

PROGRAM BRIEF



**Elizabeth Glaser
Pediatric AIDS Foundation**
Fighting for an AIDS-free generation

An Advanced HIV Disease Differentiated Care Model in Malawi

Advanced HIV Disease in Malawi

In Malawi, deaths among people living with HIV began to plateau in 2016.¹ Among people living with HIV in Malawi, over 40% have a CD4 < 200, meeting the criteria for advanced HIV disease (AHD).¹ Further, 11.7% of those newly initiated onto antiretroviral therapy (ART) presented with AHD in 2019.² These trends clearly indicated that despite significant national commitment and widespread availability of ART, the current national strategy was not adequately addressing the needs of people living with HIV (PLHIV) with AHD.

The Advanced HIV Disease Differentiated Care Model in Malawi

To address this, the Ministry of Health, CDC Malawi, and the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), through support from the Bill and Melinda Gates Foundation, joined together to support the national scale-up of a refined package of AHD care, and to establish an AHD-focused quality improvement (QI) collaborative. The project launched in October 2020 across seven districts in Malawi, three of which were existing EGPAF-supported districts; the other four were districts served by other PEPFAR implementing partners. Led by dedicated AHD focal points and district ART coordinators at the district health authority (DHA), EGPAF and other partners, including facility-based QI teams, closely collaborated to ensure that the needed activities were implemented with fidelity and closely monitored.

Implementation Design

The project model made investments in several areas in order to:

- Overcome challenges in access and availability
- Improve diagnostic access and efficiencies within the clinics
- Improve patient flow processes across the various service delivery points (inpatient, outpatient, and ART clinics)
- Improve capacity of health teams to screen, diagnose, and treat with intensive trainings, job aids, and systematic on-site mentorship
- Provide accelerated services through Quality Improvement activities targeted towards AHD screening, diagnosis of opportunistic infections (OIs), treatment of OIs, and viral load suppression
- Improve patient literacy, patient quality of care, and support services
- Invest in data systems to support service delivery and rapid adaptations to continuously refine the models of care

¹ Malawi Spectrum 2021 (v14)

² Paul Nyasulu. Advance HIV Disease Update: Malawi. CQUIN presentation. July 2020. https://cquin.icap.columbia.edu/wp-content/uploads/2020/07/AHD-Meeting_Malawi-Presentation.pdf

Improve access to AHD services through a hub-and-spoke model of decentralized service delivery

EGPAF supported the implementation of the hub-and-spoke model across 136 district health facilities (hub sites), with each hub being part of a referral system with four to six spoke sites, or community-level health facilities. The hub-and-spoke model increased entry points into the healthcare system for AHD clients and made the national AHD program more responsive to patient needs and proactive in addressing barriers to screening, diagnosis, and treatment in a resource-limited setting. To ensure patient referrals across health facilities, communications and linkages between the hub-and-spoke referral networks were strengthened, and dedicated sample transport pathways were developed. In addition, health workers at spoke sites had more control to request sample pickup, as the new transport pathways operated as a pull system instead of a push system.

Table 1. AHD Service Provision within Hub-and-Spoke Model

	Spoke Sites (ART, OPD)	Hub Sites (ART, IPD, OPD, LAB)
Screening and diagnosis	Sample referral system to hub: <ul style="list-style-type: none"> • CD4 • CrAg – serum • TB diagnostic including TB LAM, GeneXpert 	<ul style="list-style-type: none"> • Clinical assessment • CD4 • CrAg – blood/CSF • TB diagnostics including TB LAM, GeneXpert • Lumbar puncture • Hematology & chemistry • Referral hub for spoke site
Prophylaxis and preemptive treatment	<ul style="list-style-type: none"> • TB Preventive Therapy (TPT) • Cryptococcal preventive therapy - Fluconazole 	<ul style="list-style-type: none"> • TB Preventive Therapy (TPT) • Cryptococcal Preventive Therapy – Fluconazole
Treatment	<ul style="list-style-type: none"> • TB Treatment • Continuation of ART • Cryptococcal care (consolidation & maintenance therapy) 	<ul style="list-style-type: none"> • Clinical Expertise • Cryptococcal Meningitis Treatment • TB Treatment • Other Opportunistic Infections Treatment • Appropriate ART timing
Adherence Support	<ul style="list-style-type: none"> • Counseling • Community-based support/home visit 	<ul style="list-style-type: none"> • Counseling • Community-based support/home visit

