health, 7(4).

[21] World Health Organization. (2023). Global Health Expenditure Database release for 2021.

[22] Hellowell, M. (2019). Are public–private partnerships the future of healthcare delivery in sub-Saharan Africa? Lessons from Lesotho. BMJ global health, 4(2).

[23] For more details on their social spending strategy, read *Social Spending Strategy,* IMF, 2019

[24] Oxfam published a report on the shortcomings of the social spending floors in IMF programmes with countries, which details some more challenges (IMF Social Spending Floors: A fig Leaf for Austerity?, Oxfam, April 2023).

[25] Gavi internal reporting on defaulting countries, last updated April 2023.

Supply financing challenges

A recent paper[26] aimed to estimate the total health product market in 50 low and middle-income countries with populations over 10 million[27] and estimate potential efficiency savings through three different procurement reforms. The total market for health commodities is estimated to be USD 63 billion a year, with governments procuring roughly 20.2 per cent of those commodities, donors 6.4 per cent, and the private sector 73.4 per cent. Considering only low-income countries, those shares change significantly, with donors procuring about half of the commodities, the private sector 35 per cent, and governments the remaining 15 per cent. Upper-middle income country governments procure around 40 per cent of health products and the private sector procures the remaining 60 per cent. The paper found that two-thirds of spending on health products is on branded generics, which usually include a price premium compared to unbranded generics. Furthermore, the markets for health commodities are often dominated by only a few suppliers, which could increase prices due to lack of competition. The prices are further driven up by complex supply chains with multiple intermediaries charging mark-ups. By modeling savings from a procurement reform that pooled all government procurement at national level (and stops procurement by decentralized government offices, for example), the authors estimate a price reduction of between 21 per cent to 82 per cent to previous procurement prices. A second proposed reform is, a complete switch to unbranded generics for all branded generics currently procured for both private and public sectors, which could save up to 30 per cent. The third reform they propose is to compare all prices for generic health commodities to established benchmarks, which would yield potential savings of up to 17 per cent. Combining the three measures would lead to potential savings of between 17 per cent and 42 per cent – and therefore a much higher value for money.[28]

Based on studies on vaccine financing in Benin, Cameroon, Chad, Gambia, Ghana, Guinea-Bissau, Malawi, Mauritania, Niger, Sudan, and Uganda, as well as broader work on health commodity supply financing, public procurement, and public financial management inefficiencies conducted in Congo-Brazzaville, Democratic Republic of Congo, Djibouti, Eswatini, Madagascar, Rwanda, Sierra Leone, Sudan and Zanzibar, twelve overall supply financing challenges were identified in five broad categories. A review of published articles on supply financing in Africa complemented this. The challenges are presented in five categories that are also in line with the Sustainable Financing for Immunization Agenda,[29] but the findings extend to other health supplies beyond vaccines and devices. The five areas are:

(i) ensuring sufficient and predictable resources,
(ii) making optimal use of resources,
(iii) aligning partnerships,
(iv) supporting sustainable transitions from external assistance, and
(v) strengthening national supply chains.

[26] Chalkidou, K., Keller, J. M., Over, M., and Jones, A. (2020). Can Better Procurement Be the Key to Financing UHC? Potential Savings from Health Sector Procurement Reforms in Low-and Middle-Income Countries. Center for Global Development.

[27] The selection of countries included 28 African countries. Among the other 22 selected countries figures India, which is responsible for a large share of the estimated total health commodities market.

[28] The authors acknowledge a range of limitations in their estimates due to issues with data availability and data quality. The estimates are indicators of potential savings, but should be re-calculated once more and better data becomes available.

[29] Saxenian, H., Alkenbrack, S., Attaran, M. F., Barcarolo, J., Brenzel, L., Brooks, A., Ekeman, E., Griffiths, U.K., Rozario, S., Vande Maele, N. and Ranson, M. K. (2022). Sustainable financing for Immunization Agenda 2030. Vaccine.

Challenge category 1.

Lack of sufficient and predictable resources

1. Programmatic supply needs are not clear or widely communicated

a. The data needed to predict and plan supply needs is insufficient or inaccurate

In order to predict annual supply needs, governments rely on either consumption data, morbidity information, prescription data or historic orders. However, the data used is often either incomplete or inaccurate, making adequate forecasting of needs challenging.

b. There is a lack of procedures and tools guiding and formalizing quantification

Governments have certain tools for forecasting vaccines, but most lack standardized, comprehensive quantification tools for nutrition and essential medicines. Furthermore, the process often involves lengthy reviews of forecasting methodologies for each item to determine the most accurate estimate, with limited use of – for example – mathematical modelling to improve the precision of predicted needs. Some programme staff use self-built simple Excel sheet for forecasting and add a cost aspect to them, for example, in Congo-Brazzaville.
There are often no standard operating procedures available for quantification of health supplies, for example, in Sierra Leone, which means there are limited formalized processes for validation and dissemination of existing estimates. Consequently, needs are either not costed, not well estimated, or not disseminated to all the right stakeholders – a problem that was pertinent in all surveyed countries.

c. There is insufficient capacity within governments to complete quantification. Consequently, partners such as UNICEF, WFP, and other contractors still play a key role in forecasting and quantification. Sometimes, they use proprietary tools and methods

Quantifying essential medicines necessitates detailed utilization and disease burden information, which may not be readily available or of varying quality. It requires a certain level of data analysis skills and a rigorous, detail-oriented work approach.
Not all health programmes have staff available that can complete a quantification process. Due to a lack of capacity within the government, quantification of essential medicines is sometimes completed by external consultants specialized in that area (e.g., in Sierra Leone and Madagascar).

