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Diagonal Investments in Health Systems: PEPFAR's Approach to Sustaining the HIV Response and Enhancing Global Health Security

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Abstract

As more countries reach the UNAIDS 95-95-95 goals, the world gets closer to achieving the Sustainable Development Goal of eliminating HIV as a public health threat by 2030. Strong health systems are essential for sustaining progress and preventing other health threats from disrupting and potentially reversing the gains that have been made in the fight against HIV. The US President's Emergency Plan for AIDS Relief has a strong track record of building capabilities in laboratories, the supply chain, disease surveillance, data analytics, and the health workforce; however, the impact on national health systems has been uneven. A diagonal approach should therefore be used going forward, blending disease-specific funding with system-strengthening investments. If this strategy is more intentional on integrating the HIV response into national health systems, including national public health institutions, while increasing resilience to other health threats, it should yield results not only for the HIV response but also for other priority diseases and broader health security.

Keywords

PEPFAR; HIV; global health security; health systems

Since its establishment in 2003, the US President's Emergency Plan for AIDS Relief (PEPFAR) has been a cornerstone in the global fight against the HIV pandemic, instrumental in saving >25 million lives and providing lifesaving antiretroviral treatment to >20 million individuals [1]. PEPFAR's remarkable achievements can be attributed in part to its strategic investments in health systems, which have not only curbed the spread of HIV but also fortified public health infrastructure. To realize the Sustainable Development Goal of ending HIV as a public health threat by 2030 and to sustain the gains made in countries with high

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HIV burden, health system investments remain critical. The recent COVID-19 pandemic underscored the vulnerability of global health gains to emerging infectious diseases [2]. COVID-19 highlighted the necessity for PEPFAR to evolve swiftly, not only to safeguard progress against HIV but also to enhance the capacity of countries to respond to new infectious disease threats. As such, investment in public health systems, particularly in capabilities for detecting and responding to health security threats, is imperative.

In this article, we look back on how PEPFAR's investments have strengthened systems over the last 20 years. We also highlight how sustained investment in health systems remains critical to sustaining the HIV response and enhancing health security in the coming years.

LOOKING BACK

In the early stages of the global HIV response, numerous countries needed to substantially strengthen technical expertise or infrastructural capacity to effectively address the multifaceted challenges presented by the emerging HIV pandemic [3]. A significant limitation in many settings was insufficient capacity to surveil and diagnose HIV; procure, store, and deliver quality medical commodities timely; or link people with HIV to treatment. During the implementation phase following establishment, PEPFAR focused on expanding access to medications and direct delivery of treatment services and put less emphasis on strengthening the overall health system needed to manage and sustain HIV services in the long term [4]. Early critics indicated that this siloed approach to HIV services in fact hindered essential priorities, such as a stronger health system [5]. As implementation progressed, it became apparent that simply making antiretrovirals widely available would be inadequate: scaling access to lifesaving treatments had to occur in tandem with the expansion of country-specific digital health information systems, robust and reliable supply chains, comprehensive disease surveillance, outbreak response infrastructure, and a strengthened health workforce. An Institute of Medicine report on PEPFAR progress in 2007 suggested that efforts should move from focusing on emergency relief toward long-term strategic planning and capacity building [6].

Through the collaborative efforts of the Global Fund to Fight AIDS, Tuberculosis and Malaria and PEPFAR, nearly \$100 billion has been invested in health systems over the past 2 decades [7]. The impact of these investments, in terms of the HIV response and the broader health systems, has been far-reaching and well documented [8-10]. Support for strengthening health information systems, for example, has been critical to expanding HIV care and treatment programs across many settings [11]. As illustrated during the 2010 earthquake in Haiti, the health information system infrastructure was effectively leveraged to rapidly establish cholera treatment centers [12-14].

Without resilient laboratory services and systems, clinics experience delays in accurate and timely HIV diagnosis and, as a result, delays to treatment. Health care providers work hand-in-hand with laboratories to monitor viral suppression and adjust treatment as needed while monitoring for drug resistance. PEPFAR's investment in laboratory infrastructure has been essential to scaling access to lifesaving diagnosis and treatments [3, 15, 16] and has enabled countries to respond to other infectious disease threats. During COVID-19, for example,

16 countries leveraged >300 PEPFAR-supported centralized and decentralized HIV and tuberculosis testing laboratories to conduct >3.4 million COVID-19 tests from April 2020 to March 2021 [17]. More recently, PEPFAR laboratories and surveillance infrastructure were utilized to increase mpox diagnostic capacity in West Africa [18].

Addressing the Human Resources for Health challenges has been important in supporting countries' HIV response. In 2010, Africa needed an additional 140 000 health care workers to combat HIV effectively [19]. Through sustained investment in preservice and in-service training and task-sharing programs, as well as support for transforming community health worker programs, PEPFAR has supported the expansion of the health workforce in many countries with high HIV burden [1]. The dividend of these investments on broader health systems has been harder to measure. Nonetheless, efforts to integrate community health workers into primary care health care systems, including advocating for them to be paid as workers rather than treated as volunteers, are likely to have broad impacts beyond HIV programs [20].

