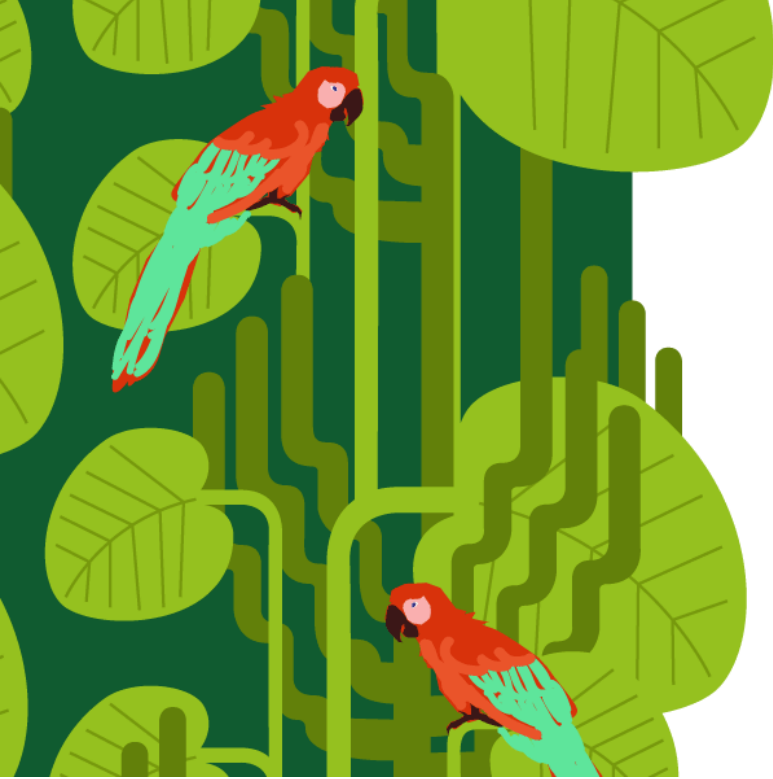




The true cost of delivering effective AHD screening and prevention packages

Ana Moore, CHAI

Unfinished business: Ending preventable deaths from advanced HIV disease in a changing HIV response



 **AIDS 2026**



 **AIDS 2026**

Goals of this presentation:

1

Present the cost-effectiveness of AHD commodities and services

2

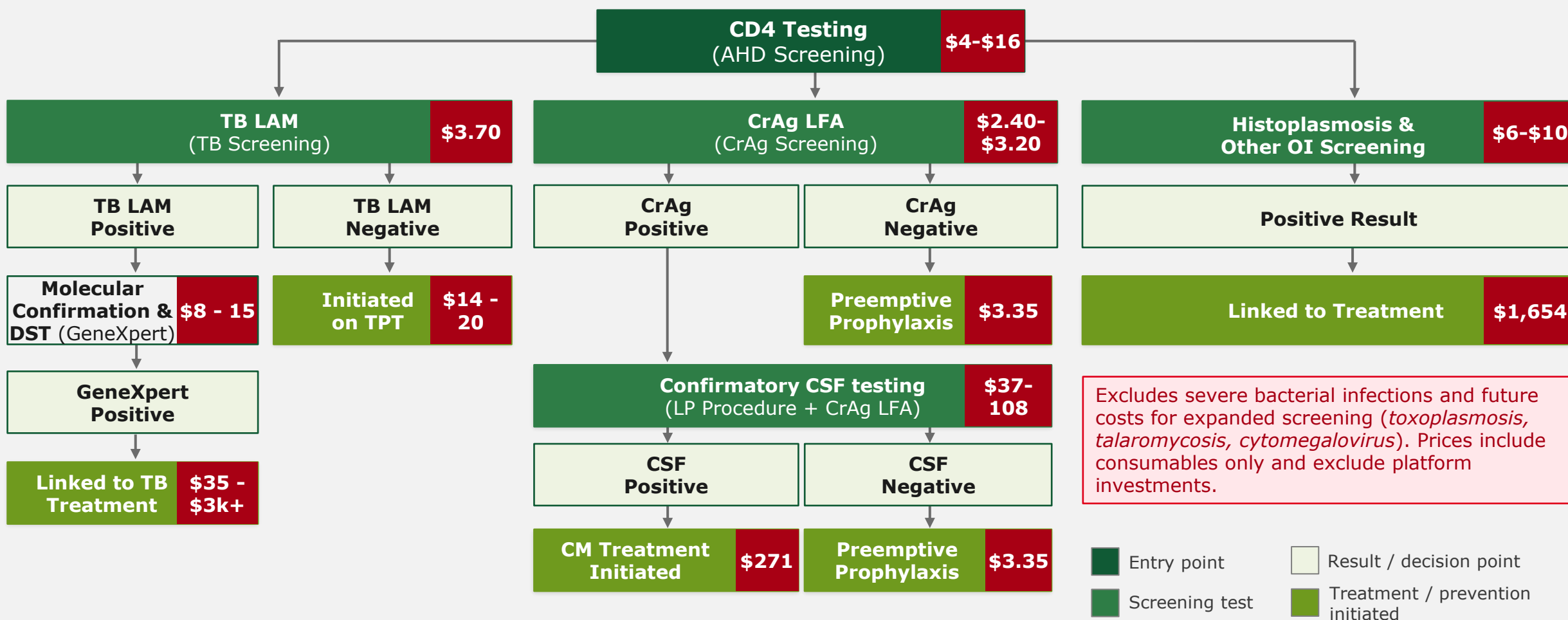
Emphasize the cost of *not* providing the package of care and the impact on preventable morbidity and mortality