Figure 1 illustrates the AHD cascade for PLHIV at three district hospitals in Malawi, with 43% of PLHIV presenting with AHD over the January – April 2023 period. Among the 1,175 PLHIV eligible for AHD screening in the three district hospitals, 461 were newly diagnosed as HIV positive (39.2%), 249 were returning to care after ART interruption (21.2%), 140 had a high viral load (11.9%), and 325 were without a CD4 count but met criteria for WHO stage 3 or 4 (27.7%).

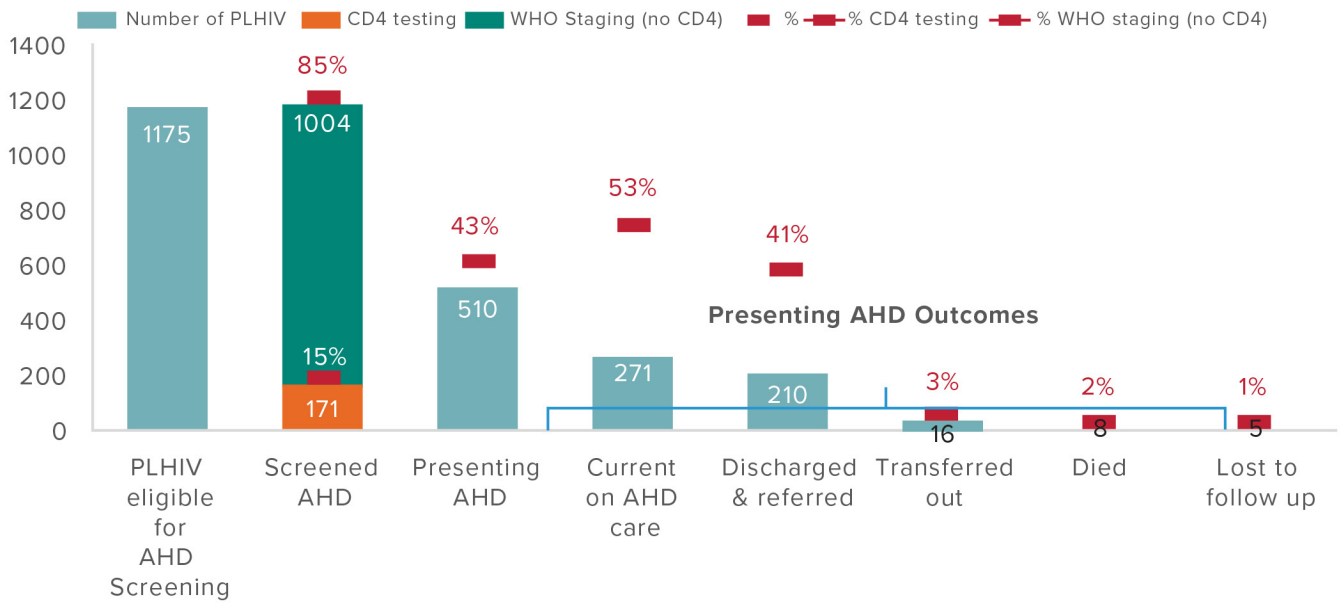


Figure 1. AHD cascade and outcomes at from three district hospitals in Malawi, Jan-Apr 2023

Improved diagnostic access and efficiencies within the clinics

The use of reflex CrAg and TB LAM testing allowed for the collection of multiple samples at one time, which improved the turnaround time for TB and cryptococcal meningitis tests and allowed for diagnosis of opportunistic infections to be decentralized to the spoke sites. Previously, clients with AHD were sequentially tested for CD4 count, then TB, then cryptococcal meningitis separately. The use of TB LAM as a rapid, point-of-care diagnostic was part of a comprehensive diagnostic cascade for TB that included symptomatic screening and other testing (i.e. x-ray), to ensure that resources were utilized effectively. Figure 2 highlights the high TB positivity among patients presenting with AHD, with 38% of males and 37% of females respectively. TB treatment initiation was particularly successful, with 100% of those diagnosed with TB initiated onto TB treatment in the AHD cohort. This result emphasizes the benefits of providing TB diagnostics at various entry points and demonstrates that the hub-and-spoke model can effectively initiate patients onto TB treatment.

