Viral load monitoring with SAMBA-1, a semi-quantitative nearly point-of-care method in Arua, a rural district, Uganda.

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1. Introduction

- Point-of-care (POC) systems for viral load (VL) monitoring have considerable potential but evidence from ‘real-life’ use is limited.
- In September 2013, Médecins sans frontières, with UNITAID funding implemented SAMBA-1, a semi-quantitative (1000 copies threshold) nearly point-of-care VL test system in the Regional Referral Hospital of Arua, a rural district, Uganda.
- A high proportion of patients followed in the clinic comes from neighbouring countries, mainly DRC.

2. Methods

Study design

- We performed a retrospective observational cohort analysis using routine patient monitoring data.
- We describe the sequence of VL tests performed between September 2013 and November 2016 for patients followed with at least 6 months on ART (eligible for VL), and outcomes up-to 1 year after an initial VL>1000 copies/mL.
- Study Inclusions were:
  - All patients with at least 6 months on ART and followed at the clinic from the date of POC implementation.
  - 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.

3. Results

3.1 Cohort Profile & VL Coverage

- Over the study period, 9,305 patients were eligible for a VL test.
- Overall VL coverage was 78% (n=7,263).
- Median time from eligibility to first test was 5 months (IQR 0-21).
- >90% of tests ordered under routine testing and <1% as suspicion of treatment failure.
- Coverage was similar across gender and age and lower amongst patients with <1 year on ART.
- Coverage was also similar amongst those coming from Arua District or neighbouring countries (predominantly DRC), but lower amongst those from other Ugandan districts.

3.2 VL Cascade

- Of the 7,263 patients tested, 1,748 (24.1%) had a VL>1000 copies/mL, and of these, 1,221 (69.9%) received a repeat VL test.
- Median time to repeat VL was 6 months (IQR 4.7-12.7) following the repeat VL>1000 copies/ml test result.
- Of the 763 patients with two consecutive VLs >1000 copies/ml, 449 (58.9%) were switched to the next ARV regimen.

4. Conclusion

- POC VL testing achieved good VL-testing coverage, permitted same-day clinical review of results and timely follow-up.
- However, ensuring every patient gets their VL test remains a challenge in a dynamic cohort. Close program monitoring and support to staff is essential to identify and address gaps in the VL monitoring cascade.
- Not everyone identified as treatment failure switched regimen. Key constraint is reluctance, by clinicians to switch patients based on semi-quantitative results and by some patients even after failure confirmation. The issue could be overcome by improving clinicians’ knowledge on the validity of the 1000 threshold, patients’ education and psychosocial support.

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