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The WHO-recommended AHD package of care is deliberately simple and appears cost-effective; timely presentation matters

WHO 2022 consolidated guidelines: comprehensive package for all PLHIV with CD4 <200





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As programs finalize HIV budgets, the clinical impact and cost effectiveness of AHD must be emphasized

THE LANCET
Global Health

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Clinical impact and cost-effectiveness of the WHO-recommended advanced HIV disease package of care

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Methods:

- Simulated adults initiating/reinitiating ART in Malawi (25% with AHD).
- Compared 13 strategies, ART-only up to the full WHO AHD package (sputum Xpert + urine-LAM + TB preventive therapy + serum CrAg/pre-emptive fluconazole + co-trimoxazole).
- Threshold for cost-effective: <\$600/QALY (2023 Malawi GDP per capita).
- 5-year budget impact modelled for 80,000 people initiating ART.

TB



↓ **30%**

CM



↓ **25%**

SBI



↓ **38%**

1-year reduction in deaths vs ART-only

Cost effectiveness



\$580/QALY

Incremental cost effectiveness ratio (ICER) for the full package — cost-effective vs the \$600/QALY threshold

Greatest life expectancy of all 13 strategies tested

Budget impact



- **15% incremental budget requirement (vs ART-only)**
- In Malawi, the total cost of providing the package of care to 80,000 people over 5 years cost \$51M vs \$44 for ART only representing **2% of Malawi's 2022–23 external HIV budget**

Bottom line: the package is **cost-effective** but not **cost-saving** — it extends life, which itself adds ART/care costs. Authors conclude

1. WHO package of care “should be made widely available in Malawi and similar settings”
2. CD4 testing remains essential to identify asymptomatic AHD, even in the Treat-All era.



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The later a client presents to care, the more costly the intervention; more importantly, the lower the chance of survival

Total cost per patient episode ¹	Commodity cost	Hospital costs	Total cost	Probability of survival ²
Outpatient (CrAg-)	\$8-\$21	—	\$8 - \$21	~91% 6-mo survival, CrAg-negative
CrAg+, titre <1:160 (fluconazole)	\$19 - \$133	—	\$19 - \$133	~87% fluconazole alone adequate at low titre
CrAg+, titre 1:160-639 (fluconazole)	\$19 - \$133	—	\$19 - \$133	~65-75% 2.6x risk vs low titre; fluconazole often inadequate
CrAg+, titre ≥1:640 (needs CM-level care)	\$335	\$1,706	\$2,041	<30% fluconazole fails; effectively converges to CM treatment
Outpatient (TB LAM -ve)	\$9.31 - \$21.88	—	\$9.31 - \$21.88	~90-93% 1-yr survival, LAM-negative outpatients
Outpatient (TB LAM +ve)	\$17.28 - \$29.85	—	\$17.28 - \$29.85	~65-75% 1-yr survival, LAM-positive outpatients
Inpatient (CM, L-AmB + 5FC)	\$335	\$1,706	\$2,041	~75% 10-wk survival, AMBITION-cm regimen
Inpatient (TB, first-line regimen)	\$70 - \$419	\$348 - \$1,503	\$418 - \$1,922	~70% 2-mo survival, hosp. HIV/TB (range 54-88% by risk)
Inpatient (Severe histoplasmosis)	\$988 - \$4,038	\$1,921	\$2,908 - \$5,959	~50-65% survival with treatment, LAC cohorts



