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

Utilizing a Qualitative Improvement Collaborative to Scale Practical Models for Advanced HIV Disease Services and to Strengthen Capacity for Service Delivery in Malawi

EGPAF Malawi

The Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) is a global leader in the fight to end HIV and AIDS. With 30 years of experience, EGPAF currently supports delivery of lifesaving HIV prevention, diagnosis, and treatment services across 17 countries. EGPAF is a key partner to the Ministry of Health (MOH) and a cornerstone of HIV programs in Malawi. EGPAF has worked in Malawi since 2001, initially helping to carve the pathway towards ending HIV by initiating the first prevention of mother-to-child HIV transmission (PMTCT) program, contributing to implementation of life-long antiretroviral therapy (ART) in pregnant and postpartum women (Option B+), and scaling up Test and Start. Now, surging forward towards epidemic control, EGPAF supports comprehensive HIV services at 179 PEPFAR priority sites across nine districts through the U.S. Centers for Disease Control and Prevention (CDC)-funded project.

Context: Advanced HIV Disease in Malawi

In Malawi, deaths among people living with HIV began to plateau in 2016.[1] Among people living with HIV (PLWH) 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 AHD.

To address this, the Ministry of Health, CDC Malawi, and 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 collaborative had two explicit goals:

1. To improve outcomes of the AHD program by defining and scaling practical models for providing access to AHD services for PLWH in Malawi
2. To disseminate these models as best practices for other countries with similar disease burden and resource constraints via mechanisms such as the CQUIN Advanced HIV Disease Community of Practice and the UNITAID/CHAI project for AHD

The project launched in October 2020 across seven districts in Malawi, three of which were existing, EGPAF-supported districts, and the other four were districts served by other PEPFAR-implementing partners. Lead by dedicated AHD focal points and district ART coordinators at the Department of HIV/AIDS (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

- Overcame challenges in access and availability
- Improved diagnostic access and efficiencies within the clinics
- Improved patient flow processes across the various service delivery points (inpatient, outpatient, and ART clinics)

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

- Improved capacity of health teams to screen, diagnose, and treat with intensive training, job aids, and systematic on-site mentorship
- Accelerated service provision through QI
- Improved patient literacy, patient quality of care, and support services
- Invested in data systems to support service delivery and rapid adaptations to continuously refine the models of care

Overcame limited infrastructure availability through a hub-and-spoke model of decentralized service delivery

EGPAF supported the implementation of the hub-and-spoke model across 136 hub sites, with each hub having an additional four to six spoke sites. The hub-and-spoke model increased entry points for people living with AHD and made the national AHD program more responsive to patient needs and more proactive in addressing barriers to screening, diagnosis, and treatment in a resource-limited setting. To ensure patient referral across health facilities and communities, communications and linkages between the hub-and-spoke referral networks were strengthened, and dedicated sample transport pathways were developed. In addition, healthcare 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. Figure 2 illustrates how the hub-and-spoke model effectively increased in increasing AHD screening, diagnosis, and CD4 testing among people living with HIV.

