Sustainable HIV Prevention in Africa 1

Global HIV prevention is not on track: how a health systems approach can promote sustainable progress in African countries

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Lancet HIV 2026; 13: e40–49

Published Online December 2, 2025 https://doi.org/10.1016/S2352-3018(25)00270-X

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This is the first in a Series of six papers on sustainable HIV prevention in Africa (papers 2, 3, and 6 appear in *The Lancet Global Health*). All papers in the Series are available at https://www.thelancet.com/series-do/sustainable-hiv-prevention-africa

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The expansion of the global HIV response has led to substantial reductions in mortality and new infections over the past two decades. Yet, despite these gains, rates of new HIV infections remain much higher than projected, resulting in long-term consequences for controlling the epidemic. Challenges include siloed delivery approaches shaped by the demands and priorities of external funding, lack of integrated data systems for prevention, unaddressed structural risks, and limited community and multisectoral engagement. There is substantial concern that the inability of health systems to consistently reach vulnerable groups, especially with extraordinarily effective new biomedical tools, threatens the long-term control of the HIV epidemic. In this framing paper (the first paper in a six-part Series), we argue that countries that have adopted (or are planning to adopt and invest in) a more integrated health systems approach to the HIV response will be better able to achieve sustainable prevention outcomes and withstand external funding shocks. Focusing on sub-Saharan Africa, we examine current systemic barriers, the risks of continued fragmentation of programmes and accountability, and opportunities to realign HIV programmes—that will be explored thoroughly in the other papers in this Series—through a focus on strengthened governance, a decentralised health systems approach, community engagement, and strengthened pathways for new product introduction and scale-up.

Introduction

Despite decades of global investment that have successfully expanded access to HIV treatment and prevention, new HIV infections remain persistently high in many countries. In 2020, UN member states set a goal to reduce annual new infections to below 370 000 by 2025; however, 1·3 million people acquired HIV in 2023, more than three times the target.[1]

In sub-Saharan Africa, expanded access to antiretroviral therapy (ART) and primary prevention programmes has contributed to substantial declines in HIV incidence. Between 2010 and 2023, new annual HIV infections declined by 59% in eastern and southern Africa, and by 46% in western and central Africa.[1] Nevertheless, countries in sub-Saharan Africa continue to have the highest burden of HIV incidence globally, accounting for 60% of new HIV infections in 2024.[1] These declines have also been uneven, with more rapid reductions observed among young men while women remain disproportionately at higher risk of acquiring HIV.[1,2]

The failure of health systems to prevent HIV acquisition increases the number of individuals requiring lifelong treatment.[3,4] In 2024, over 40 million people were living with HIV globally, with approximately 31·6 million people accessing ART.[5] Global investments in HIV treatment have saved lives and delivered substantial prevention benefits. A study in China estimated that treatment's role in reducing onward transmission of HIV accounts for 35% of the reduction in new HIV infections over time.[6] Yet raising treatment coverage to levels that would obviate the need for primary prevention has proven difficult. Populations with structural barriers to sustained viral suppression (eg, due to treatment interruptions) are often unreached, increasing transmission risk and reinforcing the need for accessible primary prevention, particularly among vulnerable populations.[7–10]

Therefore, HIV prevention programmes remain crucial, encompassing numerous evidence-based interventions. However, individual motivation to prevent new infections has been weakened in some cases, because awareness of, and fear of, HIV has decreased compared with two decades ago when effective treatment was unavailable. Additionally, HIV prevention programmes have frequently operated in siloes, disconnected from the national health system.[11] Although externally driven programmes have often enabled rapid scale-up, their approaches have rarely been fully integrated into local health systems.

As external resources decline, particularly amid shifting donor priorities—and as widespread disruptions to essential HIV testing, prevention, and treatment services continue to reverberate following recent cuts to US foreign assistance—the limited number of comprehensive, country-owned HIV prevention programmes (which will be required for long-term, sustained control of the HIV epidemic) has become apparent.[12–15]

This fragmented HIV prevention landscape, coupled with declining resources, also threatens the uptake of new biomedical prevention tools, including oral

pre-exposure prophylaxis (PrEP), dapivirine vaginal rings, and long-acting injectable PrEP. Even effective new technologies will falter if individuals cannot access or consistently use them due to poor quality health-care delivery, inconsistent supplies, lack of awareness, or persistent stigma. These innovations present both an opportunity and a necessity to invest in integrated, resilient local health systems capable of meeting people's needs for HIV prevention at scale.[16] By viewing HIV prevention through a health systems lens, we can design more resilient, equitable, and lasting responses that go beyond short-term programme cycles.

Against this background, the February, 2025 Sustainable Prevention Initiative, convened in Lilongwe, Malawi, brought together government leaders from 11 African countries, alongside technical experts, donors, and civil society, to deepen the sustainability dialogue and chart a new course for sustaining HIV prevention efforts in the region.[17] The focus on Africa reflects the region's crucial need for resilient prevention models due to its high HIV burden, fragmented delivery systems, and donor-dependent financing. The Sustainable Prevention Initiative prioritises Africa as a strategic locus for scalable, integrated approaches that can be adapted to other high-burden settings.

As the first of six papers in this Series on sustainable HIV prevention in Africa, we argue that adopting an integrated health systems approach is essential for sustainable and effective HIV prevention. We focus on Africa, given its disproportionate HIV burden, aiming to highlight key systemic challenges and barriers that currently limit sustainable HIV prevention in the region and to identify the risks of continuing business-as-usual, especially as new HIV prevention tools are introduced and scaled up. In subsequent papers in this Series, we discuss the core components of a health systems approach specifically, embedding core HIV prevention functions within local health departments and integrating HIV prevention within primary health care and other routine services; leveraging digital health interventions and artificial intelligence to enable more precise targeting of resources and interventions; ensuring meaningful, systematic, and participatory community engagement across the conception, design, implementation, and assessment phases of HIV prevention programming; facilitating the effective, equitable introduction of new prevention tools through a whole-of-society approach; and a call to action.