For vaccines, besides from the standardized forecasting tool used by countries in collaboration with UNICEF, there are country-specific costing and budgeting tools available. A costing tool for National Immunization Strategies (NIS.cost) includes aspects of supply costing and cost projections.[30] For nutrition, a basic forecasting tool has been developed for UNICEF teams,as UNICEF is the main procurer of ready-for-use therapeutic food.[31] The forecasting tool does not include a costing function.

There is no standardized forecasting and costing tool for essential medicines that is being universally used. USAID has developed the Quantification Analytics Tool, which includes forecasting and supply planning, and other relevant modules, but the tool is currently used mainly by vertical programmes. There are programme-specific quantification tools (e.g., for HIV/AIDS) that have been introduced in countries. Overall, the type of quantification tool and process used for different health commodities varies depending on which partner engages with the government.

[30] NIS.Cost app and user guide from UNICEF, https://immunizationeconomics.org/recent-activity/2022/4/1/niscost-app-and-user-guide/
[31] UNICEF procures around 80 per cent of the global production of Rapid Use Therapeutic Foods, as per the Annual Report of UNICEF Supply Division 2022.

d. There is limited communication of needs with financing institutions

Once needs are identified and costed, there is often limited engagement between the technical staff and the Ministry of Finance. Furthermore, the budget owners also often do not strategically engage advocacy partners for improved financing, such as parliament or civil society. This is due to the lack of direct interaction between programmatic health staff and Ministry of Finance staff, which results in a mismatch between programmatic funding needs and funding allocated. In countries where there are budget officers seconded from the Ministry of Finance to the Ministry of Health, communication improves.

2. Timelines for quantification and government budgeting are not aligned

a. Health programmes quantify late in the fiscal year, so results are not available and disseminated in time to be considered for the budget

Historically, health programmes have had limited involvement in the budgeting process, partly due to budgets lacking credibility (i.e., programmes expect there to be changes to the budget during execution, leading to over- or under-spending). The forecasting and quantification processes are concluded in the last quarter of the fiscal year, which is too late to be considered for the following year's budget. To submit the evidence generated for increased domestic budgets, the results of the quantification exercise must be available around 5-6 months before the fiscal year's end. This makes forecasting and quantification exercises less precise than doing them later in the year (as for example stock levels are more precise, incoming orders can be verified, etc.), so there is a reluctance to adjust the timelines to align with the budgeting period. In countries with a high dependency on foreign aid for health programmes, incentives to align with domestic budgeting cycles are low, as most of the funding comes from external partners.

b. There is limited finance-related capacity available in Ministries of Health

The technical staff of programmes in the Ministry of Health has limited knowledge of the budgeting process, supporting documents required, and the decision-making process involved in the budgeting process. This is even more the case if programme staff are health staff that have a wealth of programmatic experience but might never have received an in-depth introduction into administrative processes, such as financing cycles. The lack of understanding of the nature of public health emergency responses by finance staff has been highlighted as a challenge in implementing successful Public Health Emergency Operating Centres.[33]

3. The budget for supplies is not sufficient and/or not transparent

a. Some countries do not have budget lines for supplies[33]

Guinea-Bissau does not have a budget line yet for traditional vaccines, while Sierra Leone only introduced such a budget line for traditional vaccines in 2022.[34] Not surprisingly, in both countries partners have largely paid for traditional vaccines. Given the complex multi-sectorial aspect of nutrition interventions, budget lines for nutrition supplies are often absent, or dispersed under different budget codes. The budget line for nutrition commodities in Sierra Leone was under a larger budget line for health supplies, and other supplies were ultimately prioritized at the time of budget execution, to the detriment of nutrition supplies. The government of Burkina Faso has committed to creating a budget line for nutrition products in 2017, but by 2020, this line had still not been created.[35] In addition, during public health emergencies, public funding can often not be mobilized quickly enough to ensure essential supplies for a timely response.

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[32] Eteng, W.-E. O., Mankoula, W., Aragaw, M., Sonko, I., Tut, M., Kibiye, D., Riek, L., and Ouma, A. O. (2024). Lusaka Call-to-Action 2022: A call to strengthen public health emergency operation centers in Africa. Disaster Medicine and Public Health Preparedness, 18(e72).

[33] Patrick Lydon, Pa Lamin Beyai, Irtaza Chaudhri, Niyazi Cakmak, Alexis Satoulou, Laure Dumolard. Government financing for health and specific national budget lines: The case of vaccines and immunization. Vaccine. Volume 26, Issue 51. 2008, Pages 6727–6734 and Griffiths UK, Asman J, Adjagba A, Yo M, Oguta JO, Cho C. Budget line items for immunization in 33 African countries. Health Policy Plan. 2020 Aug 1;35(7):753–764.

[34] Note: Both countries have budget lines for co-financed vaccines. UNICEF. Vaccine Financing in Sierra Leone (2022) and Vaccine Financing in Guinea-Bissau (2023)

[35] Compaoré, E., Kaboré, J., Ouédraogo, M., Meda, N., and Sorgho, L. C. (2020). Mobilising innovative financing and domestic resources for nutrition: Progress and challenges in Burkina Faso. Nutrition Exchange 13.

b. The budget for supplies is not always transparent to the public, or even to programmatic health staff

In some countries, budgets are poorly communicated within the government (e.g., Guinea-Bissau, Djibouti), and in some countries, budgets are not available to the wider public also (e.g., Djibouti), reducing public accountability.

c. There is an over-reliance on historic disbursements in the absence of accurate estimates