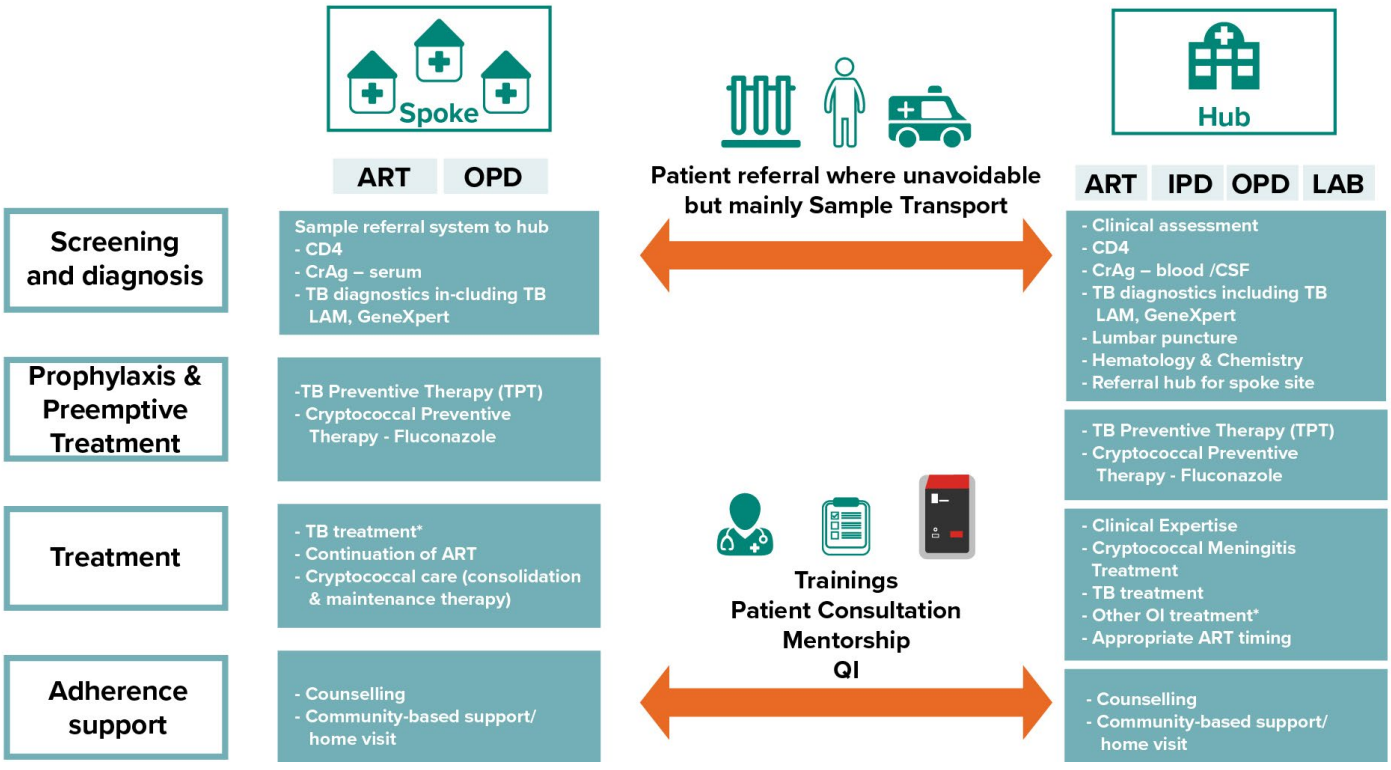

Figure 1: Operationalizing the Hub and Spoke Model

Improved diagnostic access and efficiencies within the clinics

The use of standard initial testing for cryptococcal antigen (CrAg) and use of TB diagnostics like urine TB lipoarabinomannan (LAM) testing allowed for the collection of multiple samples at one time, which improved the turnaround time for TB and cryptococcal meningitis diagnostic 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, and then cryptococcal meningitis, separately.

These use of urine TB LAM as a rapid, point-of-care diagnostics was part of a comprehensive diagnostic cascade for TB that included symptomatic screening and other testing, like x-ray, to ensure that resources were utilized effectively. Improved diagnostic efficiency and capacity building for providers at the spoke sites ensured

that high rates of TB LAM testing, TB diagnosis, and initiation onto treatment were maintained, even as client volume increased significantly to three times as many clients in Q1 of PY22 as compared to baseline (see Figure 4 & Table 1).

Optimized patient flow processes across various service delivery points

The relocation of CD4 testing to the local service delivery point and the availability of AHD registers at both the ART clinic and inpatient service delivery points made client tracking easier to follow. It also improved workflows for service providers at the service delivery points.

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

EGPAF developed an intensive, six-day training curriculum to build the capacity of national and district-level MOH managers and site-level healthcare workers on AHD. 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 and MOH staff.

For example, EGPAF worked at the facility level to make minor refurbishments so that sites could provide paclitaxel treatment for Kaposi sarcoma. This included the creation of a room for demonstration and skills training for paclitaxel administration in the local service delivery facility.

Accelerated service provision through QI

The QI collaborative was established across all 43 sites providing a comprehensive AHD package of care in collaboration with the Quality Management Directorate, Department of HIV/AIDS, and Central Monitoring and Evaluation Division of the Malawi Ministry of Health, health facility managers, facility staff, and other implementing partners. The QI collaborative carried out 106 quality improvement activities (shown in Figure 2) across four priority areas: AHD screening, diagnosis of opportunistic infections (OIs), treatment of OIs, and viral load suppression. The breakdown of QI activities by area is shown in the chart below. Each facility developed a QI team, and 28 providers were specifically trained as AHD QI mentors.