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Data from national programs highlights key gaps between eligible clients who have received the package and what is recommended

Common gaps between recommended and implemented AHD packages



CD4 testing at ART initiation

Ideal: 100% of new ART starts

Actual: 16-83% in four assessed countries



Inpatient AHD identification

Ideal: Systematic CD4 + OI screen on admission

Actual: Rarely protocolised; depends on clinician



TB-LAM testing (CD4 <200)

Ideal: All patients with CD4 <200

Actual: 5-60% in four assessed countries; stockouts are frequent



CrAg reflex testing

Ideal: All LAM-tested or CD4 <200

Actual: 25-100% in four assessed countries

Linkage to care is complicated by cost and hesitation of HCWs to perform and of patients to receive a lumbar puncture



Fluconazole prophylaxis

Ideal: All CrAg+ receive pre-emptive Rx

Actual: Inconsistent; supply chain failures



CM treatment (L-AmB + 5FC)

Ideal: Full course for confirmed CM

Actual: L-AmB/AmB-D often available; 5FC rarely so

• Red = critical gap (routine data) • Amber = significant gap



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Ensuring people receive care requires a careful consideration of how commodities and services reach them

Essential AHD diagnostics and therapeutics are available — but reaching patients is hard

Available Diagnostics

CD4 Reagents & QC Materials
AHD diagnosis

TB LAM Urine Test
TB screening

CrAg LFA
CrAg screening

Available Therapeutics

Fluconazole
CM prophylaxis

Amphotericin B
CM treatment

Flucytosine
5FC combination



Barriers between eligible clients and AHD care



Patient- and Service Level

- Fears of stigma and disclosure
- Late recognition/misdiagnosis
- Disengagement from care
- Cost of seeking care
- Distrust of conventional health services



Health System

- Missed clinical opportunities
- Diagnostics access gaps
- Fragmented entry points
- HCW capacity and training gaps
- Weak defaulter tracing



Structural

- Constrained AHD funding
- Weak community-facility linkage
- Fragmented integration
- Limited M&E visibility



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Addressing structural barriers requires market shaping, strengthening referral networks, and improving F&Q and stock management



Key health system and structural gaps between clients and AHD care

Barrier		Solution
Diagnostics access gaps	➔	Revisit min. package of care at different levels; consider centralizing CrAg/LAM testing & stock management at district hub with satellites batch samples
HCW capacity and training gaps	➔	Task-shift AHD screening and point-of-care testing to trained lower-cadre staff; adopting digital tools to ease HCW burden on reporting
Constrained AHD funding	➔	Pool & consolidate procurement — Global Fund/ PEPFAR pooled volumes; market-shaping for LAM & 5FC
Weak community-facility linkage	➔	Formalize community-facility referral and sample-transport networks
Fragmented integration	➔	Embed AHD commodities in existing MoH pharmacy/ART workflows rather than parallel systems
Limited M&E visibility	➔	Annual forecasting, real-time reporting and quarterly stock reviews



Ensuring access to CD4 remains critical as the gateway to the package of care

CD4 landscape: currently available options and those close to market entry

Manufacturer	Product	Sample	Status	Price / Instrument	Price / Test Source
SRA-approved & commercially available					
Abbott Rapid Dx Germany	PIMA CD4 — quantitative POC		Venous / capillary blood	Instrument discontinued Cartridges & service continue	\$6,095 UNICEF SD \$9.29–\$15.98 <i>Abbott, July 2026</i>
Beckman Coulter USA	Aquios CL — conventional flow cytometer		Venous whole blood	Available	<i>Not publicly available</i> €7.30 ¹ <i>Beckman Coulter, 2024</i>
Sysmex Partec Germany	CyFlow — near-POC conventional		Venous whole blood	Available	\$20,000+ (est.) \$3.00 ^{1,2} <i>Sysmex, January 2025</i>
AccuBio UK	VISITECT CD4 Advanced Disease (200-cell cutoff)		Venous / capillary blood	Available	<i>Not required</i> \$4.18 <i>Global Access Price, June 2026</i>
Not yet SRA-approved					
AccessoBio USA	VITA CD4 — quantitative POC		Venous / capillary blood	In development WHO PQ targeted EOY '27	~\$7.00 <i>AccessoBio, January 2026</i>



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What needs to happen? What is achievable within existing budgets? What requires additional investment?