In the absence of available results from quantification exercises, budget officers use historic budget or disbursement figures to budget and plan for the next fiscal year and medium-term expenditure framework. This does not allow for considerations of increasing funding needs due to expansion of a health programme (e.g., expanding coverage for nutrition programmes or immunization services), or changing consumption patterns.

d. There is no clear prioritization process to fit budget demands into budget ceilings

Most programmes have bigger needs than can be accommodated in the government's budget. For some countries, the difference between total need and what is available within the resource constrained budgets is of such a magnitude that the impact of any incremental funding is perceived as negligible by the Ministry of Finance.[36] The prioritization process for scarce resources is often perceived by programmes as opaque, lacking standardization.

e. There are fiscal space constraints, with recurring references to innovative financing in country policies and strategies, but limited evidence that innovative financing options improve the supply availability[37, 38]

Governments face pressure to increase the wage bill and hire more health workers, reducing available funding for non-salary expenditures such as supplies. There is a lack of evidence of the success of innovative financing options, such as earmarked taxes for supplies.[39, 40, 41]

4. Overall budget execution is low, due to a lengthy and bureaucratic payment process, cash-flow issues and political factors

a. The budget execution process is not well known

The budget execution process is lengthy – a UNICEF analysis in thirteen countries has shown that between 7 and 24 steps are necessary for payment. The Public Financial Management practices *de facto* keep evolving, which makes it hard for non-experts to know exactly where payment requests are at any given time, and what the next steps would be. As budget frameworks change with new public financial management reforms, tracking expenditures across different years becomes more challenging.

b. There are administrative bottlenecks

Most countries have complex budget execution processes to follow, which are even more lengthy when they include a public procurement process. In Cameroon, for example, the payment process for vaccines includes five different institutions. In Sierra Leone, the vaccine payment request goes through 24 steps before it is paid. These lengthy execution processes are also ways to ration cash for resource-constraint governments. The follow-up of payment processes is costly: an estimate in Sierra Leone showed that 19 people were involved in the follow-up of a payment request for vaccines, spending 163 hours (the equivalent of around 20 workdays) moving the payment request through the administrative system.[42] To manage cash flows, Governments such as Madagascar introduced additional approvals for payments above a certain threshold, increasing the time it takes to pay for supplies.

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[36] As an example: to cover all supply needs of the nutrition program in the DRC assuming full nationwide coverage, a total of USD 600 million is needed annually. The domestic budget for nutrition supplies in 2023 was USD 3 million.

[37] For further reading specifically on nutrition: Shekar, M., O'Hearn, M., Knudsen, E. *et al.* (2023). Innovative financing for nutrition. Nat Food 4, 464–471.

[38] For further reading on a country case study of innovative financing options for vaccines: Mori A.T., Christopher Bulula N., Magodi R. and Mwengee W. (2022) Domestic funding opportunities for Tanzania as five new middle-income countries brace for reduced Gavi support for immunization. Vaccine 40(24), 3278–3285.

[39] Brikci N. (2023). Innovative domestic financing mechanisms for health in Africa: An evidence review. Journal of Health Services Research and Policy.

[40] Kanavos, P., Das, P., Durairaj, V., Laing, R., and Abegunde, D. O. (2010). Options for financing and optimizing medicines in resource-poor countries. World Health Report Background Paper, 34.

[41] Results for Development. (2017). Immunization Financing: a resource guide for advocates, policy makers and programme managers.

[42] UNICEF. Vaccine Financing in Sierra Leone, 2022.

In addition, public financial management regulations generally stipulate payment of goods and services after delivery, and do not allow for pre-finance to suppliers. However, medical supplies procured through a global agency facilitated pooled procurement, such as vaccines, nutrition commodities, essential medicines for TB, HIV/AIDS, as well as reproductive health commodities need to be pre-financed, before a purchase order can be placed. This sometimes requires a special exemption given by a public procurement authority, which can make payment processes lengthier.[43]

c. Governments encounter cashflow challenges

Countries with small budgets for non-salary, non-capital health expenditures can quickly see medical supplies take up a large part of allocated funds. In Chad, for example, vaccines comprise 20 per cent of the Ministry of Health's recurrent non-salary budget.[44] In Guinea-Bissau, the government spends almost all its own revenues on salaries, leaving limited resources for expenses such as supplies.[45]

d. Budget execution often remains largely paper-based and highly centralized

The absence of digitalized payment processes and the high concentration of power, usually at the level of the Ministry of Finance, increases opportunities for rent-seeking or the potential for human error (i.e., papers get lost, payment requests do not include all relevant financial references, etc.). The absence of delegation of powers for the payment process to the Ministry of Health leads to potential conflicts as Ministries of Finance might prioritize allocation of available funding differently.

e. Prioritization of supply financing remains a challenge

Governments face several competing priorities, such as pressure to hire more health workers, as the continent is facing acute shortages of skilled health workers, while also facing pressure to expand existing infrastructure to accommodate rapid population growth. This makes prioritization of supply financing a challenge, amidst other urgent needs.

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[43] UNICEF. Vaccine Financing in Benin, 2023
[44] UNICEF. Vaccine Financing in Chad, 2023
[45] UNICEF. Vaccine Financing in Guinea-Bissau, 2023

Challenge category 2.

Suboptimal use of resources

5. Payment terms for supplies are making them more expensive

a. Suppliers sometimes increase their prices due to expected payment delays

Due to expected delays in the procurement process of medical supplies and rent-seeking opportunities, suppliers increase their prices by up to a third, reducing the amount of supplies the government can buy with limited resources.[46]

b. A lack of forward-planning and management of timelines, can lead to increasing prices for logistics to fill urgent needs

Ignoring lead times in procurement processes and underestimating the time it takes to pay for supplies can lead to last-minute emergency measures necessary to avoid stockouts, which are often more costly (e.g., air freight instead of shipping by sea).