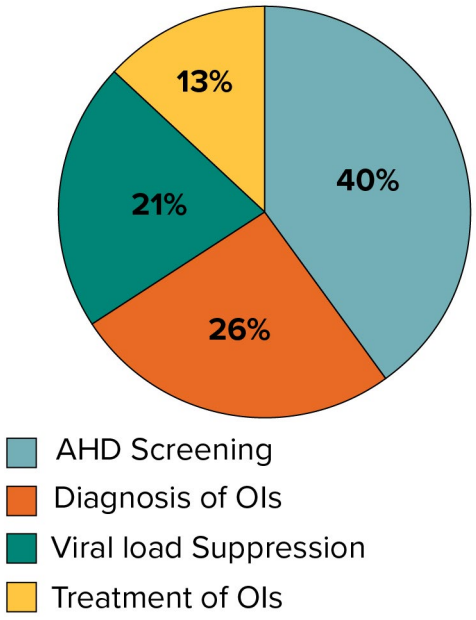

Figure 2: Quality Improvement Activities

Improved patient literacy, patient quality of care, and support services

Retention in care is crucial for people with AHD, and patient literacy, quality of care, and support services are key factors that influence patients desire to remain in care and treatment. EGPAF developed a case management and adherence package and a treatment literacy package. Figure 5 illustrates the outcomes for people living with AHD enrolled in the model from January 2021 - March 2022. Over 90% of patients with OIs were initiated onto treatment, and over 85% were retained into care at the six month mark.

Invested in data systems to support service delivery and rapid adaptations to continuously refine the models of care

At the national level, the QI collaborative adapted all AHD and QI tools being used in Malawi to ensure that they properly supported the efficient data collection at all decentralized sites. This included the AHD register, client treatment cards, and dedicated dashboards for AHD data. This approach allowed for a faster response to trends in the data, making programs more reactive to client and site needs.

The continued supply of key commodities was a persistent challenge, due to the short shelf life of the products and delays in stocking replacements. To address this, a dedicated commodity monitoring system was developed for facilities, that supplemented the existing DHA system. This allowed for close monitoring of key AHD diagnostics and commodities and enabled facility teams to proactively advocate to DHA to meet their supply needs.