Challenges and barriers in the HIV prevention system

Gaps in reaching populations at risk

Even as overall HIV incidence declines, prevention programmes routinely miss people at highest risk. With 55% of all new HIV infections in 2022 being among people from key populations and their sexual partners, HIV prevention among these groups is particularly crucial.[18] Groups disproportionately affected include gay men, men who have sex with men, sex workers, transgender people, people who inject drugs, and adolescent girls and young women (AGYW).[6,19]

UNAIDS data show that at least half of all people from key populations are not being reached with prevention services, with people who inject drugs, gay men, men who have sex with men, and transgender people being particularly neglected.[1] Fast-growing AGYW populations (aged 15–24 years) also accounted for 19% of new HIV acquisitions in western and central Africa and 27% in eastern and southern Africa.[19]

Despite their heightened vulnerability, AGYW and other key populations face challenges initiating or sustaining PrEP use due to factors such as low self-perceived risk of HIV acquisition, pill burden, stigma, misinformation, limited or lost access to PrEP, and disapproval from family or sexual partners.[19–21] Other structural obstacles, such as gender norms, lack of trust in the health-care system, and age-of-consent laws (which might bar individuals under adult legal age from receiving PrEP or HIV testing without parental consent) have further hindered uptake among adolescents and other key populations. Many prevention programmes are neither youth-friendly nor key-population-friendly and lack tailored counselling or adherence support for young people. These programmes might also fail to address the varied structural inequities experienced by key

Key messages

- Global HIV incidence remains above established targets, despite substantial investment
- Sub-Saharan Africa bears the highest burden, accounting for 60% of new HIV infections in 2024
- Underinvestment in HIV prevention, combined with fragmented, business-as-usual approaches, threatens the potential impact of new long-acting agents, especially as external funding declines
- Greater development of the functions of HIV prevention and their integration within national health systems is essential to reduce infections and sustain epidemic control
- Diversified financing approaches that stimulate greater domestic resource mobilisation are essential to ensuring the resilience of the HIV response
- Strengthened governance and leadership across health and other sectors are crucial to ensuring a holistic, multisectoral HIV response
- A holistic health systems approach to HIV prevention that strengthens governance, is integrated into primary health care and national digital health systems, and adopts systematic approaches to community engagement and new product introduction is crucial for sustaining the HIV response and strengthening broader health system capacity

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populations, such as intimate partner violence, orphanhood, food insecurity, and lack of access to education, that increase their risk of acquiring HIV.[22,23] These gaps point to a broader issue: current models are not sufficiently person-centred or diversified to meet people with the right intervention at the right time in their risk trajectory.

Programme fragmentation and pilotitis

Delivering a layered prevention package requires multidisciplinary capabilities that overstretched health systems often do not have. In the context of low-middle-income countries, effective HIV prevention integrates biomedical interventions with community outreach, health education, psychosocial support, and economic empowerment, among others. Community health workers, in particular, have a pivotal role in linking the health system to communities, as seen in Rwanda's national community health worker programme, which provides basic care and health education at the village level.[24,25] However, many community health worker programmes remain donor-driven, fragmented, and inconsistently integrated.[26,27] For instance, some countries with government-led community health worker programmes exclude HIV services, assuming they are already covered by non-governmental organisations (NGOs). However, NGOs often have established cadres specific to HIV (eg, peer educators) that might not be included in government-run community health worker programmes, contributing to the sustained verticalisation of HIV services. This disconnect creates a patchwork of efforts that might not consistently reach those at highest risk before they acquire HIV.[26,28]

From a governance perspective, the diversity of HIV prevention interventions necessitates effective coordination and harmonisation. At the national level, technical working groups or strategic plans might nominally include all stakeholders, but effective integration often breaks down at the subnational level (ie, where services are actually delivered). District agendas are frequently crowded by rigid, centrally planned, and narrowly targeted vertical programmes, and district health officials often lack the authority or contracting mechanisms and resources to truly integrate externally funded, NGO-run programmes into government primary care platforms.[29–32]

A study in Mozambique and Zambia found that weak donor engagement in district health coordination meetings led to redundant activities and poor oversight—multiple NGOs were unknowingly targeting the same populations while others were completely left out.[33] In such an environment, referring clients between programmes or ensuring continuity of prevention services can be difficult. Data are not shared, supply chains run in parallel, and each programme reports to its funder rather than to local health management. As a result, even well intentioned projects might contribute to duplication, inefficiency, and service coverage gaps.

Capacity gaps, concerns about local corruption, and delays in accountability, along with increasing donor emphasis on value for money, have led donors and implementing partners to create parallel systems and, in some cases, bypass existing health system structures.[28,34,35] In Kenya, for instance, officials criticised the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) initiative—a multicountry HIV prevention partnership targeting AGYW—for being implemented largely outside of government structures (ie, off to the side) and fragmenting the national response by channelling funds through numerous NGOs. The Kenyan Government noted that the uniform, donor-driven approach of DREAMS did not align well with local systems and needs.[36] A related challenge is the proliferation of pilot projects (also known as pilotitis), for example a new application for youth outreach or a boutique PrEP delivery model, that show success in small settings but never transition into sustained, nationwide programmes. For example, in Uganda, as many as 80 different mHealth (mobile health) pilot projects were being implemented by various NGOs simultaneously, overwhelming the Ministry of Health and prompting a moratorium on new pilots.[37,38]

Limited financing for primary prevention

Across sub-Saharan Africa, most countries continue to fall short of their Abuja Declaration commitment to allocate at least 15% of national budgets to health.[39] More than 30 African Union member states allocate less than 10%, with some spending as little as 5–7%.[40]

HIV-specific funding has similar challenges. Resources for HIV programmes have plateaued—or declined—over the years within both the US President's Emergency Plan for AIDS Relief (PEPFAR) and The Global Fund to Fight AIDS, Tuberculosis and Malaria.[41–43] Globally, approximately 80 cents of every HIV dollar goes towards treatment, care, and support, whereas prevention (excluding prevention of mother-to-child transmission) receives a much smaller fraction. For example, recent analyses of Global Fund grants found that only about 7·5% was dedicated to primary HIV prevention.[44]

At the regional level, prevention accounted for only 11% of total HIV spending in eastern and southern Africa, with 91% of this funding provided by international sources.[1] At the national level, countries such as Malawi and Uganda allocated only about 7% of HIV funding budgets to prevention.[44]