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6. There are inefficiencies in the procurement and utilization of supplies

a. There are repeated cases of medical supplies disappearing along the supply chain

Annual audit reports of government activities often include evidence of public medical supplies that disappeared.[47, 48] This raises equity concerns if donated products are sold in private facilities or pharmacies and increases the cost of medical supplies, by the end user.

b. Medical goods are at times sold for more than established prices, or not given for free even though they are part of a free health care scheme

Many African countries have free health care schemes, where supplies are supposed to be given for free to the patient. Reports of payments for free supplies (e.g., ready-to-use therapeutic foods or medicines as part of a free health care scheme) are still consistently being made, and actions taken by the government to stop this have often had limited success.

c. A lack of forward planning for clearance processes and in-country logistics can lead to costly delays

Clearance and distribution aspects are not always completed in time for internationally procured goods. This leads to additional costs (demurrage), or late delivery of commodities to health facilities. Commodities might arrive close to their expiry dates and cause potential waste.

[46] Transparency International has conducted research on the price difference of pharmaceuticals due to corruption, and has established a dashboard to explore the findings: https://ti-health.org/pharma-corruption-savings/, last accessed in April 2024

[47] One example is described in this article explaining that the mismanagement of supplies and funding during the Ebola response in Sierra Leone led to Ebola survivors challenging the government in front of the highest West African court. Boateng, O. A. (2022). Biological citizenship through litigation: Ebola survivors in Sierra Leone and the suit to redefine corruption. Critical Public Health, 32(5), 747–758.

[48] This article shows how implementing accountability mechanisms in a hospital in Lesotho have reduced theft and losses of medical commodities: Vian, T., McIntosh, N., and Grabowski, A. (2017). "It keeps us from putting drugs in pockets": how a public-private partnership for hospital management may help curb corruption. The Permanente Journal, 21.

Challenge category 3.

Misaligned Partnerships

7. Partners intervene with limited coordination

a. Some areas (e.g., nutrition) see a high share of partner financing and contributions, with limited coordination by government

Up to twenty partners intervene in nutrition programmes (e.g., in Madagascar) and provide supplies, sometimes with limited coordination. This makes supply planning for government officials more difficult and can lead to inefficient allocation of resources.

b. Coordination of supply chain interventions is difficult, spanning different health programmes, health system functions, and partners

The supply chain for different health programs has various funding streams, diverging procurement agents and processes, and touches several departments of the Ministry of Health. All these factors contribute to a lack of coordination and increasing procurement and distribution inefficiencies.

8. Supply financing is at a nexus between programmes, supply chain experts, procurement units and financing institutions, with sometimes unclear responsibilities, misaligned timelines, and differing interests

a. There are limited concerted efforts to improve supply financing, due to its complex structural setup

The necessity to have a broad range of expertise (public financial management, quantification, supply chain management, health financing) to address supply financing challenges, and to be able to collaborate across different institutions with mandates touching on supply financing have led to limited concerted efforts to improve the situation of supply financing. The complex incentive structure in the medical supply chain also deters efforts to reduce inefficiencies.

b. There is limited research on the status and challenges of supply financing on the African continent

There is limited overall research and shared knowledge products available on the status of supply financing in Africa. This is likely due to its cross-cutting nature, the difficulties of accessing disaggregated financing information for supplies, and the varying approaches taken by African governments (often also driven by partners).

Challenge category 4.

Challenges in transitioning from external assistance

9. There is limited political willingness to prioritize the financing of supplies

a. Countries' commitment to financing supplies varies[50]

There have been efforts to increase the governments' commitment to vertical programmes, such as vaccination or nutrition. Still, there are limited efforts to increase the commitment to pay for medical supplies in general. Given that some vertical health programmes have overlapping health commodities needs, a broad quantification and integrated investments in medical supplies would support several health programmes. Commitments for financing supplies for specific vertical programmes can lead to competition over scarce resources instead of a commitment to widen the broader envelope for health supplies.

b. Parliaments and civil society are often not sufficiently involved and informed

There are health committees, and parliamentary alliances for nutrition and/or vaccination in several African parliaments, as well as civil society organizations working on health advocacy. However, those stakeholders often have limited knowledge about the annual needs of health programmes, despite being influential in the budgeting process. Efforts to coordinate between health programme staff and parliamentarians or civil society organizations are often organized by partners.

10. Countries often experience several donor transitions simultaneously, and government systems (for planning, budgeting, and execution) are not set up to facilitate a smooth transition

a. Due to similar eligibility criteria, countries often move out of donor support for several programmes at the same time

Countries such as Ghana, Kenya, or Nigeria, have to deal with multiple donor transitions at the same time. Often, due to high levels of programme verticalization, the government develops programme-specific transition plans, without considering other ongoing transitions, leading to over-commitment.

b. The planning for transition periods, including details of necessary system strengthening and financial impact is sometimes delayed, lacks details, or are not sufficiently communicated

The quality of transition roadmaps depends on the level of commitment of the government for the transition and the quality of support from partners to ensure all relevant aspects of the transition are adequately captured, agreed upon, and funded. Governments often have limited understanding of the full cost of programmes before transition, and within governments, there are communication gaps. This can lead to a lack of forward-looking planning, especially if the Ministry of Finance is not adequately involved in the transition planning.