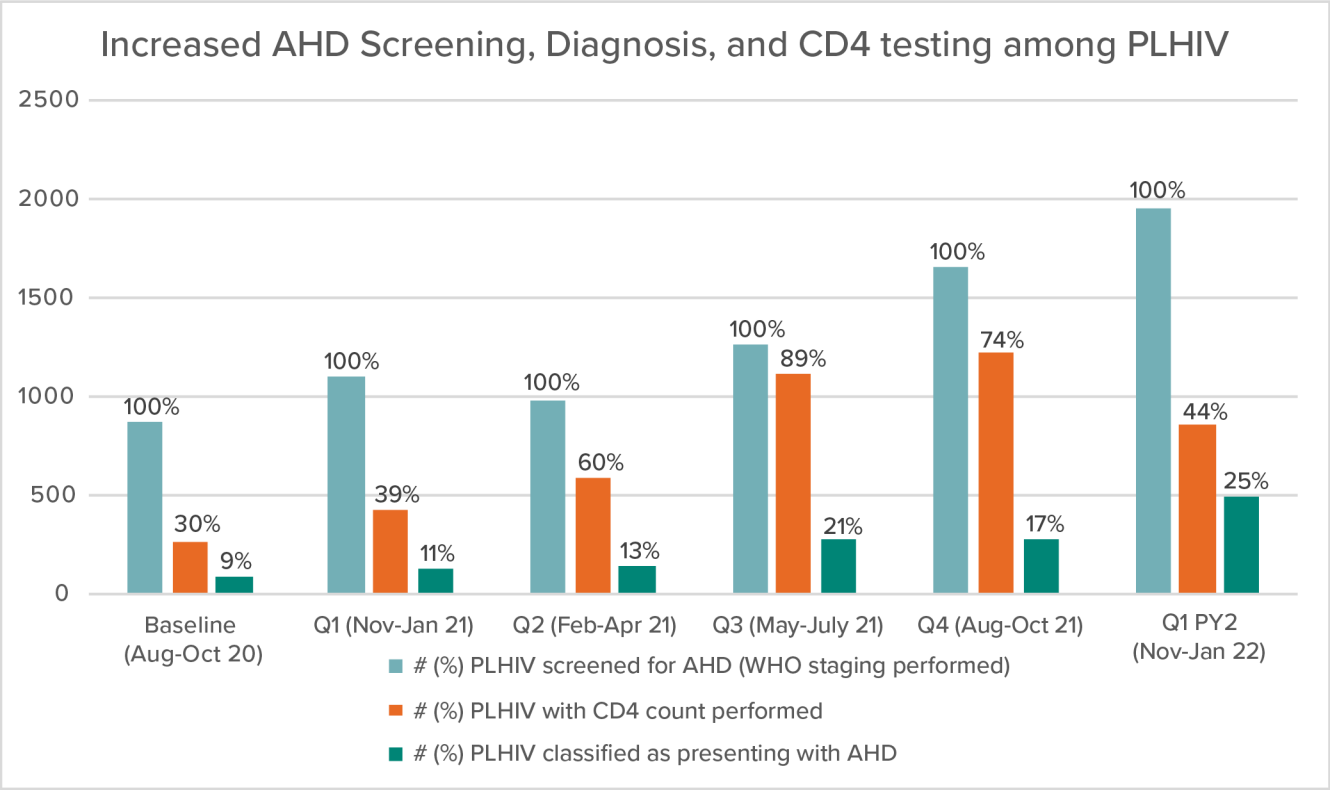

Figure 3: Increased AHD Screening, Diagnosis, and CD4 testing among PLHIV

Note: Significant national supply chain challenges during Q4 & Q1 of PY22.