This funding mismatch is partially due to the life-saving urgency of treatment (as well as its effect on sexual transmission of HIV), but it also reflects a short-term perspective. Prevention benefits, by nature, are less immediately visible and harder to measure (ie, it is difficult to count infections that are not happening), making prevention a tougher sell for constrained budgets. Modelling studies warn that without increased investment in prevention, HIV incidence could rebound,

leading to higher numbers of people who need costly, lifelong ART and clinical care and placing immense strain on health systems and budgets.[45,46]

Weak data systems and limited local decision making

Robust surveillance and monitoring of programme performance are essential for understanding where infections are occurring, which interventions are working, and how to allocate resources.[47] Yet, prevention programmes often lack the unified data streams common to the electronic medical records that underpin HIV treatment programmes.[17] For instance, new HIV infections might be tracked by vertical systems that are not linked to national health information systems (eg, District Health Information Software 2), preventing local health officials from accessing essential data.[48] Outreach programmes run by NGOs might collect their own indicators (eg, number of condoms distributed, individuals reached with health education messages, etc), but these are typically reported only to donors and are not captured locally.[49] Similarly, clinical programmes might report the number of individuals initiating PrEP but not continuation rates, impeding accurate evaluation.[50] As a result, no single entity has a complete picture of prevention performance at the community level. Ministries of health must often rely on modelled estimates or outdated survey data, making it difficult to target interventions efficiently or promptly detect and respond to emerging trends, such as spikes in sexually transmitted infections in a particular district or network.[47] The absence of routinely collected economic data to support evidence-based priority setting also limits effective decision making and resource allocation.

Even when data are collected, using these data for decision making remains challenging. At the subnational level, health managers might lack training or tools to analyse and interpret prevention data. There is often a culture of reporting up (to national or donor levels) rather than analysing locally for improvement.[51] Furthermore, prevailing metrics tend to prioritise biomedical outputs (eg, number of people on PrEP or number of males receiving voluntary medical circumcision) and might not capture qualitative aspects of prevention, such as community acceptance, adherence, or reductions in risky behaviour.[52] Crucial barriers such as stigma or gender norms are hard to quantify and therefore are often sidelined in data-driven planning. In effect, what gets measured (and funded) are the easier-to-quantify indicators, potentially obscuring key gaps; for example, one might meet a PrEP-uptake target but miss that many users discontinued treatment due to social pressures.[52] The lack of integrated prevention data also limits accountability and continuous improvement. If programmes cannot show their impact on infections or behaviour change in near real time, making the case for more investment or the adjustment of strategies can be difficult.[53]

Risks of inaction: why business-as-usual is not sustainable

Threats to long-term epidemic control

Where HIV programmes are fragmented and overly verticalised, failing to integrate them into stronger national systems and sustainably finance them in the current era poses a grave risk of backsliding and potential epidemic resurgence. When donor funding is abruptly withdrawn, services can collapse virtually overnight. For context, the wave of funding losses that began in January, 2025, disrupted supply chains, compelled the closure of health facilities, left thousands of community health workers unemployed, set back PrEP programmes, and forced many community organisations to scale down or suspend HIV activities. In South Africa, for example, these losses affected vital components of the HIV response: testing and data-information systems were disrupted, with viral-load testing reportedly decreasing by up to 21% in March and April, 2025. Community-led and other NGOs also halted outreach and other vital services for key and marginalised populations, and community-led monitoring of HIV services ceased.[54] This state of affairs illustrates how built-up capacities can evaporate if they are not embedded within local health systems. In a vicious cycle, a resurgence in HIV incidence would divert even more domestic resources to treatment, leaving prevention in perpetual neglect.[17]

Additionally, a siloed approach compromises public health security. Integrated HIV infrastructure can bolster preparedness for future outbreaks, as shown during the COVID-19 pandemic when countries with stronger primary health-care and community systems were able to adapt faster to the pandemic, including using HIV community health workers to deliver vaccines and contact tracing.[55] Fragmentation thus represents a missed opportunity for broader health system strengthening.[56]

There are compelling economic reasons to invest in the HIV response. A UNAIDS-supported report found that optimally funding the HIV response could lead to a 40–90% reduction in new infections while also yielding substantial economic returns. For example, South Africa's gross domestic product (GDP) in 2030 is projected to be 2·8% higher (equivalent to US$17 billion) than the GDP projected under business-as-usual funding levels if HIV funding targets are met. Kenya could also see a 1·1% increase in GDP (amounting to $1·3 billion) under similar conditions.[57]

Erosion of accountability and local ownership

Weak health systems diminish accountability. When multiple NGOs or donor agencies run prevention services, to whom are they accountable if targets are missed or communities are dissatisfied? Too often, it is the donor, not the local population or government. This donor-centred accountability structure undermines national and subnational ownership and performance of the HIV response. Governments might feel they have

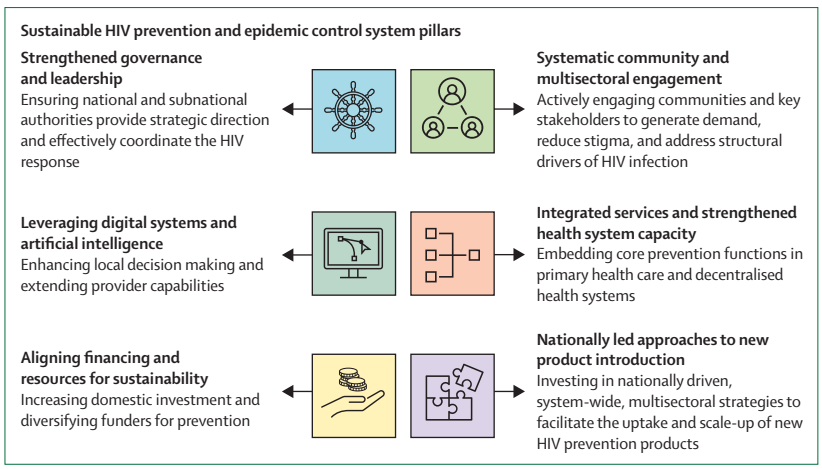

Figure: **Elements of sustainable HIV programming**
Adapted from WHO (2010).[61]

little control over externally funded activities, and local communities have limited avenues to provide input or complaints. Over time, this dynamic can foster apathy or dependency: local officials defer to donor decisions, and community members come to see HIV programmes as NGO projects rather than part of their public services.[53,58] Also, when projects start and stop, communities might grow distrustful and be less likely to take them up when they resume.