[50] Justice Nonvignon, Genevieve Cecilia Aryeetey, Alex Adjagba, Jennifer Asman, Alyssa Sharkey, Andreas Hasman, Sarah W Pallas, Ulla Kou Griffiths, The political economy of financing traditional vaccines and vitamin A supplements in six African countries, Health Policy and Planning, Volume 38, Issue 10, December 2023, Pages 1154–1165.

c. The supply financing processes are not well adapted to take on increasing funding during donor transitions

As many health programmes receive substantial funding from partners, governments finance a smaller share of costs for medical supplies. Therefore, the government payment process does not necessarily promote payments based on a certain schedule to avoid stockouts. Donor-funded supplies are used to smooth out periods when government-funded supplies are unavailable. Furthermore, as some countries do not capture donor funding well through their systems (on-budget support), they lack an overall understanding of funding needs for health programmes. For economies moving towards middle-income status, their established supply financing processes (budgeting and execution) are often not well suited to absorb donor transitions,[51, 52] as they include budget ceilings or limit the annual growth of the budget line. Sometimes, payments are made late in the fiscal year, making it too late to take into account stock levels and supply plans.

d. Even if resources are available, countries might not be ready to transition due to missing political will or lack of institutional capacity

Some countries do not prioritize the transition due to missing political will, institutional capacity, or insufficient investments in supply chain systems. Any of these reasons hinder their readiness to transition.

e. Governments need to anticipate an increase in domestic supply financing as well as covering additional operational costs

Governments see themselves confronted with the need to cover not only additional supply costs, but also take on additional operational costs that partners have been covering. Supply costs can get even higher once countries reach middle-income status, as they might loose access to preferential prices (e.g., for vaccines).

[51] UNICEF. Vaccine Financing in Ghana, 2023.

[52] Adjagba, A. *et al*. "Are we ready to transition from the Global Alliance for Vaccines and Immunization support?" Perceptions from 15 Kenyan counties. Pan African Medical Journal. 2024;49:29.

Challenge category 5.

Complex and inadequate national supply chains[53]

Supply chains face multiple barriers beyond financing that need to be addressed to achieve the required health outcomes. A recently published report (*Supply Chains Save Lives: Unlocking Access for Children, their Families and Communities,* UNICEF (December 2023)) summarizes nine key challenges that need to be addressed. These nine barriers highlight the problems linked to verticalized information systems that hinder efficient planning, and leading to data not being used for decision-making. Many African countries have insufficient numbers of adequately trained supply chain staff, in addition to inadequate working conditions making it harder to attract and retain capable and motivated staff. Health supplies do not always reach their destination due to weaknesses in last-mile delivery systems and sustainable healthcare infrastructure. The latter includes trained and dedicated personnel with knowledge of the local area, cold chain equipment, and corresponding investments in reliable clean electricity sources. National policies and regulatory frameworks sometimes lack the necessary operating environment to guarantee patient safety and improve equitable access to life-saving supplies. In Africa, it is estimated that 22-42 per cent of medicines are substandard or falsified.[54]

These are the nine barriers identified in the UNICEF report:

1) **Governments lack appropriate data and information systems to make supply chain management decisions.**
2) **Supply chain management systems do not sufficiently embrace modern technology.**
3) **The supply chain workforce lacks the required skills and capacity.**
4) **Supply chains are large emitters of greenhouse gases.**
5) **Last-mile delivery systems and sustainable health care infrastructures are underdeveloped.**
6) **Insufficient and inequitable primary health care financing restricts access to supplies.**
7) **Poor governance of primary health care hinders access to supplies.**
8) **National immunization supply chain activities and investments lack coordination and inter-operability with primary health care.**
9) **Restricted access to supplies negatively impacts the quality of primary health care.**

Improvement of supply financing challenges could ease some of the barriers.

Supply financing for pandemic preparedness and response

Supply financing for pandemic preparedness and public health emergencies is impacted by all the same challenges described above. However, there is additional urgency to quickly identify, forecast, quantify and procure essential items needed for the response. Currently, there is limited institutionalised planning for commodities needed for pandemic preparedness and response in African countries. This is often the role of the Public Health Emergency Operating Centers, which themselves have limited budgetary allocations. Furthermore, Africa CDC recommends countries to have reserve emergency funds for responding to outbreaks. Health officials are often challenged to defend keeping funding for potential interventions amidst ongoing pressing health needs. Africa CDC recommends to diversify funding sources for Public Health Emergency Operating Centers, with less than 20% coming from one source, to mitigate against potential funding withdrawals. This had not been implemented yet, as became visible with the sudden withdrawal of US government funding for public health emergency response in African countries at the beginning of 2025.

[53] This section relies heavily on the following report: *Supply Chains Save Lives: Unlocking Access for Children, their Families and Communities,* UNICEF, December 2023

[54] World Health Organization, '1 in 10 medical products in developing countries is substandard or falsified', WHO, 28 November 2017, www.who.int/news/item/28-11-2017-1-in-10-medical-products-in-developing-countries-is-substandard-or-falsified
And more recently: Asrade M., B., Getie Y., M., and Chanie W., M. (2024). *Prevalence of substandard, falsified, unlicensed and unregistered medicine and its associated factors in Africa: a systematic review.* Journal of pharmaceutical policy and practice, 17(1).

Best practices from countries

Below is a selection of best practices from countries. It is not an exhaustive list, but it gives ideas of what countries are doing to mitigate some of the challenges.

The **Democratic Republic of Congo** has made vaccine financing a high-level political commitment: the payment of vaccines was committed by the President as part of three subsequent national forums on vaccination, and a minimum spending floor for vaccines was added as a condition for accessing credit under the extended credit facility with the International Monetary Fund. Since the first pronouncement by the President in 2019, the government has paid for vaccines in full and on time every year.[55]

Mauritania has changed the payment schedule for vaccines to better fit with their public financial management procedures and avoid stockouts: The Mauritanian government was already paying UNICEF the vaccines needed for 2025 in 2024. This allows them to expend the funds at their rhythm, in quarterly tranches, and then make a payment towards the end of a fiscal year that covers the vaccines needed in the following year. The Mauritanian government has also signed up for the UNICEF Child Nutrition Fund Match Window to double their domestic investments in nutrition commodities.