The collaborative partnership among governments, PEPFAR, the Global Fund to Fight AIDS, Tuberculosis and Malaria, and other partners and the strategic approach to pooled procurement, market shaping, and supply chain strengthening have been critical to the introduction and delivery of new and more effective and more affordable HIV treatment and prevention products. Investments in country supply chains for health have also enabled more consistent availability of HIV drugs and other health commodities at the health facility and community level. During COVID-19, countries leveraged the strengthened supply chain systems to deliver personal protective equipment, ventilators, vaccines, and other countermeasures in addition to rapidly adapting procurement and delivery practices to ensure that antiretrovirals remained available to clients [21].

LOOKING FORWARD

PEPFAR's current focus on intentional support for strengthening health systems in service of the 2030 goals represents an important and necessary shift to sustain the HIV response while benefiting the broader health system [22] and is an evolution from an emergency vertical approach. This dual focus is not new but is uniquely relevant as countries are taking greater ownership of their HIV programs [23]. The initial strategy of PEPFAR's emergency response did not emphasize investments in national health systems but rather quickly created the systems necessary for service delivery through implementation organizations. More recent PEPFAR strategies have moved from establishing programs and services outside of existing health care delivery systems to enable governments to lead and manage health service delivery themselves. The movement toward country ownership seeks to expand countries' capacity to manage the HIV/AIDS epidemic within the context of all the health concerns that they face nationally. Looking ahead, PEPFAR investments need to focus "diagonally" on accelerating to close remaining gaps in the HIV response and strengthening the health system building blocks needed to sustain the HIV response and enable long-term impact and country ownership.

A diagonal approach to health system funding combines vertical investments in disease-specific programs with horizontal investments that strengthen health systems more broadly [24]. Vertical disease-specific health investments can inadvertently result in fragmented health services, focusing resources on specific conditions and neglecting the broader health system priorities. Vertical investments can also result in siloed, parallel health system structures built for individual diseases, weakening the capacity and coordination of national health systems. A diagonal approach is especially relevant in countries that are responding to their HIV epidemics and are at high risk for other emerging infectious diseases. Uganda's response to the 2022 Ebola outbreak provides an excellent example of how PEPFAR investments have contributed to the response to HIV and other health threats [25]. HIV sample transport systems developed by PEPFAR were utilized for suspected cases of Ebola, and infection prevention information was disseminated through PEPFAR clinics and their preexisting relationships. PEPFAR will need to continue to support countries to protect HIV response gains while integrating existing PEPFAR-supported public health systems into national systems to strengthen preparedness and response capabilities to other infectious disease threats.

A diagonal, integrated approach is relevant to countries that are facing the health impacts of climate-related threats, including but not limited to extreme weather (eg, storms, floods, and wildfires), extreme temperatures (ie, heat related), food and water insecurity, and arthropod-borne infections (eg, dengue fever) [26, 27]. While each country will need to outline its own set of climate adaptation and mitigation strategies, PEPFAR investments to safeguard and sustain HIV gains can support efforts to build the prerequisite health system resilience.

CHALLENGES AND OPPORTUNITIES

As compared with vertical investments, there are many advantages to leveraging diagonal approaches to the fight against HIV going forward: they have the potential to produce a greater impact on disease and conditions beyond HIV and secure a sustained impact [28]. Unfortunately, despite 2 decades of investment, some of PEPFAR's investments in certain countries remain siloed from the broader health system. The reasons why health system investments are not better integrated are multifaceted, reflecting the complex interplay of policy factors (ie, vertical disease programming, leadership and governance, planning and strategy approaches) and operational factors (ie, infrastructure including information systems, workforce issues, difficulty measuring the disease-specific impact from more horizontal investments). Supporting more diagonal strategies will include political, programmatic, and financial shifts at all levels of the health system. A robust science agenda to better determine how best to address these challenges is critical. Closing knowledge gaps will be important, including identifying the most strategic health system investments for sustaining the HIV response and increasing resilience to other health threats. Developing validated tools for measuring the strength of health systems and assessing the impact of diagonal investments is also a high priority.

CONCLUSION

PEPFAR's strategic shift toward investing in stronger health systems has the potential not only to accelerate and sustain the gains made in the fight against HIV but also to significantly increase global health security and strengthen the response to other health needs in the next several years. This redirection of focus is anticipated to enhance the resilience and responsiveness of health systems worldwide. PEPFAR's notable achievements in augmenting laboratory capacity, reinforcing the health workforce, and enhancing infection prevention and control measures are well established [1, 17, 29]. These accomplishments provide a robust foundation for the implementation of its renewed strategy. A new diagonal focus on integrating the HIV response into national health systems, including national public health institutions, while increasing resilience to other health threats should yield results not only for the HIV response but also for other priority diseases and broader health security.

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