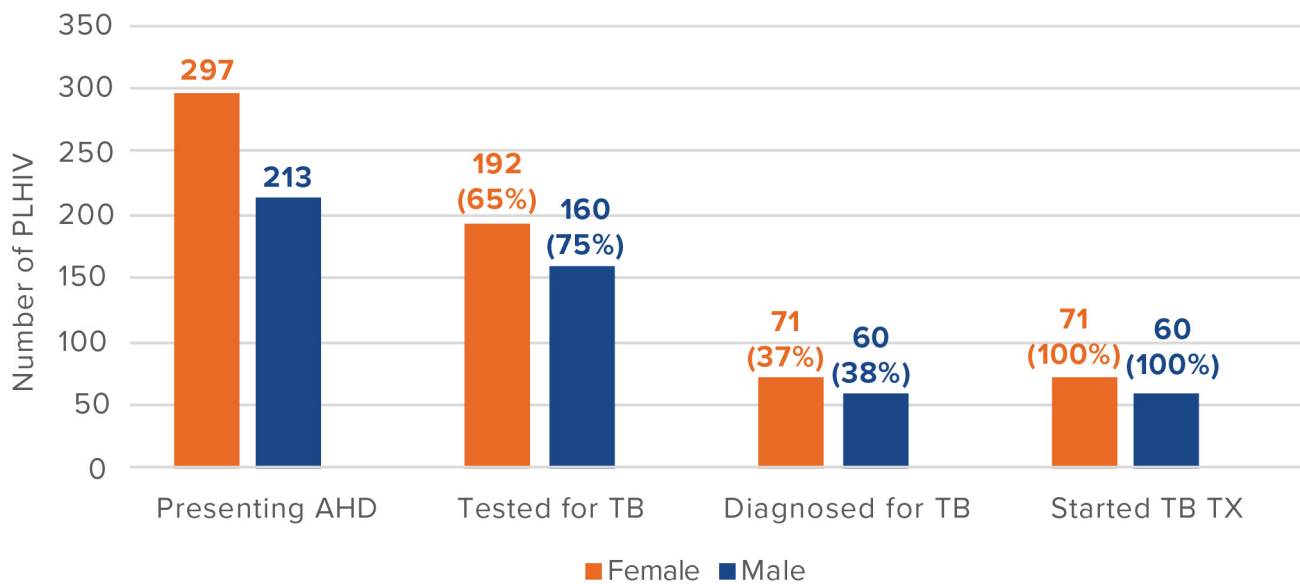


Figure 2. TB cascade among patients presenting with AHD at three district hospitals in Malawi, Jan-Apr 2023

Strengthened capacity of health teams to screen, diagnose, and treat AHD

EGPAF developed an intensive six-day training curriculum on AHD to build the capacity of national and district-level MoH managers and site-level healthcare workers. The robust curriculum was supported by several standards of practice, job aids, and structured visits by mentorship teams, which were composed of experienced EGPAF clinical & MoH staff.

Key Takeaways

- Strong collaboration and stakeholder engagement at facility, district, and national levels, spearheaded by dedicated AHD focal persons, fosters an enabling environment and encourages action towards a common goal: improving outcomes for people living with AHD.
- The hub-and-spoke model is an effective way to decentralize AHD services and bring service delivery closer to clients.
- Decentralization of tests to spokes and service delivery points (rather than labs) has improved uptake in sites (point-of-care or POC testing). Need to further decentralize and scale up POC CD4 testing. It's possible and beneficial to diagnose TB and Cryptococcal meningitis at the spokes.
- It's important to train clinicians and nurses to adequately act upon the results of rapid diagnostics and enable them to use novel therapeutics.
- We recognize the need to accelerate greater adoption of electronic systems to support monitoring of patients and the AHD program.
- The project has developed packages that can easily be further scaled-up at the national level, in addition to being used to support other countries.