Missed opportunities for integration with other health services

Perhaps the greatest cost of a siloed approach is missed opportunities for integration into broader health and development programmes. For example, routine maternal and child health visits could be further leveraged to deliver HIV prevention—such as by offering PrEP to young mothers in high-prevalence areas—but in a non-integrated system, the family planning nurse might not be trained or equipped to do so. Conversely, standalone HIV clinics might not assess other health needs such as vaccinations or domestic violence screening, missing opportunities to provide more holistic care. The compounded negative effects of neglecting prevention far outweigh the unintended consequences for clients, communities, partners, and the broader health system.

Integration also generally offers broader benefits for the health system. A meta-analysis of 114 studies, mostly from sub-Saharan Africa, found that integrating HIV with other health services not only improved both HIV-related and non-HIV outcomes, but also strengthened health systems and accelerated progress towards universal health coverage.[59] In Kenya, a model integrating HIV, hypertension, and diabetes screening at the primary care level was projected to avert more than 240 000 AIDS-related deaths, prevent over 215 000 new HIV infections, and reduce HIV incidence by 64% over a 15-year period.[60]

A health systems approach to HIV prevention

Holistic health systems perspective

A health systems approach views HIV prevention not as a standalone vertical programme, but as an integral component of a country's overall health system. Instead of asking how we can implement an HIV intervention, we ask what system capacities and functions are needed to deliver this (and other) interventions sustainably to the population. It is a holistic framework that considers all the building blocks of the health system—governance, financing, health workforce, service delivery, information systems, supply chains, and community engagement—and how they must work in concert to achieve desired outcomes (figure).[61]

This approach recognises that health outcomes are produced by systems, not just interventions. Even highly efficacious prevention methods will fail without robust delivery systems. For example, long-acting cabotegravir, effective for 2 months at a time, still requires regular clinic visits, which, in turn, require accessible clinical sites with diverse entry points, a reliable drug supply chain, trained providers to administer injections and manage side-effects, and data tools to track clients and programme performance (which are all system elements). Adopting a systems lens ensures that enabling factors are considered from the outset rather than assuming interventions function independently.

Crucially, a systems approach is context-specific and adaptive. No single model fits all: what works in Rwanda might differ from South Africa. However, the principles of coordination and integration apply universally. This approach shifts from isolated project thinking towards institutionalisation and scalability—designing interventions with the intention that, if successful, they will be absorbed into national strategies and budgets.[62] Initiatives such as the Principles for Digital Development promote designing pilots with scale in mind to avoid pilotitis.[63] UNAIDS has also emphasised embedding HIV services within universal health coverage efforts to ensure sustainability.[64]

Some countries are already exemplifying aspects of a health systems approach for prevention. Rwanda, known for its strong primary health-care system, leverages over 45 000 community health workers who link communities to the formal health sector. These community health workers provide health education (including HIV prevention), distribute condoms, and refer individuals for services, thereby extending the reach of prevention to every village. They are part of Rwanda's health system fabric, financed and supervised by the Ministry of Health, which makes the prevention gains they achieve more sustainable.[24] South Africa, faced with the world's largest HIV epidemic, has integrated HIV services into a broad chronic care model and used its extensive network of community outreach (ward-based outreach teams) not only to support ART adherence but also to promote COVID-19 vaccination in hard-to-reach areas. This

cross-pollination (use of HIV programme infrastructure for other public health needs and vice versa) is a hallmark of a systems approach. It builds resilience: the same systems that delivered millions of HIV treatments were repurposed to deliver vaccines during a pandemic.[65,66] These examples underscore that a health systems approach is feasible, beneficial, and practical. However, this kind of approach requires deliberate effort and a shift in mindset from all stakeholders—governments, donors, implementers, and communities alike.

Strengthening governance and leadership

Leadership and governance are the cornerstone of a systems approach, involving both high-level political commitment and practical coordination mechanisms. Governments, especially health ministries and national AIDS councils, need to exercise strong stewardship over HIV prevention, convening all players under one strategy.[67] In countries with decentralised systems, it means empowering provincial and district health managers to adapt and implement prevention in their contexts while ensuring alignment with national goals. For donors and international NGOs, it means committing to work through and with government-led platforms rather than setting up parallel ones.

Enhancing governance starts with strengthening and investing in national and local coordination structures. Many countries have national HIV coordination bodies, but their effectiveness varies. A promising practice is to embed HIV prevention coordination within existing government structures. For example, Tanzania has a multisectoral AIDS committee under the Prime Minister's office that brings together health, education, finance, and other sectors to plan and monitor HIV programmes. This ensures that prevention is discussed at the highest levels of government and is not just the health ministry's concern.[68,69] Such multisectoral engagement is essential as both the drivers and solutions for HIV extend beyond the health sector.[70,71] Countries should assess and strengthen coordination mechanisms that engage stakeholders across sectors, including civil society, potentially through legislation or formal agreements that clearly and transparently define the roles of government and partners and establish mutual accountability.

Accountability mechanisms also fall under governance. Therefore, clear targets and performance monitoring must be established that involve both officials and communities. Examples include community-led monitoring and district health office-convened community laboratories, where community members can help identify gaps in HIV services and co-create solutions.[72,73] Accountability can be further strengthened by increasing the voice and agency of affected community members to participate in these social accountability structures. Additionally, social contracting (ie, funding local NGOs or community groups to provide services) can increase accountability to communities, because those groups are closer to the ground. In 2023, for example, Namibia instituted a Social Contracting for Health Services policy, which provides a framework for institutionalising social contracting in the country.[74] The policy aims to expand the provision of health and social services, ensure affordable and equitable access to these services, and strengthen multisectoral engagement and coordination between government, civil society organisations, and communities.[74] Governments and donors can expand this model, linking funds to performance and community feedback.