The government of **Benin** has decreased their payment delays for immunization supplies: through a combination of deconcentration of spending power, as well as prioritization of supply financing. The Beninese government can pay vaccines within two months of issuing a cost estimate from UNICEF, one of the fastest paying governments in the region. They established an agency for primary health care, which has delegated powers to spend funds (and re-allocate them within their overall budget ceiling, if necessary). This reduces the involvement of the public treasury and the Ministry of Finance and allows payments to be made faster, thereby reducing the time it takes to receive vaccines in the country.

The agency also coordinates donor funding and integrates it into its budget planning. Civil society representatives are an important part of the budget preparation process and are given advance insights into the budget proposal and time to revert with suggestions.

Following underbudgeting for vaccines in **Uganda**, targeted advocacy efforts to re-structure the domestic financing of traditional vaccines resulted in doubling the budget allocation between the fiscal year 2018/2019 and 2019/2020.

Namibia established a Reference Group for Health Procurement, which includes all relevant stakeholders and was designed to build confidence in good public procurement practices, achieve consensus on practical procurement and financial management solutions, and track and support the implementation of actions agreed to improve supply financing in health.

Ghana has one of the continent's most elaborate health financing systems, with a health insurance system covering more than half of the population. Most financing for the health insurance scheme comes from an earmarked tax on goods and services, which is allocated to the National Health Insurance Authority. The authority can spend up to 10 per cent of these funds to pay for preventative and other goods and services, which include supplies for vaccines, HIV/AIDS programmes, malaria prevention, etc. This earmarking of funds has ensured a steady financing for supplies, even if it remains vulnerable to overall cash flow challenges as witnessed during the economic crisis in 2022 when Ghana defaulted on its debt payment.

Many countries on the continent have established **Secretariates for Upscaling Nutrition** (SUN), usually placed relatively senior within the government, and several countries have after that established nutrition caucus or networks in parliament. Parliamentarians

[55] Gavi. Health Financing Country Briefs: No 1. Leveraging IMF support to increase domestic spending in health and immunisation in the Democratic Republic of Congo (DRC). December 2021.

have been informed and are vocal in ensuring government funding is allocated to nutrition (commodities and services) and expended. The **Democratic Republic of the Congo** also has such a network of parliamentarians for vaccination. Having a unified front of parliamentarians across parties holding the government accountable and providing a strong voice in the public for the cause of supply financing helps increase public attention and accountability.

Countries such as **Namibia and Eswatini**, which have transitioned out of donor support for vital commodities, such as vaccines, have faced high unit costs of procurement when procuring for themselves. Subsequently, they agreed with UNICEF to pass through their procurement services and thereby have access to the same prices as other donor-supported countries. In the case of Eswatini, this led to a reduction of costs by more than 20 per cent.[56]

The government of **Rwanda** recognized the long leadtimes (8-12 months) in public procurement as an issue affecting availability of medical supplies. In 2020, they created Rwanda Medical Supply Ltd (RMS), a private company to provide quantification, procurement, storage and distribution services for health commodities. An assessment of RMS's efficiencies in finance and procurement in 2024 found that significant cost savings were achieved by RMS' flexible and innovation-driven approach, yielding lower total cost than other central purchasers and pooled procurement options. RMS has also been able to reduce leadtimes for competitive procurement to less than six months.

The government of **Uganda** successfully used the Child Nutrition Fund Match Window to double its investments in nutrition commodities. Equally, the government of **Sierra Leone** has used UNICEF's Child Nutrition Fund Match Window opportunity to incentivize the Ministry of Finance to allocate domestic resources for nutrition commodities. To further increase the sustainability of the nutrition programme, the distribution of commodities was integrated with the distribution channels of essential medicines. Other countries that subscribed to the Child Nutrition Fund Match Window and doubled their investments in nutrition are **Senegal, Mauritania, Kenya, and Nigeria**.

The Government of Sierra Leone's payment for vaccines was delayed up until the very end of the fiscal year for several years in a row, after which a comprehensive mapping of the execution process was conducted. This highlighted to stakeholders the need to start the budget execution process for supplies earlier than previously and helped actors better track payment requests. Vaccines have since been paid earlier in the year.

The government of **Mozambique** can capture donor financing through their integrated Financial Management Information System (iFMIS), which has helped them a) understand the total cost of their health programs and b) better allocate their resources.[57]

Several countries (e.g., **Chad, Niger, Congo-Brazzaville, Cote d'Ivoire, Democratic Republic of the Congo, Cabo Verde, Sao Tome**) subscribed to the Vaccine Independence Initiative to accelerate the availability of essential supplies by bridging cashflow delays and/or to better align payments for supplies with their public financial management procedures. According to the Public Financial Management regulations of a number of countries, payment for goods and services should usually be made after their delivery. If pre-financing is required, a special exemption must be obtained from the public procurement authority. Since the VII can exceptionally waive UNICEF's advance payment requirement, governments have the flexibility to make payments at their own pace, subject to certain limits. Generally, repayment is required one month after the delivery of the statement of account or final invoice, which is issued after the delivery of goods.