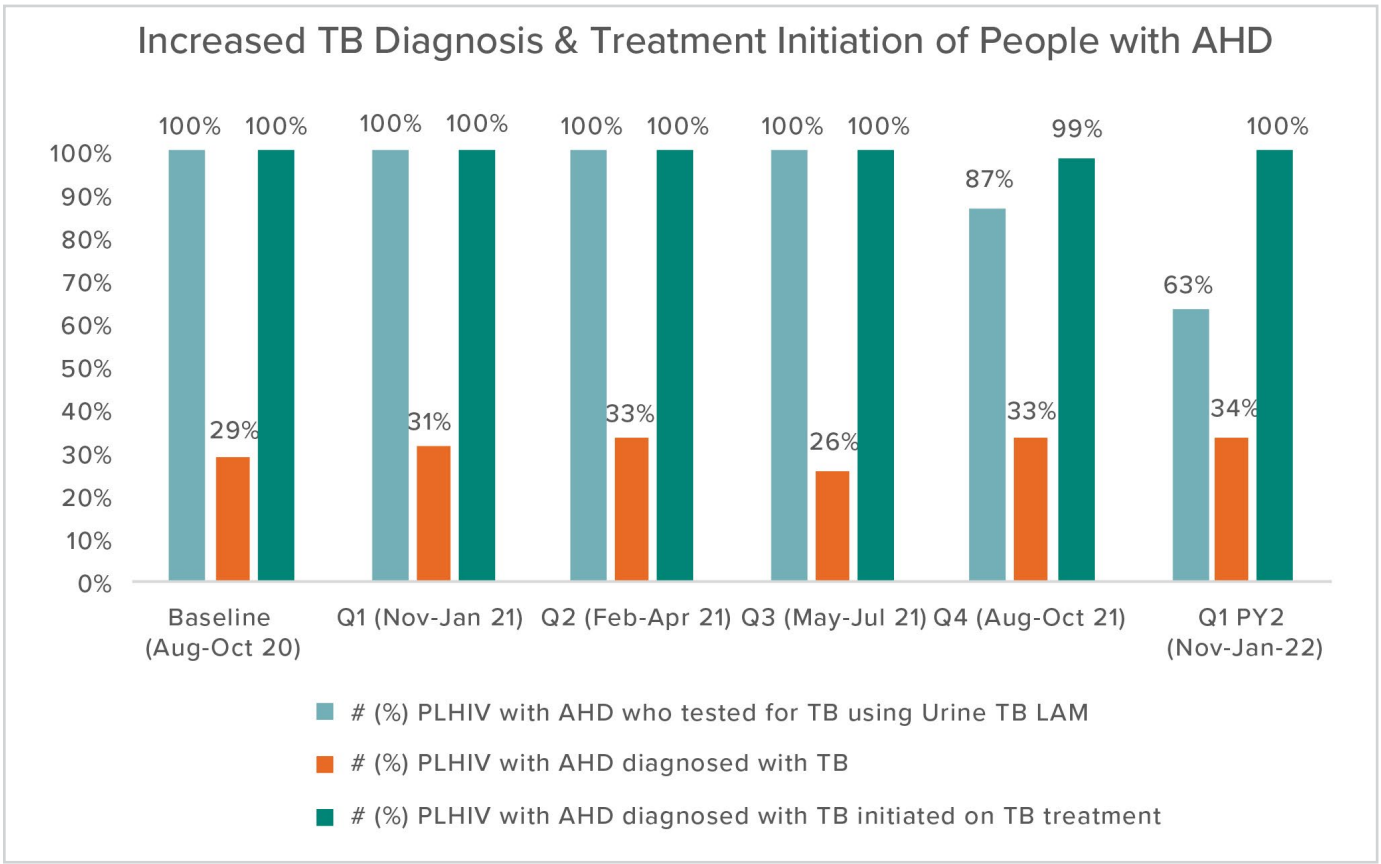

Figure 4: Increased TB Diagnosis & Treatment Initiation of People with AHD

Note: Decreased percentage of TB LAM testing still demonstrates an overall increase in TB LAM usage (243 in Q4 to 385 in Q1 PY2).