Governance for a systems approach requires inclusive leadership, providing a platform for voices that are often marginalised such as young people, women, and key populations (including sex workers and men who have sex with men), as well as influential actors such as political and traditional leaders. Their input can help shape more effective policies and foster a sense of shared ownership of the prevention agenda.[71,75] In some cases, key populations have experienced challenges in accessing person-centred care when services are fully integrated, highlighting the need for programmatic consideration of the preferences of specific groups, while carefully managing political sensitivities.[76] Countries such as Lesotho and Malawi have included youth representatives in national HIV bodies, recognising that the new infections disproportionately affect young people.[77,78] Inclusive leadership also builds trust, a crucial commodity for successful health interventions. When communities see their leaders championing HIV prevention and addressing issues such as stigma or discrimination, it creates an enabling environment for individuals to come forward and use services.

Aligning financing and resources with sustainability

Another key aspect of a systems approach is the role of governments and funders in ensuring the alignment of funding with long-term needs. Donor funding should be channelled in ways that build domestic capacity and incentivise sustainability, for example through co-financing requirements or transition plans that incrementally transfer financial responsibility to national governments.[79] In parallel, some countries have proactively increased domestic investments. Zimbabwe, for instance, implemented an AIDS levy—a small tax that funds its national HIV response.[80] Other countries have explored innovative financing mechanisms such as debt swaps or trust funds for HIV.[81,82] These efforts aim to reduce dependence on a single external source. By diversifying funding streams, including government budgets, national health insurance schemes, and private sector contributions, HIV prevention programmes become more resilient to shocks. Strong governance also requires internal advocacy to allocate domestic resources to sectoral prevention activities and, more

Search strategy and selection criteria

To inform this Series paper, we searched peer-reviewed and grey literature published in English from Jan 1, 2010, to May 31, 2025, focusing on sources relevant to the integration and sustainability of HIV prevention in sub-Saharan Africa. A more detailed description of the search criteria is provided in the appendix.

See Online for appendix

broadly, to secure funding commitments—for example, meeting the Abuja Declaration target of allocating 15% of government expenditure to health and ensuring adequate resources are directed towards HIV and other related infectious diseases.[39]

Achieving sustainability and equity in HIV prevention

Fragmentation can be reduced by leveraging existing primary health-care infrastructure—including clinics, health posts, and outreach teams—to deliver prevention services where people normally seek care, such as maternal health clinics, general outpatient consultations, and community health outreach programmes. Integration also strengthens service delivery and helps normalise HIV prevention, reducing stigma by avoiding the isolation of prevention services and enabling more comprehensive care.[83]

Digital health tools and robust data systems, when integrated into national health systems, can enhance HIV prevention efforts considerably by enabling more precise targeting of resources and interventions to the locations and populations where they will have the greatest impact.[84,85] Artificial intelligence is also being used to train health-care workers and extend their capabilities, from client counselling around risk to providing real-time feedback to clients struggling to remain on PrEP treatment.[86]

Communities are central partners in a sustainable HIV prevention response, having crucial roles in service delivery, demand creation, and oversight. Compared with non-inclusive, fragmented, or externally imposed approaches, community-led activities that are embedded systematically within harmonised national or local policy and practice often achieve superior reach and credibility, especially among marginalised groups, ensuring services meet real-world needs.[87]

The pipeline of new HIV prevention technologies is expanding—including long-acting injectables, vaginal rings, antibody infusions, and potentially vaccines in the future. Ensuring that these innovations are effectively and equitably introduced within the public health system requires a systematic, whole-of-society approach. This approach includes early planning and rapid ascertainment of delivery channels and client and provider values and preferences, integration into existing systems, and broad stakeholder involvement.[9,88]

Conclusion

Despite advancements in technologies and interventions, systemic barriers continue to threaten the sustainability of HIV prevention in African countries. Sustained progress depends fundamentally on the functionality and resilience of the underlying health system, necessitating a rapid shift to an integrated, country-led health systems approach. Urgent, deliberate, and decisive action is required from governments and donors to integrate HIV services sustainably, ensuring long-term availability, especially for vulnerable populations. HIV prevention must be woven into the fabric of African health systems, drawing inspiration from programmes that have already succeeded in doing so. This integration requires investment in elevating local leadership, strengthening linkages with primary health care, meaningful community engagement, equitable introduction of new prevention tools, and the use of data and emerging technologies such as artificial intelligence to extend existing capabilities. The focus must shift towards building long-term endogenous health system functions, capacity, and resilience so that reductions in HIV incidence can be sustained for decades to come, even as external funding fluctuates and new health challenges emerge.

Contributors

BM and CBH conceptualised the draft. All authors contributed to the writing, reviewing, and editing of the manuscript. All authors had responsibility for the decision to submit for publication.

Declaration of interests

KN has received grants from the Gates Foundation (BMGFINV-033052 [subaward 22-SBA-071] and BMGF INV-041269), the US National Institutes of Health (R01 CA 258590, 1R01MH129234–01A1, R01MH134681, and 1R01MH136842–01A1), and the Merck Investigator Studies Program (MISP61171); has received honoraria for providing conference summaries for Clinical Care Options; holds a position on the data safety monitoring board for the FP-Plus and Jamii Bora Studies; is President-elect and a governing council member for the International AIDS Society (IAS); and has received travel support for attending IAS conferences. CBH has received a grant from the Gates Foundation to the Center for Innovation in Global Health (CIGH) at Georgetown University for the Blantyre Prevention Strategy (BPS; INV-002606); a grant from the Gates Foundation to the CIGH for the Sustainable Prevention Initiative (INV-064383); consulting fees from the Gates Medical Research Institute; and holds a position on the board of directors for the Center for Infectious Diseases Research in Zambia. BOI declares a grant from the Gates Foundation to the CIGH at Georgetown University for the BPS (INV-002606); and a grant from the Gates Foundation to the CIGH for the Sustainable Prevention Initiative (INV-064383). All other authors declare no competing interests.

References

1 UNAIDS. 2024 global AIDS report—the urgency of now: AIDS at a crossroads. Joint United Nations Programme on HIV/AIDS, 2024.

2 UNAIDS. Fewest new HIV infections in decades. In: UNAIDS. Global AIDS update 2023. Joint United Nations Programme on HIV/AIDS, 2023: 28–33.

3 Atun R, Chang AY, Ogbuoji O, et al. Long-term financing needs for HIV control in sub-Saharan Africa in 2015–2050: a modelling study. *BMJ Open* 2016; **6:** e009656.