In order to respond to the COVID-19 outbreak faster and ensure health commodities are available, the **African Union** created the Africa Medical Supplies Platform. The platform is a not-for-profit initiative, that facilitated access to an African and global base of vetted manufacturers. It enabled AU member states to purchase certified medical equipment such as diagnostic kits, personal protective equipment and other devices with increased cost-effectiveness and transparency.[58]

[56] Presentation of the Government of Eswatini on "Cost Efficiencies in procurement of vaccines and injection supplies", presented on 4th August 2017.

[57] UNICEF. Budgeting and Expenditure Monitoring for Immunization in Mozambique. December 2020.

[58] Fallah, M. P., Raji, T., Ngongo, A. N., Ndembi, N., Ogwell, A., Abdulaziz, M., Aragaw, M., Sembuche, S., Gonese, E., Dereje, N., Materu, P., and Kaseya, J. (2024). The role of Africa Centres for Disease Control and Prevention during response to COVID-19 pandemic in Africa: Lessons learnt for future pandemics preparedness, prevention, and response. BMJ Global Health, 9(2).

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Summary of key recommendations

In summary, here are some key recommendations to address some of the challenges listed in this compendium.

Strategic area 1.

Ensuring sufficient and predictable resources

Challenges category 1. Lack of sufficient and predictable resources

Key recommendations:

1) Generate evidence on the costs and expenditures of procurement of essential commodities: improve the quantification of medical commodities through standardization of processes. Evolve towards having a unified quantification of medical commodities for the public sector, avoiding programme-specific variations of tools and methods.
2) Align the timelines for the budget process and quantification processes.
3) Enhance collaboration with financing institutions: Establish clear communication channels to engage with financing institutions, advocacy partners, and civil society.
4) Increase domestic resources allocated to health, balancing recurring costs such as salaries, supplies and capital investments.[59]
5) Ensure the budget lines for health supplies are under the most adequate budget (e.g., recurrent, capital), allowing for timely and full payment of vaccines.
6) Maintain an emergency reserve fund at a national public health emergency operation center, to ensure flexible funding is available for procurement of essential items for public health emergencies.

Strategic area 2.

Making optimal use of resources

Challenges category 2. Lack of sufficient and predictable resources

Key recommendations:

1) Improve efficiency in procurement and utilization of supplies by choosing appropriate procurement methods, strengthening supplier relationships, switching to non-branded (generic) products, considering establishing long-term framework agreements, buying through pooled procurement, strengthening contract management, and similar actions. Efficiencies in utilization include choosing appropriate treatment protocols or vaccination schedules,[60] integrating services, improving distribution to avoid over- and understock, reducing expiries, and similar actions.
2) Implement measures to prevent the disappearance or unauthorized sale of medical supplies along the supply chain.
3) Review alternative procurement options such as pooled procurement to improve efficiency, passing through initiatives led by the African Union and Africa CDC such as the African Medical Supplies Platform, UNICEF, Wambo, the Global Drug Facility, or similar options.
4) Use supportive financing options to mitigate cash flow issues (e.g., Vaccine Independence Initiative).
5) Use efficiency modeling tools to decide how to achieve maximum impact with a given input (e.g., the Optima tools developed for malaria, nutrition, tuberculosis, etc.). Further generate evidence on the best use of limited resources, and the best strategies to put in place to plan, budget, and utilize the funding of supplies.

[59] The review of earmarking for vaccines as part of the report by Results for Development (Immunization Financing: a resource guide for policy makers and programme managers; 2017), suggests focusing on a holistic approach to protect and increase general funding for the health sector.

[60] Hossain SMM, Hilfi RA, Rahi A, Jabbar F, Garcia C, Teleb N, Griffiths UK. Annual cost savings of USD 70 million with similar outcomes: vaccine procurement experience from Iraq. BMJ Glob Health. 2022 Feb;7(2).

Strategic area 3.
Aligning partnerships

Challenge category 3. Misaligned partnerships

Key recommendations:

1) Enhance collaboration on supply chain interventions by establishing clear responsibilities and timelines for supply financing among involved actors.
2) Establish integrated information systems that allow the capture of all sources of financing for health programmes.
3) Collaborate to encourage prioritization of supply financing through various channels such as financing agreements (e.g., the World Bank, IMF).
4) Ensure that the essential medicines list includes all relevant interventions (e.g., treatment for severely malnourished children).
5) Encourage research on the status and challenges of supply financing in Africa to inform evidence-based interventions.
6) Share and promote successful strategies from countries and encourage governments to learn from each other's experiences and adapt best practices to their contexts.

Strategic area 4.
Supporting sustainable transitions from external assistance

Challenge category 4. Challenges in transitioning from external assistance

Key recommendations:

1) Increase political willingness to finance health supplies: Use opportunities such as the Child Nutrition Fund Match Window or the UNFPA-administered match funding for reproductive health commodities to encourage domestic financing of health supplies.
2) Develop integrated transition plans considering multiple donor transitions simultaneously, and ensure transitions are captured in health financing strategies and programme strategies, such as the National Immunization Strategy.
3) Use existing collaboration and information-sharing platforms[61] among countries experiencing donor transitions.

[61] See https://r4d.org/projects/peer-learning-platform-improve-domestic-financing-immunization-countries-transitioning-gavi-support/, for example.

Strategic area 5.

Strengthening national supply chains

Challenge category 5. Complex and inadequate national supply chains

Key recommendations:

UNICEF has published a complete compendium of supply chain strengthening tools and recommendations to provide governments and partners with a comprehensive overview of what can and should be done to strengthen national supply chains. Countries are encouraged to use the UNICEF Supply Chain Maturity Model to identify priority needs and investments and use evidence-based roadmaps to improve the national supply chain. The evidence comes from a digitalized national information system, ideally including prescriptive analytics that help inform response plans. The legal, operational, and organizational environment must be established to build, support, and retain a competent and sufficient supply chain workforce. To overcome last-mile delivery challenges, countries are encouraged to optimize efficiencies and effectiveness of supply chain storage, distribution, and management practices and identify last-mile innovations (e.g., drones for hard-to-reach rural areas) that help improve product availability.