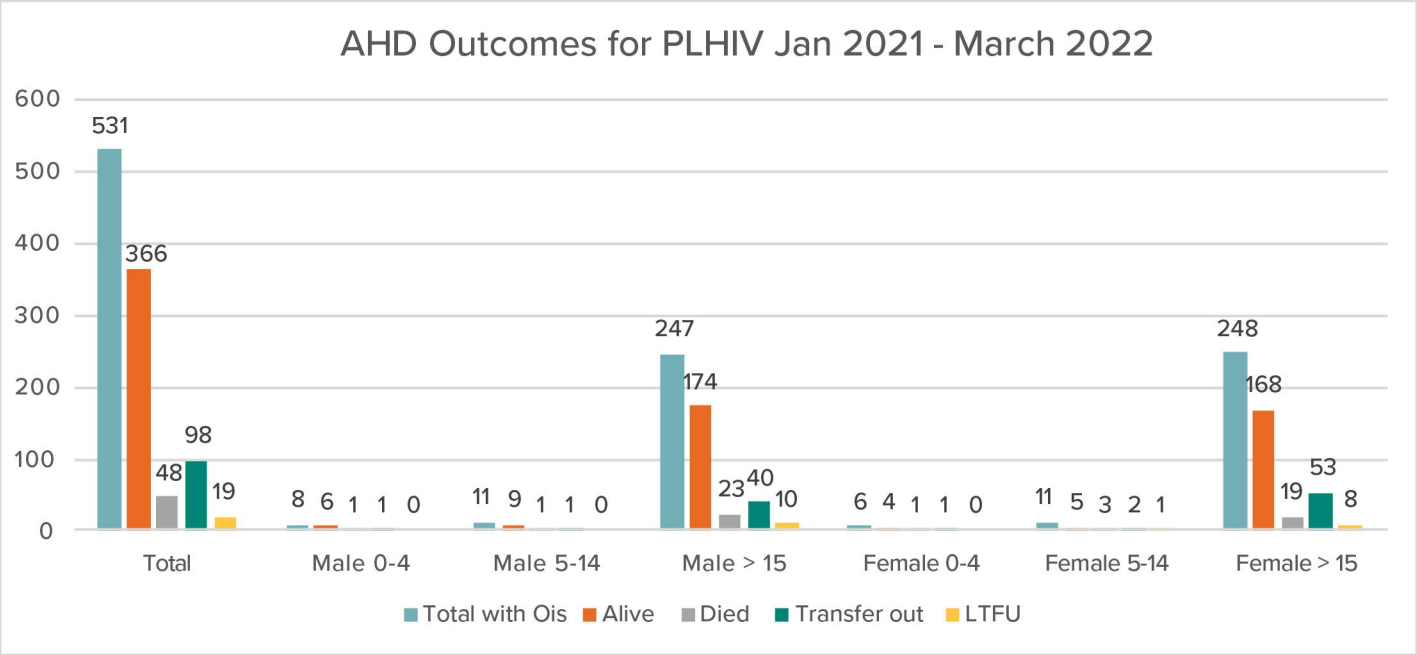

Figure 5: AHD Outcomes for PLHIV Jan 2021-March 2022

Lessons Learned and Key Takeaways

- Strong collaboration and stakeholder engagement at facility, district, and national levels fosters an enabling environment and encourages dedicated action towards a common goal: improving outcomes for people living with AHD.
    - Dedicated focal person within the facilities is key to coordinate amongst partners.
- Hub-and-spoke model is an effective way to decentralize AHD services and bring service delivery closer to clients.
- Decentralization of the conduct of diagnostic testing to spokes and service delivery points (rather than sending out to central laboratory) improved uptake in sites (POC testing). Need to further decentralize and scale POC CD4 testing. Possible to diagnose TB and Cryptococcal meningitis at the spokes.
- Monthly commodity tracking is helpful and determines use of products (therapeutics and diagnostics), minimizes stockouts, and improves uptake of services.
- Important to train clinicians and nurses to adequately act on the results of rapid diagnostics and enable them to use novel therapeutics.
- Need to accelerate greater adoption of electronic systems to support monitoring of patients and AHD programs.
    - Utilization of AHD register made client tracking easier to follow within AHD clinics, though it is labor intensive, and gaps remain in service providers documenting key variables.
- The project developed packages that can easily be scaled at the national level in addition to use in other countries.

Table 1: Progress against key AHD Targets November 2021 – January 2022.

Indicator	EGPAF Results							Annual Targets
	Baseline (Aug – Oct 20)	PY 1				PY2	Cumulative Results	
		Q1 (Nov – Jan 21)	Q2 (Feb-Apr 21)	Q3 (May – Jul 21)	Q4 (Aug-Oct 21)	Q1 (Nov – Jan 22)		
AHD Screening								
# (%) PLHIV with WHO staging performed	864 (100%)	1095 (100%)	981 (100%)	1256 (100%)	1647 (100%)	1951 (100%)	6930 (100%)	100%
# (%) PLHIV with CD4 count performed	258 (30%)	422 (39%)	589 (60%)	1112 (89%)	1226 (74%)	851 (44%)	4200 (67%)	90%
# (%) PLHIV screened for AHD	864 (100%)	1095 (100%)	981 (100%)	1256 (100%)	1647 (100%)	1951 (100%)	6930 (100%)	90%
AHD Classification								
# (%) PLHIV classified as presenting with AHD	80 (9%)	128 (11%)	136 (13%)	269 (21%)	281 (17%)	487 (25%)	1301 (19%)	
TB Diagnosis and treatment								
# (%) PLHIV with AHD who tested for TB using Urine TB LAM	80 (100%)	128 (100%)	136 (100%)	269 (100%)	243 (87%)	305 (63%)	1081 (83%)	90%
# (%) PLHIV with AHD diagnosed with TB	23 (29%)	40 (31%)	45 (33%)	66 (26%)	92 (33%)	103 (34%)	346 (33%)	
# (%) PLHIV with AHD diagnosed with TB initiated on TB treatment	23 (100%)	40 (100%)	45 (100%)	66 (100%)	91 (99%)	103 (100%)	345 (100%)	100%
CM Diagnosis								
# (%) PLHIV with AHD tested for cryptococcal infection using Serum CrAg	80 (100%)	128 (100%)	136 (100%)	258 (96%)	219 (78%)	288 (59%)	1029 (80%)	90%
# (%) PLHIV with AHD who tested positive for CI using Serum CrAg LFA	11 (13%)	12 (9%)	11 (8%)	18 (7%)	12 (6%)	10 (4%)	63 (6%)	
# (%) PLHIV with AHD who tested positive using CSF CrAg LFA	-	-	-	-	9 (75%)	6 (60%)	-	
# (%) PLHIV with AHD diagnosed with CM initiated on CM treatment	-	-	-	-	8 (89%)	6 (100%)	-	