4 Dehne KL, Dallabetta G, Wilson D, et al. HIV Prevention 2020: a framework for delivery and a call for action. *Lancet HIV* 2016; **3:** e323–32.

5 UNAIDS. Fact sheet 2025—global HIV statistics. Joint United Nations Programme on HIV/AIDS. 2025. https://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf (accessed July 31, 2025).

6 Tang Z, Lan G, Chen YQ, et al. HIV-1 treatment-as-prevention: a cohort study analysis of serodiscordant couples in rural southwest China. *Medicine* 2015; **94:** e902.

7 Bor J, Fischer C, Modi M, et al. Changing knowledge and attitudes towards HIV treatment-as-prevention and "Undetectable=Untransmittable": a systematic review. *AIDS Behav* 2021; **25:** 3951–69.

8 Godfrey-Faussett P, Frescura L, Karim QA, et al. HIV prevention for the next decade: appropriate, person-centred, prioritised, effective, combination prevention. *PLoS Med* 2022; **19:** e1004102.

9 Kippen A, Nzimande L, Gareta D, Iwuji C. The viral load monitoring cascade in HIV treatment programmes in sub-Saharan Africa: a systematic review. *BMC Public Health* 2024; **24:** 2603.

10 Krishnaratne S, Hensen B, Cordes J, Enstone J, Hargreaves JR. Interventions to strengthen the HIV prevention cascade: a systematic review of reviews. *Lancet HIV* 2016; **3:** e307–17.

11 Mbengo F, Adama E, Towell-Barnard A, Bhana A, Zgambo M. Correction to: Barriers and facilitators to HIV prevention interventions for reducing risky sexual behavior among youth worldwide: a systematic review. *BMC Infect Dis* 2022; **22:** 679.

12 Mutsaka F, Imray G. Trump's foreign aid freeze halted a crucial program fighting HIV in Africa. Here's what's at stake. Associated Press, Feb 19, 2025. https://apnews.com/article/trump-aid-usaid-pepfar-africa-hiv-396263cd9e7281af7d543d3c68fa465a (accessed July 31, 2025).

13 UNAIDS. Country updates on the impact of US funding cuts on the global HIV response. Joint United Nations Programme on HIV/AIDS, 2025.

14 Chiliza J, Laing R, Feeley FG, Borba CPC. Program sustainability post PEPFAR direct service support in the Western Cape, South Africa. *PLoS One* 2021; **16:** e0251230.

15 Lankiewicz E, Sharp A, Drake P, et al. Early impacts of the PEPFAR stop-work order: a rapid assessment. *J Int AIDS Soc* 2025; **28:** e26423.

16 Bekker LG, Pike C, Hillier SL. HIV prevention: better choice for better coverage. *J Int AIDS Soc* 2022; **25:** e25872.

17 Blantyre Prevention Strategy. Sustainable HIV Prevention Initiative. 2025. https://www.blantyrepreventionstrategy.com/national-leadership-for-sustainable-hiv-programs (accessed June 30, 2025).

18 UNAIDS. New HIV infections among key populations, proportions in 2010 and 2022. Joint United Nations Programme on HIV/AIDS, 2023.

19 UNAIDS. HIV and adolescent girls and young women. Joint United Nations Programme on HIV/AIDS, 2024.

20 Reddy K, Palanee-Phillips T, Heffron R. Awareness of heightened sexual and behavioral vulnerability as a trigger for PrEP resumption among adolescent girls and young women in east and southern Africa. *Curr HIV/AIDS Rep* 2023; **20:** 267–73.

21 Admassu M, Nöstlinger C, Hensen B. Barriers to PrEP use and adherence among adolescent girls and young women in eastern, southern, and western Africa: a scoping review. *BMC Womens Health* 2024; **24:** 665.

22 Cluver L, Makangila G, Hillis S, et al. Protecting Africa's children from extreme risk: a runway of sustainability for PEPFAR programmes. *Lancet* 2025; **405:** 1700–12.

23 Duby Z, Bunce B, Fowler C, et al. "These girls have a chance to be the future generation of HIV negative": experiences of implementing a PrEP programme for adolescent girls and young women in South Africa. *AIDS Behav* 2023; **27:** 134–49.

24 Selden O, Rusingiza E, Balkrishnan R. Overview, infrastructural challenges, barriers to access, and progress for Rwanda's healthcare system: a review. *Integr J Med Sci* 2025; published online Feb 21. https://doi.org/10.15342/ijms.2025.745.

25 Sayinzoga F, Bijlmakers L. Drivers of improved health sector performance in Rwanda: a qualitative view from within. *BMC Health Serv Res* 2016; **16:** 1.

26 Masis L, Gichaga A, Zerayacob T, Lu C, Perry HB. Community health workers at the dawn of a new era: 4. Programme financing. *Health Res Policy Syst* 2021; **19:** 121.

27 Pandya S, Hamal M, Abuya T, et al. Understanding factors that support community health worker motivation, job satisfaction, and performance in three Ugandan districts: opportunities for strengthening Uganda's community health worker program. *Int J Health Policy Manag* 2022; **11:** 2925–34.

28 Musoke D, Atusingwize E, Ndejjo R, Ssemugabo C, Siebert P, Gibson L. Enhancing performance and sustainability of community health worker programs in Uganda: lessons and experiences from stakeholders. *Glob Health Sci Pract* 2021; **9:** 900–10.

29 Namakula J, Nsabagasani X, Paina L, et al. What slows the progress of health systems strengthening at subnational level? A political economy analysis of three districts in Uganda. *PLOS Glob Public Health* 2025; **5:** e0002673.

30 Heerdegen ACS, Gerold J, Amon S, Agyemang SA, Aikins M, Wyss K. How does district health management emerge within a complex health system? Insights for capacity strengthening in Ghana. *Front Public Health* 2020; **8:** 270.

31 Kawonga M, Blaauw D, Fonn S. The influence of health system organizational structure and culture on integration of health services: the example of HIV service monitoring in South Africa. *Health Policy Plan* 2016; **31:** 1270–80.