National programs

Optimize CD4 testing networks and referral pathways especially between inpatient and outpatient care

Identify highest priority populations, facilities and right size the package of care to maximize reach within available resources

Itemize and protect AHD commodities within HIV program budgets; flag urgent gaps

Adopt standardized F&Q tools and WHO's minimum data set; run regular review cycles

Expand systematic CD4 testing coverage, esp at ART initiation and decentralized sites; scale up supporting solutions for VISITECT (reader & EQA)

Establish stock visibility and emergency redistribution systems to prevent stockouts and expiries



Funders

Explicitly protect/ring-fence AHD commodity allocations during donor transitions

Support country-level AHD costing to baseline true expenditure vs. need

Collaborate and share data to drive market transparency and stabilize the markets for AHD commodities particularly CD4 and 5FC

Support innovative solutions to improve efficiency and effectiveness of M&E and PSM systems

Secure volume guarantees and long-term agreements for CD4, TB-LAM, and CM treatment commodities

Ensure national HIV financing mechanisms (MOUs, Global Fund grants) explicitly name and fund AHD commodities and services



Partners, inc. CSOs

Document and disseminate true AHD service delivery costs to inform national advocacy

Build AHD M&E into integrated HIV program monitoring systems

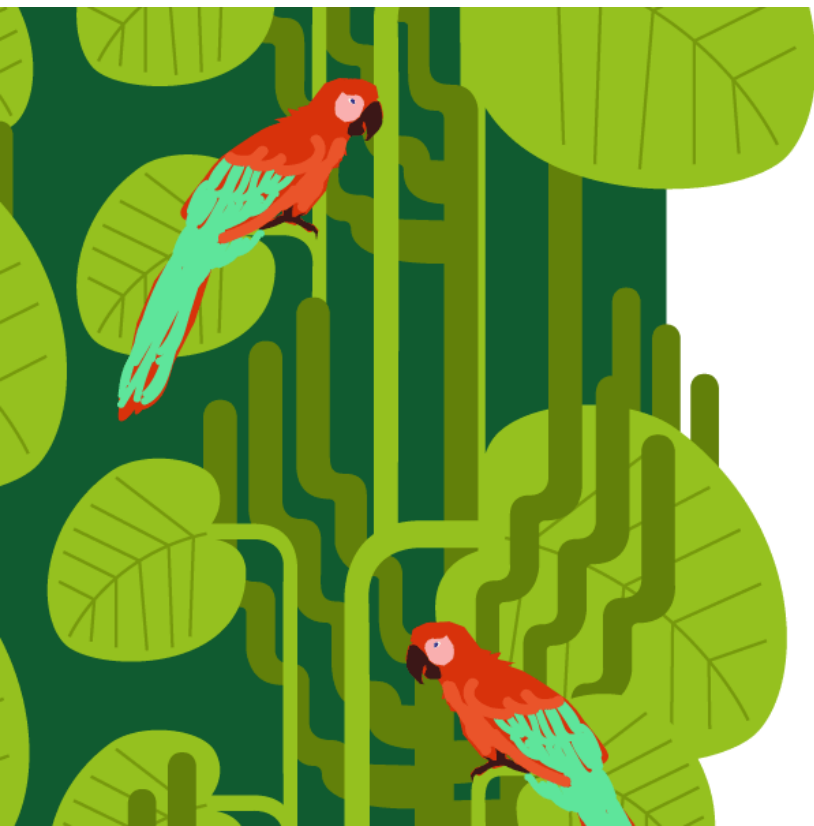
Scale community-led monitoring and peer support to address stigma and drive demand

Expand AHD EMR and digitization tools to reduce health-worker burden



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Appendix



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Sources and assumptions used in calculations

