

Moving from CD4 counts to HIV viral load measures: policy, practice and patient experiences in rural Tanzania and Malawi. A mixed-methods case study

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Introduction

- HIV viral load (HVL) testing is necessary to improve the accuracy of diagnosing treatment failure.
- In 2016, the World Health Organisation recommended HVL monitoring as part of routine HIV care [1], but its roll-out has been slow in many settings.
- Although CD4 counts are still used to screen for opportunistic infections in clinical care, they are being phased out for monitoring HIV progression where HVL is available [2].
- Investigating the transition from CD4 to HVL monitoring in national policies and may help to understand and address the slow roll-out.



Methods

- POLICY REVIEW:** 6 national HIV policies and guidelines were reviewed to assess evolution of guidelines for CD4 and HVL monitoring. Results were tabulated by country.
- FACILITY SURVEY:** A facility survey was conducted in 2017 in health facilities in Malawi (n=5) and Tanzania (n=11) within two health and demographic surveillance sites (HDSS) – Ifakara (Tanzania) and Karonga (Malawi). Eleven indicators relevant to CD4 tests and HVL monitoring were extracted from the facility surveys. Descriptive statistics were used to show the use of CD4 and HVL tests, availability of 2nd line ART and the turnaround time of HVL across facilities in each HDSS
- QUALITATIVE:** In-depth interviews were conducted with patients and health workers from 3 health facilities in each setting to explore their understanding and experience of the tests.
- Interviews were recorded and transcribed, Thematic analysis was conducted and findings compared across settings.

| Participant category | Tanzania | Malawi | Total |
|---|----------|--------|-------|
| Health care workers | 7 | 6 | 13 |
| HIV+ Pregnant & Post-partum women | 8 | 5 | 13 |
| HIV- pregnant women | 5 | 5 | 10 |
| HIV+ women who have transitioned into to routine HIV care | 4 | 7 | 11 |
| Total | 24 | 23 | 47 |

Using a mixed methods case study approach, we aimed to investigate the implementation of HVL policies at the health facility-level and explore health provider and patient perspectives on availability and use of CD4 and HVL monitoring.

Results: POLICY REVIEW

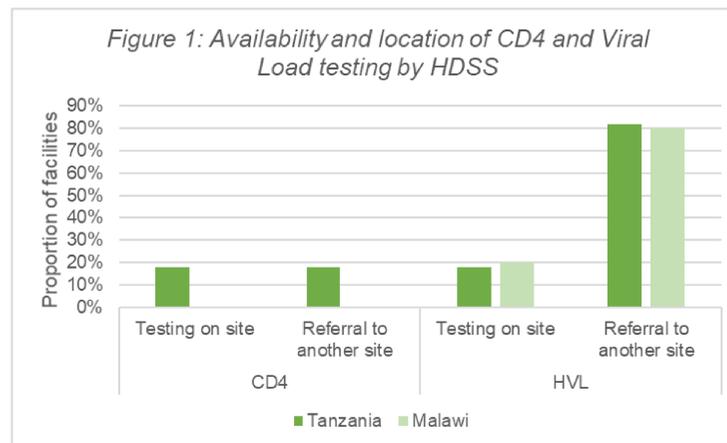
| | CD4 testing | Viral Load Monitoring |
|-----------------|--|--|
| Tanzania | CD4 cell count used at start of ART program (2004) to determine ART eligibility and monitor response to treatment and conducted every 6 months to monitor immunologic response to ART – CD4 counts dropped from ART eligibility requirement (2016) under test and treat policies | 2015 – rapid scale up plan to include HVL as part of routine care for all populations (including pregnant women) HVL test 6 months after initiation of ART, a repeat HVL test six months later if initial HVL test result <1000cp/m, a repeat HVL test after 3 months of intensive adherence counselling if the preceding HVL test result >1000cp/ml, HVL test annually if two preceding HVL test results <1000cp/ml, for clients, who have been on ART and immunological monitoring for >6 months an HVL test done at next scheduled visit. HVL test results should be available within 30 days |
| Malawi | Did not adopt a policy requiring CD4 testing for ART eligibility | 2016 - recommended as part of routine care for all populations (including pregnant women) - initial viral load six months after ART initiation, second viral load 24 months after initiation, subsequent viral loads every 24 months |