There are specific tools (e.g., vaccine forecasting tool and Visibility for Vaccines (ViVa) tool) that help improve forecasting and pipeline monitoring, especially for vaccines. The Vaccine Procurement Practitioners Exchange Forum, launched in 2015, helps foster knowledge sharing and best practices for professionals and technical experts supporting national immunization programmes. Professionals can access online training, disease-specific tools, and adapted methodologies for non-vaccine commodities to anticipate and identify potential stock-risky situations. Temperature monitoring studies can be deployed to identify capacity gaps, and investment needs to ensure a temperature-controlled supply chain. The compendium describes the recommended interventions for supply chain strengthening in further detail.

For supply financing, the below three recommendations are highlighted as especially relevant.

1) Explore options for integrating supply chains for different health commodities to improve efficiency.
2) Implement standardized information systems for monitoring across health programmes.
3) Improve stock management to ensure accurate quantification data, better supply planning, and fewer stockouts.

As mentioned in several recommendations, countries can access a range of supportive financing mechanisms. The most common ones are the Vaccine Independence Initiative (VII), the African Vaccine Acquisition Trust (AVAT), the Match Window of the Child Nutrition Fund, the Africa Medical Supplies Platform, the Global Fund's online procurement platform called Wambo, the Global Drug Facility and the UNFPA Supplies Partnership Match Fund. These facilities can be broadly classified into three categories:

(i) financing tools,
(ii) leveraging domestic financing, and
(iii) pooled procurement mechanisms.

See the **Table 1.** for an overview.

Table 1. Overview of existing financing tools and mechanisms for health supplies

Name	Description	Type of supplies
Financing tools		
Vaccine Independence Initiative	The VII was established in 1991 to support governments in transitioning towards self-financing and managing temporary cash flow issues. The initiative provides pre-financing at no cost to governments, which they can pay back within a month of receiving UNICEF's statement of accounts or final invoice. Initially designed to pre-finance immunization commodities only, the VII, is now used to support the procurement of all essential health supplies procured by UNICEF Supply Division (e.g., medicines, nutrition supplies). The VII is managed by UNICEF Supply Division's Procurement Services Team.	Vaccines, nutrition supplies, essential medicines
African Vaccine Acquisition Trust	The African Vaccine Acquisition Trust was established by the African Union to help governments buy COVID-19 vaccines. It gives governments loans, which they use to procure COVID-19 vaccines. The loans are provided by a facility from the African Export-Import Bank and, in some cases, the World Bank.	COVID-19 vaccines
Leveraging domestic financing		
Child Nutrition Fund	**The Child Nutrition Fund** works in partnership with governments and investors and uses three windows to incentivize, increase and prioritize the allocation of global and domestic resources to essential programmes and supplies for the early prevention, detection and treatment of child wasting. **Programme Window of the Child Nutrition Fund** designed to increase the amount of global funding available for the prevention, detection and treatment of child wasting. **The Match Window of the Child Nutrition Fund** is a catalytic one-to-one matching mechanism that allows national governments to double their investment in nutrition supplies to prevent, detect, and treat child wasting. The Match Window (formerly the Nutrition Match Fund) was launched in 2020 with support from the Government of the United Kingdom and the Children's Investment Fund Foundation (CIFF) and has expanded with a commitment from the Bill and Melinda Gates Foundation as well as growing interest from other donors. **Supplier Window of the Child Nutrition Fund** offers a range of financing tools to support the producers of nutrition supplies in delivering commodities in a timely manner.	Ready to Use Therapeutic Foods (RUTF) and non-RUTF, including balanced energy proteins (BEP), multiple micronutrient supplements (MMS), small and medium quantity lipid-based nutrition supplements (SQ-LNS/MQ-LNS), and vitamin A).
UNFPA Supplies Partnership Match Fund	UNFPA is piloting a matching fund for contraceptive commodities and awarded USD 3.5 million to five countries in 2022 to match government contributions.	Reproductive health commodities

Table 1. ***(continued)***

Name	Description	Type of supplies
Pooled procurement mechanism		
Africa Medical Supplies Platform	The African Union founded the Africa Medical Supplies Platform to allow member states to benefit from pooled procurement for COVID-19 supplies, focusing on production from Africa. Under certain conditions, credit financing is available in collaboration with the African Export-Import Bank.	Essential medicines and commodities, diagnostics, personal protective equipment, infection prevention commodities
Global Fund's online procurement platform (wambo.org) and the Global Drug Facility	The Global Fund has established an online procurement platform through which governments can procure commodities available under framework agreements, thereby reducing prices and timelines (reduced procurement procedure). In 2020, USD 1.37 billion worth of products were procured through the platform. The Global Drug Facility offers pooled procurement options for TB-related supplies.	Treated mosquito nets, antimalarial drugs, HIV medicines, diagnostic supplies, medical equipment, non-core pharmaceuticals, vehicles, Information Technology equipment, COVID-19-related products, TB-related supplies
UNICEF Supply Division	UNICEF Supply Division is the world's leading procurer of vaccines, procuring 3.4 billion doses of childhood and adult vaccines in 2022, reaching 45 per cent of the world's children under five years. They also procure approximately 80 per cent of the world's ready-to-use therapeutic foods. Their supply catalog includes various medical supplies.	Essential medicines, vaccines, nutrition commodities

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