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- **Costing of the WHO-recommended AHD package of care**
 - **CD4:** Low-end VISITECT (\$4.18/test | Global Access Price as of July 2026); high end PIMA (\$9.29-\$15.98/test | all-inclusive offer, Abbott July 2026)
 - **TB LAM:** \$3.70/test | Global Access Price, Global Fund July 2026
 - **CrAg LFA:** \$120/50 pack, \$80/25 pack. IMMY, February 2026
 - **LP** (commodity source alone not reported, however the costs of providing LP in Kenya is reported as \$35-105 for public sector ([link](#)) while in South Africa is subsidized at R20-60pp)
 - **CM Prophylaxis:** each patient needs 67% of a pack of Fluconazole, and a 1000 pack of 200 mg tablets is \$5.00
 - **CM Tx:** Taken the average of the four available CM regimens, assuming L-Amb = \$23, 5FC = \$75, AmB-D = \$7.13 per 50mg/vial. Single dose L-Amb = \$405 | 7 day short course = \$664-710 | AmB-D + 5FC + fluc = \$130-166 | Oral regimen = \$129
 - **GeneXpert:** \$7.97/test | [Global Fund](#)
 - **TPT:** \$14.25 | [MedAccess](#), [Unitaid](#), [CHAI](#) and [The Aurum Institute](#)
 - **TB (DST)** [STOP TB](#)
 - **TB first line:** \$35 Malawi, \$56 RSA, \$76 Uganda ([University of Oxford](#), [WHO](#))
 - **XDR treatment** \$2,922 in RSA ([University of Oxford](#), [WHO](#))
 - **Histo Dx:** \$10/test | MiraVista. Histo ELISA is \$578.81 for 96 (\$6.03)
 - **Histo Tx:** Weighted average of the cost of the severe regimen (\$4026.00, 66% of cases) and the moderate (\$975.82, 34% of cases). L-Amb = \$75 per 50mg vial, AmB-D = \$7.13 per 50mg/vial, Itraconazole - \$24.00 per 40 pack 100mg capsule
- **Cost per patient episode**
 - **Outpatient CrAg -:** HIV test (\$0.80-\$8.18) + CD4 (\$4.81-10) + CrAg LFA (\$2.40-\$3.20). Range of \$8.01-21.36
 - **Outpatient CrAg+:** HIV test (\$0.80-\$8.18) + CD4 (\$4.81-10) + CrAg LFA (\$2.40-\$3.20) + CSF CrAg (\$2.40-\$3.20) + LP (\$5.00-\$105) + Fluc (\$3.35) = Range between 18.76 -132.93
 - **Outpatient (TB LAM -ve):** HIV test (\$0.80-\$8.18) + CD4 (\$4.81-10) + TB LAM (\$3.70)
 - **Outpatient (TB LAM +ve):** HIV test (\$0.80-\$8.18) + CD4 (\$4.81-10) + TB LAM (\$3.70) + GeneXpert (\$7.97)
 - **Inpatient (CM, L-AMB + 5FC):** Hospital costs + HIV test + CD4 + CrAg LFA, CSF CrAg + LP + L-Amb and 5FC regimen | *Uganda:* \$1,349 | *Nigeria:* \$1,467 | *South Africa:* \$2,136 | *Botswana:* \$1873 | Average \$1,706
 - Cost of 2 week induction period ([link](#))
 - Bed-day rates from AMBITION: Uganda \$13.85/day, Zimbabwe \$15.90/day, Malawi \$18.36/day, South Africa \$80.66/day, Botswana \$88.80/day
 - **TB first-line inpatient:** *lower end:* Commodity costs – average of HIV test + CD4 + TB LAM + GXP + First line TB from GDF 2021 pricing = ~\$70 | Averaged hospitalization cost = ~8-day mean inpatient stay for HIV+ TB patients ([Zetola et al](#) x bed-day cost in each of Uganda/Zimbabwe/Malawi/South Africa/Botswana (from AMBITION-cm trial costing paper). Total = \$348.11; *higher end:* Long et al (2016) *High Cost of HIV-Positive Inpatient Care at an Urban Hospital in Johannesburg, South Africa* ([link](#))
 - **Histoplasmosis:** hospital cost: Rajasingham et al 2023 ([link](#)) | Adherence counseling: \$20 per 3 months – Phillips et al 2016 ([link](#)) | ART: \$43.43 in Uganda, Madu et al 2025 ([link](#)) | HIVST: \$0.80 (CHAI Market Impact Memo 2025) – \$8.18 for both testing & counseling ([link](#))