Who is hospitalized for advanced HIV disease in Zambia? Characteristics, clinical presentation, and linkage to ART

RETAIN6

WHAT IS THE ISSUE?

- In Zambia and neighbouring countries, more than half of inpatient deaths are among people living with HIV (PLHIV).
- The Zambia Ministry of Health estimates that 20-30% of people presenting for ART initiation or re-initiation have advanced HIV disease (AHD (CD4 count <200/mm³ and/or WHO stage 3/4).
- There is little recent information about the characteristics, histories, or linkage to ART of PLHIV who are admitted for hospital care in Zambia.
- Understanding reasons for admission and experiences during hospitalization is essential to improving health outcomes for those with AHD.

WHAT DID WE DO?

- **Population**: Adults admitted with AHD at 8 hospitals in four provinces from 5 May to 30 September 2025.
  - Inclusion: On ART ≤6 months or not on ART.
  - Inclusion: AHD diagnosed by hospital clinicians; documented CD4 count or WHO stage was not required.
  - Exclusion: Patients too ill to consent or needing isolation.
- **Data:**
  - Survey administered once patients were stable enough to participate or at discharge
  - Hospital records and HIV outpatient electronic medical record (SmartCare); laboratory and staging results from hospital records.
- **Analysis:** Frequencies of characteristics and survey responses.

WHAT DID WE LEARN?

At admission…

41% (36/87)
Not on ART at admission (29% on TDF/3TC/DTG, 3% other, 10% regimen not recorded, 16% no hospital record)

72% (63/87)
Came directly to the hospital rather than being referred from a primary care clinic

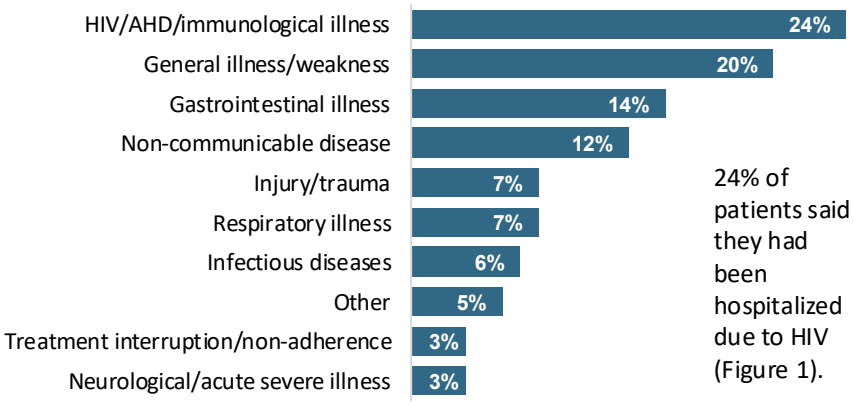
52% (45/87)
Recalled being told they have AHD; 68% (59/87) said they had no understanding of AHD

31% (27/87)
Reported having interrupted treatment in the past (78% of those who interrupted (21/27) said they returned to care due to ill health)

48% (13/27)
Of those with past treatment interruptions said they stopped because of cost, transport, or time (41% ran out of medication; 26% felt healthy and thought they did not need treatment)

87 participants (42 women/45 men; median age 39)

Figure 1. Reasons participants believe they had been admitted (multiple responses permitted)



24% of patients said they had been hospitalized due to HIV (Figure 1).

- 87% reported feeling very sick or a little sick at study enrollment, with symptoms for a median of 7 days.
- 57% first tested HIV-positive on the day of enrollment or within the previous month, while 23% had been diagnosed more than a year earlier.
- 13% reported being diagnosed with AHD before this hospitalization, and 15% reported previous hospitalizations for HIV or AHD.
- 67% were hospitalized at the facility where they usually received HIV care, while 26% usually received care elsewhere.
- 30% said they sometimes or often went without food, 41% reported not having access to piped water at home, and 70% said that it would be difficult or very difficult to find 100 kwacha (≈$5 US) for healthcare needs.

