ADVANCED HIV DISEASE CARE PACKAGE IMPLEMENTATION IN LESOTHO AND SOUTH AFRICA

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BACKGROUND

The advanced HIV disease (AHD) care package reduces mortality in AHD but is poorly implemented. The feasibility of its implementation, including point-of-care CD4 lateral flow assay (Omega VISITECT Advanced Disease; CD4 LFA), has not yet been evaluated. We assessed this feasibility during a TB case finding study in rural Lesotho and South-Africa (SA). We also describe test outcomes and assess predictors for AHD in PLHIV.

METHODS

The package was implemented during a near-facility TB triage study, recruiting patients with TB symptoms in 2020-2022. All received Xpert, Xpert Ultra and MGIT culture. PLHIV were offered CD4 LFA , TB LAM LFA, and CrAg LFA if CD4≤200 cells/µL, and referred based on results. AHD was defined as CD4≤200 cells/µL or any positive TB test. We present test outcomes and compare TB LAM results with a composite reference standard. We assessed predictors of AHD by retaining variables significantly associated (p<0.05) in univariable regression in a multivariable model. We used the Medical Research Council framework for complex interventions to evaluate feasibility:

- Acceptability and intervention delivery with group discussions and questionnaires in study implementers
- Process compliance with a process cascade among enrolled PLHIV.
- Early effectiveness (vital & treatment status) in those with AHD at 12 [10-14] weeks through calls and file review.

We performed thematic content analysis and triangulation.

RESULTS

Questionnaires and group discussion included 11 study staff.

Acceptability

The package was acceptable and considered essential during HIV/TB community activities.

"It is one of the main, basic things to consider in all PLHIV. It should be implemented in primary healthcare, the clinics, communities and outreaches because it is going to be the basis of helping all patient's needs." (nurse, South Africa)

Intervention delivery

- Challenges: stockouts of CD4 LFA, long duration of procedure
- Enablers: JOBAIDS, face-to-face training, counselling

After an initial learning curve, the procedure was considered easy: *"We are cruising!"* (nurse, Lesotho)

The AHD care package with point-of-care CD4 was feasible to implement during near-facility TB case finding. 39% of known and 72% of newly diagnosed PLHIV with TB symptoms had advanced HIV disease

Among 1392 enrolled participants, 676 (48.6%) were PLHIV, among whom the median age was 46 [36-54] years, and 52% (350) were female.

Table: Test results among PLHIV

Country	N	AHD†	N	Any TB‡	N	CD4 ≤200cells/µL	N	TB-LAM LFA positive	N	CrAg LFA positive
	Test results row% [95%CI]									
All	676	41.7 [38-46]	603	23.2 [20-27]	672	30.1 [27-34]	674	13.2 [11-16]	200	4.0 [1.7-7.7]
Lesotho	335	54.6 [49-60]	324	24.7 [20-30]	332	45.8 [40-51]	335	16.1 [12-21]	150	2.7 [0.7-6.7]
South Africa	341	29.0 [24-34]	279	21.5 [17-27]	340	14.7 [11-19]	339	10.3 [7.3-14]	50	8.0 [2.2-19]

† CD4≤200cells/µL, or TB-LAM or Xpert or Xpert Ultra or culture positive among all PLHIV

‡ TB-LAM or Xpert or Xpert Ultra or culture positive among those tested

- 72% of newly diagnosed (83% in Lesotho and 39% in South Africa), 77% of known PLHIV who interrupted ART in the last year (89% in Lesotho and 64% in SA), and 35% PLHIV reporting to be on ART without interruption (44% in Lesotho and 26% in SA) had AHD.
- Among PLHIV with a CD4≤200cells/µL, 20% (41) had a positive TB LAM and 32% (61) a positive TB test on either Xpert, Xpert Ultra or culture.
- In multivariable analysis, being male (aOR: 1.61, 95%CI:1.02-2.52), PLHIV from Lesotho (aOR: 2.42, 95%CI:1.64-3.58), newly diagnosed (aOR: 2.65, 95%CI:1.33-5.26) or having interrupted ART in last year (aOR: 4.18, 95%CI:2.19-7.97) (versus on ART), presenting with weight loss (aOR: 1.98, 95%CI: 1.39-2.17) was significantly associated with AHD.

Table: TB LAM versus composite TB outcome*

		Composite TB outcome: positive n	positive row%	negative n	negative row%	Total N
TB LAM	positive	34	41%	49	59%	83
	negative	50	10%	464	90%	514
	Total	84	14%	513	86%	597

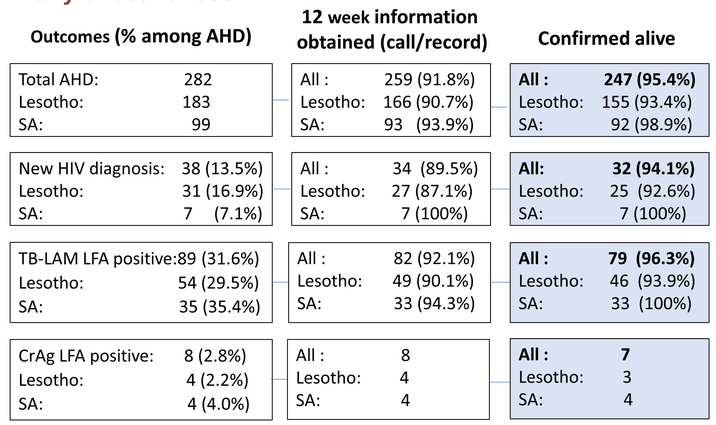
*composite TB outcome: Xpert, Xpert Ultra or culture

Process compliance in PLHIV

Among those eligible,

- CD4 LFA was done in 672/676 (99.4%)
- TB-LAM LFA was done in 674/676 (99.7%)
- CrAg LFA was done in 200/202 (99.0%)

Early effectiveness in AHD



- 9 (3.5%) PLHIV with AHD died, all in Lesotho.
- 32 (94%) of alive, and newly diagnosed, started on ART
- 55 (70%) of alive TB-LAM positive started TB treatment. 20/24 of those not started had no other positive TB test.

CONCLUSIONS

AHD was highly prevalent, especially in Lesotho, including among known PLHIV. Implementation was feasible at near facility level and considered feasible in communities. Future analysis should show why a positive TB LAM did not always lead to treatment. The AHD care package can and should be implemented widely.

ADDITIONAL KEY INFORMATION

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