



Characteristics and six-month viral load suppression of clients presenting with advanced HIV disease in South Africa

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Background

- In South Africa and neighbouring countries, 20-30% of individuals who come to clinics to start or re-start HIV treatment present with advanced HIV disease (AHD), defined by a CD4 count <200 cells/mm³ or WHO stage 3 or 4 conditions.
- AHD is associated with higher mortality and more opportunistic infections, and AHD patients require more clinical care.
- Very limited evidence exists about the characteristics and treatment outcomes of those initiating ART with AHD.
- Information about how clients with AHD differ from non-AHD clients may help identify improvements in guidelines and practices.

Methods

The **PREFER** study collected data to inform the design of service delivery models for the early HIV treatment period.

- From September 2022 to June 2023, we surveyed and reviewed electronic medical records for a sequential sample of clients starting or re-starting ART or on ART for ≤6 months.
- 18 primary healthcare facilities in three provinces in South Africa (Gauteng, Mpumalanga, and KwaZulu-Natal; mix of rural/urban sites).
- Primary outcomes: 6-month retention and viral load (VL) suppression, categorized as suppressed (<50 copies/mL), low-level viremia (50–1,000 copies/mL), or unsuppressed (≥1,000 copies/mL).

Results

1,098 participants enrolled in the PREFER survey



160 (15%) excluded with missing baseline CD4 or WHO staging
275 (29%) presented with AHD



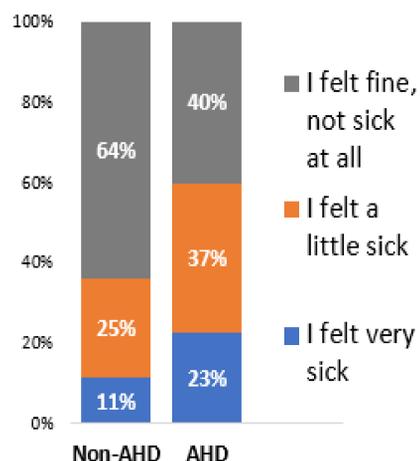
AHD clients: 44% male; median age 38 years
Non-AHD clients: 31% male; median age 31 years

Median CD4 count among AHD clients:



108 cells/mm³

Self-reported condition at time of latest HIV test



Outcome	Non-AHD (n=663; 71%)	AHD (n=275; 29%)	Risk difference (95% CI)	Relative risk (95% CI)
Retention outcomes				
Continuously in care				
Total	497 (75%)	219 (80%)	5% (-1 to 10%)	1.06 (0.99-1.14)
In care at initiating facility	466 (70%)	208 (75%)	5% (-1 to 12%)	1.08 (0.99-1.17)
Transferred clinics	31 (5%)	11 (5%)	0% (-3 to 2%)	0.86 (0.44-1.68)
Disengaged from care				
Total	148 (22%)	53 (19%)	-3% (-9 to 3%)	0.86 (0.65-1.14)
Disengaged immediately after initiation	21 (3%)	3 (1%)	-2% (-4 to 0%)	0.34 (0.10-1.15)
Disengaged from care 1-6 months after initiation	37 (6%)	14 (5%)	0% (-4 to 3%)	0.91 (0.50-1.66)
Deceased	1 (0.2%)	3 (1%)	-	-
Interrupted treatment and returned to care	89 (13%)	33 (12%)	-1% (-6 to 3%)	0.89 (0.62-1.30)
Outcome unknown	18 (3%)	3 (1%)	-2% (-3 to 0%)	0.40 (0.12-1.35)
Viral load outcomes				
VL suppressed	314 (47%)	121 (43%)	-4% (-10 to 4%)	0.93 (0.80-1.09)
Low-level viremia (500-999 copies/mL)	70 (11%)	66 (24%)	13% (8 to 19%)	2.27 (1.67-3.09)
Unsuppressed (≥1000 copies/mL)	43 (6%)	11 (4%)	-2% (-5 to 0%)	0.62 (0.32-1.18)
VL result not observed at 6 months	236 (36%)	77 (28%)	-8% (-14 to -2%)	0.78 (0.63-0.96)

Characteristic (n=938)	Non-AHD (n=663)	AHD (n=275)	
Reason for testing	Provider recommended	162 (24%)	43 (16%)
	Known exposure or risk	88 (13%)	22 (8%)
	Ill health	249 (38%)	172 (63%)
	Self initiated/voluntary	103 (16%)	26 (9%)
	Pregnancy/antenatal	41 (6%)	10 (4%)
	Other	20 (3%)	2 (1%)
Co-morbidities	Tuberculosis	6 (12%)	13 (42%)
	Diabetes	6 (12%)	6 (19%)
	Hypertension	28 (56%)	13 (42%)
	Asthma	10 (20%)	1 (3%)
	Other	5 (10%)	4 (9%)

Conclusions

- AHD remains an important barrier to optimal HIV care outcomes
- Low-level viremia (LLV) was twice as common among AHD clients, while six-month retention was similar across groups
- LLV is an independent risk factor for virologic failure and risk for onwards transmission
- Targeted interventions could include earlier detection, rapid ART initiation, and tailored care models with reduced visit frequency unless clinically indicated

Further study results are available at Kachingwe E, Mutanda N, Ntjikelane V, Benade M, Manganye M, Malala L, et al. (2025) Characteristics and six-month viral load suppression of clients presenting with advanced HIV disease in South Africa. PLOS Glob Public Health 5(9): e0004927. <https://doi.org/10.1371/journal.pgph.0004927>. Further information about Retain6 and the PREFER study can be found at www.sites.bu.edu/ambit.



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