73 of the 87 (84%) patients enrolled had hospital records available for review

Figure 2. Admission diagnoses (n=73)

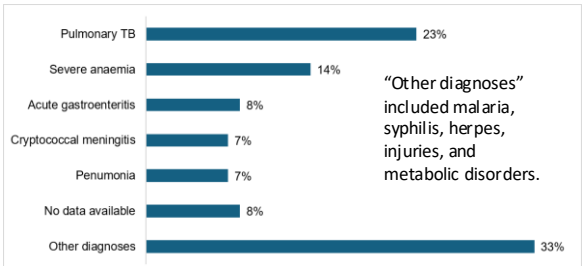
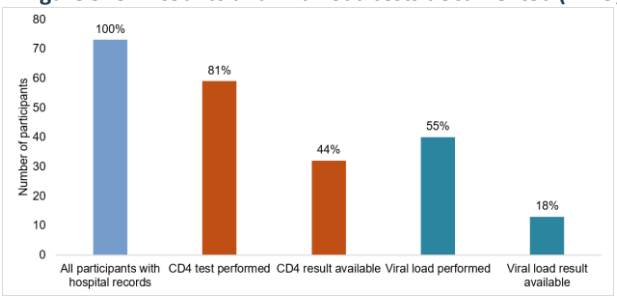


Figure 3. CD4 counts and viral load tests documented (n=73)



CD4 testing: 81% (59/73) tested; 44% (32/73) had results available; of 32 results, median 128 cells/mm³, 66% below 200.

Viral load testing: 55% (40/73) tested; 18% (13/73) had results available; of 13 results, 8% (1/13) suppressed (<50 copies/mL).

WHO staging: 55% (40/73) documented; of 40 results, 75% (30/40) were stage 3, 18% (7/40) stage 4, 8% (3/40) stage 1 or 2.

During admission…

5 days
Median hospital stay (IQR 3-8 days)

73% (53/73)
Reported receiving counseling during admission

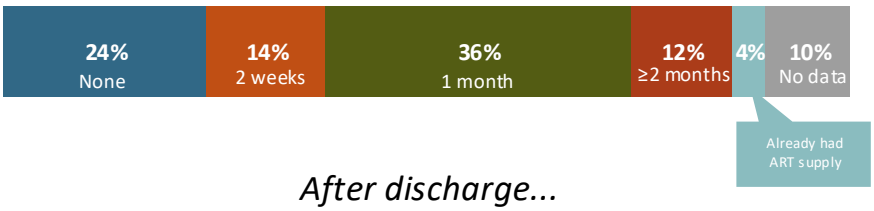
47% (34/73)
Diagnosed with TB during admission

68% (50/73)
Had discharge records available

38% (19/50)
Had a follow-up plan for post-discharge care documented in their file

100% (50/50)
Of patients with discharge records were dispensed non-ART medications at discharge (46% cotrimoxazole, 24% isoniazid, 12% fluconazole)

Figure 4. Duration of antiretroviral medications dispensed at discharge for those with discharge records available (n=50)



After discharge…

7% (6/87) died during hospitalization or shortly after discharge; deaths beyond this period could not be reliably ascertained.

71% (62/87) could be linked to SmartCare records documenting outpatient antiretroviral treatment. (Remainder either did not seek outpatient care or received care from a different facility from where they were hospitalized.)

55% (48/87) had at least one outpatient clinic visit documented in SmartCare after discharge. (Equal to 77% of the 62 found in SmartCare.)

Among the 48 with a documented visit, the median interval between hospital discharge and the first outpatient visit was **32 days** [IQR: 6, 65].

CONCLUSIONS

- Hospitalization coincided with late HIV diagnosis or return to care: 57% of participants first tested HIV-positive within the previous month, 41% were not on ART at admission, and nearly one third reported a previous treatment interruption.
- Most patients had a very limited understanding of AHD.
- Most received counseling and non-ART medications, but gaps in test result availability, ART dispensing, and documented post-discharge planning were also common.
- ART care after discharge could not be confirmed for 45% of participants; some may have received care at another facility but it is likely that many did not start or resume ART at all.
- Results underestimate deaths due to lack of reporting and exclusion of sickest patients.
- Earlier HIV diagnosis and re-engagement, reliable AHD assessment, an adequate ART supply and documented referral at discharge, and proactive follow-up after discharge are needed.

Ngoma T, Marri A, Benade M, Scott N, Morgan A, Mwale M, Sivile S, Haimbe P, Shakwelele H, Rosen S. Who is hospitalized for advanced HIV disease in Zambia? Characteristics, clinical presentation, and linkage to ART. Retain6 Policy Brief, September 14, 2026.

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