FACILITY SURVEY

Table 1: The use of CD4 and HVL tests, availability of 2nd line ART and the turnaround time of HVL by HDSS

| | Tanzania (n (%)) | Malawi (n (%)) |
|--|------------------|------------------|
| Use of different tests | | |
| CD4 counts to monitor treatment failure | 3 (25%) | 0 (0%) |
| Viral load to monitor treatment failure | 11 (100%) | 5 (100%) |
| Reasons for conducting viral load testing | | |
| At six months after ART initiation | 11 (100%) | 5 (100%) |
| If first line tx failure suspected | 7 (58%) | 4 (80%) |
| If second line tx failure suspected | 3 (25%) | 2 (40%) |
| Number of months that a VL test is repeated after a patient has been found with a detectable viral load (median [range]) | 3 [1-6 months] | 3 [3-18 months] |
| Number of months that a VL test is repeated if a patient has an undetectable viral load (median[range]) | 9 [6-12 months] | 24 [0-36 months] |
| Availability and Turnaround of HVL tests | | |
| Number of days that HVL testing available at the facility (median [range]) | 4 [1-5 days] | 2 [1-6 days] |
| Number of days that it takes before HVL results come back from the laboratory (average [range]) | 30 [2-90 days] | 44 [30-60 days] |
| Availability of 2nd Line Antiretroviral Drugs | | |
| Number of facilities with 2 nd Line ART available | 9 (75%) | 4 (80%) |
| Number of different 2 nd line ART available (median [range]) | 1 [0-4] | 1 [0-2] |
| Number of facilities with 2 nd line ART reporting NEVER having a stock out of ART in the last year. | 9 (100%) | 4 (100%) |

- CD4 testing is not available in health facilities in Malawi and only in limited facilities in Tanzania (Fig1)
- HVL testing was more readily available but most often through referral to another site (Fig1)
- HVL turnaround times were lengthy and beyond policy guidance in many facilities in both settings (Table 1)
- HVL was more commonly reported to be used for routine monitoring than for suspected 1st line treatment failure (Table 1)
- 2nd Line ART was available in most facilities (Table 1)



INTERVIEWS

- Health workers were aware of the guidance for HVL testing and recognised its utility.
- Challenges in turnaround times for results were mentioned in both settings, however in the Tanzania site, health workers preferred CD4 counts where available, due to the faster turnaround time.
- In both countries, pregnant women initiated under Option B+ reported that they had not undergone CD4 counts or HVL monitoring, contrary to policy stipulations.
- PLHIV that recalled having undergone tests generally referred to CD4 counts and valued it as a measure of their health status, although some did not understand the meaning of the results.

“[Viral load testing] gives a better picture of the health of our patients”..
Health care worker

“...They tell us at the clinic that when the viral load becomes high one is bound to be attacked by different types of diseases...”
PLWHIV

I: You checked it [your CD4 count] but, you don't know it?
PLHIV: Yes
I: Did you get the results?
PLHIV: Yes
I: Do you understand the meaning of the results?
PLHIV: mmm
I: What were you told about your results?
PLHIV: The results were provided at [facility name] and we were instructed to bring them here, it was on that 28th in which I didn't come, my husband took it here.
PLWHIV

“...some clients don't come for viral load testing though we are supposed to everyone after every two years. Sometimes these people come when the people that are responsible for checking are not available so they meet someone like me [nurse midwife] I just give them dugs because I am not supposed to collect for viral load testing”
Midwife

“The major challenges is the turnaround time, it takes a bit of time before we actually see the results of the DBS and the viral load”
Nurse Technician

Discussion

- The coverage of HVL testing has not matched expectations – with the majority of facilities still needing to refer to another facility
- Implementation of the guidelines for the frequency of HVL is variable across the facilities in both countries.
- The slow scale up of HVL testing and corresponding health worker training and delays in processing test results may undermine PLHIV engagement in HIV care.
- If pregnant women are given an understanding of these markers earlier it may assist them as they transition to routine care post pregnancy. This should be further explored in future research
- Increased focus is needed on how better to support health systems to increase their capacity to offer this service and satisfy patient demands.

REFERENCES: 1. World Health Organization. WHO Consolidated Guidelines on the Use of Antiretroviral Drugs for Treating and Preventing HIV Infection: Recommendations for a Public Health Approach. 2016. 2. The World Health Organisation. Technical and operational consideration for Implementing HIV Viral load testing. Geneva, Switzerland; 2014