32 Kawonga M, Fonn S, Blaauw D. Administrative integration of vertical HIV monitoring and evaluation into health systems: a case study from South Africa. *Glob Health Action* 2013; **6:** 19252.

33 Oomman N, Bernstein M, Rosenzweig S. Following the funding for HIV/AIDS: a comparative analysis of the funding practices of PEPFAR, the Global Fund, and World Bank MAP in Mozambique, Uganda, and Zambia. Center for Global Development, 2007.

34 Task Force on Global Action for Health System Strengthening. Global action for health system strengthening—policy recommendations to the G8. Japan Center for International Exchange. 2008. https://jcie.org/researchpdfs/takemi/full.pdf (accessed July 31, 2025).

35 Sands P, Tomori O, Aguilera X, et al. The neglected dimension of global security: a framework to counter infectious disease crises. The National Academies Press, 2016.

36 Fleischman J. Five years of DREAMS and what lies ahead: how to address the intersecting crises of HIV, gender inequality, and health security. Center for Strategic and International Studies, 2021.

37 Meyer AJ, Armstrong-Hough M, Babirye D, et al. Implementing mHealth interventions in a resource-constrained setting: case study from Uganda. *JMIR Mhealth Uhealth* 2020; **8:** e19552.

38 Nabunya P, Cavazos-Rehg P, Mugisha J, et al. An mHealth intervention to address depression and improve antiretroviral therapy adherence among adolescents and young adults living with HIV in Uganda: a pilot randomized controlled trial. *JMIR Mhealth Uhealth* 2024; **12:** e52528.

39 African Union. Abuja Declaration on HIV/AIDS, tuberculosis, and other related infectious diseases. April 24–27, 2001. https://au.int/sites/default/files/pages/32894-file-2001-abuja-declaration.pdf (accessed July 31, 2025).

40 Africa Centres for Disease Control and Prevention. Africa's health financing in a new era—April, 2025. Africa Centres for Disease Control and Prevention, 2025.

41 Kakaire T, Schlech W, Coutinho A, Brough R, Parkes-Ratanshi R. The future of financing for HIV services in Uganda and the wider sub-Saharan Africa region: should we ask patients to contribute to the cost of their care? *BMC Public Health* 2016; **16:** 896.

42 Allinder SM, McCarten-Gibbs MV. Challenges to continued US leadership ahead of global HIV's next phase. Center for Strategic and International Studies, 2020.

43 ten Brink D, Martin-Hughes R, Bowring AL, et al. Impact of an international HIV funding crisis on HIV infections and mortality in low-and middle-income countries: a modelling study. *Lancet HIV* 2025; **12:** E346–54.

44 Neel AH, Rodríguez DC, Sikazwe I, et al. HIV programme sustainability in southern and eastern Africa and the changing role of external assistance for health. *Health Policy Plan* 2024; **39:** czad091.

45 DiCarlo MC, Dallabetta GA, Akolo C, et al. Adequate funding of comprehensive community-based programs for key populations needed now more than ever to reach and sustain HIV targets. *J Int AIDS Soc* 2022; **25:** e25967.

46 Rautenbach SP, Whittles LK, Meyer-Rath G, et al. Future HIV epidemic trajectories in South Africa and projected long-term consequences of reductions in general population HIV testing: a mathematical modelling study. *Lancet Public Health* 2024; **9:** e218–30.

47 WHO. Consolidated guidelines on HIV prevention, testing, treatment, service delivery and monitoring: recommendations for a public health approach. World Health Organization, 2021.

48 Braa J, Sahay S. The DHIS2 open source software platform: evolution over time and space. MIT Press. April, 2017. https://www.researchgate.net/publication/316619278_The_DHIS2_Open_Source_Software_Platform_Evolution_Over_Time_and_Space (accessed May 27, 2025).

49 Mwisongo A, Nabyonga-Orem J. Global health initiatives in Africa—governance, priorities, harmonisation and alignment. *BMC Health Serv Res* 2016; **16:** 212.

50 Stankevitz K, Grant H, Lloyd J, et al. Oral preexposure prophylaxis continuation, measurement and reporting. *AIDS* 2020; **34:** 1801–11.

51 WHO. Health workforce requirements for universal health coverage and the Sustainable Development Goals. (Human Resources for Health Observer, 17). World Health Organization, 2016.

52 Baral S, Rao A, Sullivan P, et al. The disconnect between individual-level and population-level HIV prevention benefits of antiretroviral treatment. *Lancet HIV* 2019; **6:** e632–38.

53 Carter AM, Mablekisi C, Kawalazira G, Smith TR, Allinder SM, Holmes CB. Developing a more effective locally led response to the HIV epidemic in Blantyre, Malawi. In: Katz R, Fischer JE, eds. Inoculating cities: case studies of urban pandemic preparedness. Academic Press, 2021: 79–98.

54 UNAIDS. Global AIDS update 2025: AIDS, crisis, and the power to transform. Joint United Nations Programme on HIV/AIDS. 2025. https://www.unaids.org/sites/default/files/2025-07/2025-global-aids-update-JC3153_en.pdf (accessed Oct 6, 2025).

55 Ballard M, Bancroft E, Nesbit J, et al. Prioritising the role of community health workers in the COVID-19 response. *BMJ Glob Health* 2020; **5:** e002550.

56 Ooms G, Ottersen T, Jahn A, Agyepong IA. Addressing the fragmentation of global health: the *Lancet* Commission on synergies between universal health coverage, health security, and health promotion. *Lancet* 2018; **392:** 1098–99.

57 UNAIDS. A triple dividend: the health, social and economic gains from financing the HIV response in Africa, April 12, 2023. https://impact.economist.com/health/the-triple-dividend-of-hiv-financing/key-findings/ (accessed May 27, 2025).

58 Rodríguez DC, Balaji LN, Chamdimba E, et al. Political economy analysis of subnational health management in Kenya, Malawi and Uganda. *Health Policy Plan* 2023; **38:** 503–13.

59 Bulstra CA, Hontelez JAC, Otto M, et al. Integrating HIV services and other health services: a systematic review and meta-analysis. *PLoS Med* 2021; **18:** e1003836.

60 Kasaie P, Weir B, Schnure M, et al. Integrated screening and treatment services for HIV, hypertension and diabetes in Kenya: assessing the epidemiological impact and cost-effectiveness from a national and regional perspective. *J Int AIDS Soc* 2020; **23** (suppl 1)**:** e25499.

