 Increasing access to routine viral load with nearly point-of-care SAMBA-1: Outcomes from a decentralized HIV program in Malawi.

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1. Introduction

- Routine Viral load (VL) testing is key to monitor ART success and early detection of treatment failures (TF) amongst people living with HIV/AIDS (PLHIV).
- To increase decentralized access to routine VL monitoring, Médecins sans frontières (MSF) with UNITAID funding piloted the implementation of SAMBA-1, a nearly point-of-care (POC) device for semi-quantitative VL testing.

2. Methods

2.1. Study design

- Descriptive cohort analysis of sequence of POC-VL tests performed between August 2013 and December 2015 in 5 treatment sites equipped with SAMBA-1, in Chiradzulu district.
- Study exclusions were:
  - All patients with at least 6 months on first line ART and followed at the 5 treatment sites.
  - All POC-VL tests of selected patients and up-to 1 year after the initial VL >1000 copies/mL.
- Data was collected routinely and prospectively and entered in a dedicated POC database by MSF program staff and merged with routine patient follow-up data for analysis.

2.2. Study population

- Among 19366 first line ART patients, 13675 (72%) received at least 1 POC-VL test between August 2013 and December 2015.
- VL coverage ranged from 62% to 81% across POC-sites.
- Time to achieve 50% POC-VL coverage was between 3 to 5 months at the smaller sites and up to 9 months at the larger sites reflecting the first time they were implemented.

3. Results

3.1. VL coverage

- Of 6265/19036 (33%) patients who switch regimen amongst those with 3 consecutive VL tests, overall 80% of tests were reviewed more than 1 month after the initial VL test.
- Amongst patients who were switched to an alternative regimen, switch was within a median of 7.8 months after initial VL test.

3.2. VL cascade

- SAMBA-1 was implemented gradually from August 2013 in 1 district hospital (DHOS) and 4 health centres in Chiradzulu District, Malawi.
- Protocol in place in Chiradzulu recommends a VL test at 6 months on ART and every 2 years starting at 24 months on ART. If a patient had a VL >1000 copies/mL, the following steps are undertaken:
  - At the 4 peripheral health centres: 75% of tests were reviewed by clinician on the same day as blood draw.
  - At District Hospital (DHOS): 2/3 of tests were reviewed more than 1 month later and ~1/3 tests had missing data.

4. Key Findings

- Following over two years of POC-VL implementation, the programme attained high VL testing coverage.
- Good treatment outcomes with 88% of patients with VL <1000 copies/mL.
- Fast turn-around time with >80% of VL results reviewed on the same day as blood draw at peripheral health centres.
- 71% of patients with VL >1000 copies/mL had a 1st follow-up test.
- Amongst patients who were switched to an alternative regimen, switch was within a median of 7.8 months after initial VL test.
- The main bottleneck was lack of follow-up tests after an initial high VL result: 63% of patients with VL >1000 copies/mL result received no follow-up VL tests.
- The VL algorithm of 3 tests showed minimal gain in virological suppression whilst a large number of patients remained on a potentially failing regimen.

5. Conclusion

- Access to routine viral load using POC technology is feasible at the health-centre level and can satisfactorily service the population.
- Follow-up remains a major challenge which can be addressed by active monitoring and evaluation of the VL cascade and increasing VL literacy amongst healthcare workers and PLHIV.
- One follow-up test at 3 months after high VL seems sufficient to confirm treatment failure. This will simplify the process and may lead to improvement in VL monitoring cascade and HIV treatment outcomes.

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