61 WHO. Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies. World Health Organization, 2010.

62 Swanson CC, Atun R, Best A, et al. Strengthening health systems in low-income countries by enhancing organizational capacities and improving institutions. *Global Health* 2015; **11:** 5.

63 Waugaman A. From principle to practice: implementing the principles for digital development. The Principles for Digital Development, 2016.

64 UNAIDS. HIV and universal health coverage—a guide for civil society. Joint United Nations Programme on HIV/AIDS, 2019.

65 Chireshe R, Manyangadze T, Naidoo K. Integrated chronic care models for people with comorbid HIV and non-communicable diseases in sub-Saharan Africa: a scoping review. *PLoS One* 2024; **19:** e0299904.

66 Liu L, Christie S, Munsamy M, et al. Expansion of a national differentiated service delivery model to support people living with HIV and other chronic conditions in South Africa: a descriptive analysis. *BMC Health Serv Res* 2021; **21:** 463.

67 Global HIV Prevention Coalition Secretariat. Sustaining effective leadership to secure gains, bridge disparities and expedite progress. Joint United Nations Programme on HIV/AIDS, 2023.

68 United Republic of Tanzania. National multi-sectoral strategic framework on HIV and AIDS 2021–2026. Tanzania Commission for AIDS. 2021. https://www.tacaids.go.tz/uploads/documents/en-1676620457-NMSF%20V%202021-2026.pdf (accessed May 27, 2025).

69 Shayo EH, Murdoch J, Kiwale Z, et al. Management of chronic conditions in resource-limited settings: multi-stakeholders' perception and experiences with receiving and providing integrated HIV, diabetes and hypertension services in Tanzania. *BMC Health Serv Res* 2023; **23:** 1120.

70 Mahlangu P, Vearey J, Thomas L, Goudge J. Implementing a multi-sectoral response to HIV: a case study of AIDS councils in the Mpumalanga province, South Africa. *Glob Health Action* 2017; **10:** 1387411.

71 Elendu C, Amaechi DC, Elendu TC, et al. Shaping sustainable paths for HIV/AIDS funding: a review and reminder. *Ann Med Surg* 2025; **87:** 1415–45.

72 Karris MY, Dubé K, Moore AA. What lessons it might teach us? Community engagement in HIV research. *Curr Opin HIV AIDS* 2020; **15:** 66–70.

73 Lauer KJ, Soboyisi M, Kassam CA, et al. Defining community-led monitoring and its role in programme-embedded learning: lessons from the Citizen Science Project in Malawi and South Africa. *J Int AIDS Soc* 2024; **2024:** 26277.

74 Republic of Namibia Ministry of Health and Social Services. Social contracting for health services policy. Republic of Namibia Ministry of Health and Social Services. Oct 31, 2023. https://www.epdn.org/Uploads/1%20Namibia_Social%20Contracting%20Policy%20for%20Health%20Services%20Final%20Signed_31-10-23%20(1)%20(1)_c7bf.pdf (accessed July 31, 2025).

75 Karan A, Hartford E, Coates T. The potential for political leadership in HIV/AIDS communication campaigns in sub-Saharan Africa. *Glob Health Action* 2017; **10:** 1270525.

76 Dzinamarira T, Rwibasira G, Mwila L, et al. Advancing sustainable HIV services through integration in primary healthcare in sub-Saharan Africa: a perspective on practical recommendations. *Healthcare* 2025; **13:** 192.

77 Chamanga R, Musukwa T, Kalitera L, et al. Examining teen club attendance and viral load suppression among adolescents under differentiated HIV care in Malawi: a sub-optimal scenario. *BMC Public Health* 2024; **24:** 3605.

78 Lenz C, Rabaholo T, Mphafi M, et al. Lessons from the field: understanding the use of a youth tailored U=U tool by peer educators in Lesotho with adolescents and youth living with HIV. *J Int AIDS Soc* 2024; **27:** e26267.

79 Office of the US Global AIDS Coordinator and Health Diplomacy. PEPFAR 2023 Country and Regional Operational Plan (COP/ROP) guidance for all PEPFAR-supported countries. US Department of State, 2023.

80 Bhat N, Kilmarx PH, Dube F, Manenji A, Dube M, Magure T. Zimbabwe's national AIDS levy: a case study. *SAHARA J* 2016; **13:** 1–7.

81 The Global Fund. Debt2Health: collaboration through financial innovation. The Global Fund. April, 2025. https://www.theglobalfund.org/media/3k1gvfom/publication_debt2health_overview_en.pdf (accessed May 27, 2025).

82 The Global Fund. Innovative finance. The Global Fund. July 29, 2025. https://www.theglobalfund.org/en/how-we-raise-funds/innovative-finance/ (accessed July 31, 2025).

83 Tshililo AR, Mangena-Netshikweta L, Nemathaga LH, Maluleke M. Challenges of primary health-care nurses regarding the integration of HIV and AIDS services into primary healthcare in Vhembe district of Limpopo province, South Africa. *Curationis* 2019; **42:** e1–6.

84 Cao B, Bao H, Oppong E, et al. Digital health for sexually transmitted infection and HIV services: a global scoping review. *Curr Opin Infect Dis* 2020; **33:** 44–50.

85 Daher J, Vijh R, Linthwaite B, et al. Do digital innovations for HIV and sexually transmitted infections work? Results from a systematic review (1996–2017). *BMJ Open* 2017; **7:** e017604.

86 Bajwa J, Munir U, Nori A, Williams B. Artificial intelligence in health care: transforming the practice of medicine. *Future Healthc J* 2021; **8:** e188–94.

87 National Alliance of State & Territorial ADIS Directors. Re-envisioning community engagement: a practical toolkit to empower HIV prevention efforts with marginalized communities. https://nastad.org/sites/default/files/2022-08/PDF-CE-Toolkit-080222.pdf (accessed June 25, 2025).

88 Bekker LG, Alleyne G, Baral S, et al. Advancing global health and strengthening the HIV response in the era of the Sustainable Development Goals: the International AIDS Society—*Lancet* Commission. *Lancet* 2018; **392:** 312–58.