Viral load monitoring in public sector clinics in rural South Africa

Lusanda Mazibuko[2], Meg Osler[3], Tshwaraganang Modise[2], Dickman Gareta[2],Siphephelo Dlamini[2], Patrick Gabela[2], Nompumelelo Khoza[2], Thabani Mtshali[2], Mark J Siedner[2,4], Kathy Baisley[2,5], Andrew Boulle[3], Kobus Herbst[2,6] , Collins C Iwuji[1,2]

[1]Brighton and Sussex Medical School, University of Sussex, Brighton, United Kingdom; [2]Africa Health Research Institute, Somkhele, South Africa; [3]Centre for Infectious Disease Epidemiology and Research, School of Public Health and Family Medicine, University of Cape Town; [4]Harvard Medical School, Boston, Massachusetts, USA; [5]Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, London, United Kingdom; [6]DSI-MRC South African Population Research Infrastructure Network, South Africa

FUNDED BY NIHR National Institute for Health and Care Research

UKaid from the British people

BACKGROUND

- Massive scale up of ART and viral load (VL) monitoring in sub-Saharan Africa
- Both are important tools to ending HIV/AIDS as a public health threat by 2030 (1)
- Limited literature on how VL monitoring (VLM) guides clinical care especially for those failing ART (2)
- We hypothesize poor VLM due to clinic workload

METHODS

- Selected a random sample of 800 individuals from 10 public sector clinics in the Hlabisa sub-district who started ART in 2018 and were still in care on 28 February 2020
- Sampling was proportional to the size of the HIV-positive cohort on ART in each clinic
- Patient records on clinic charts were compared with data entered into the electronic ART database (TIER.Net)
- We calculated the proportion of patients with:
  - VL results documented in clinic charts 12 months (± 3 months) after starting ART
  - VL <50 c/mL according to charts
  - VL <50 c/mL according to TIER.Net
  - Missing clinic charts and no results in TIER.Net

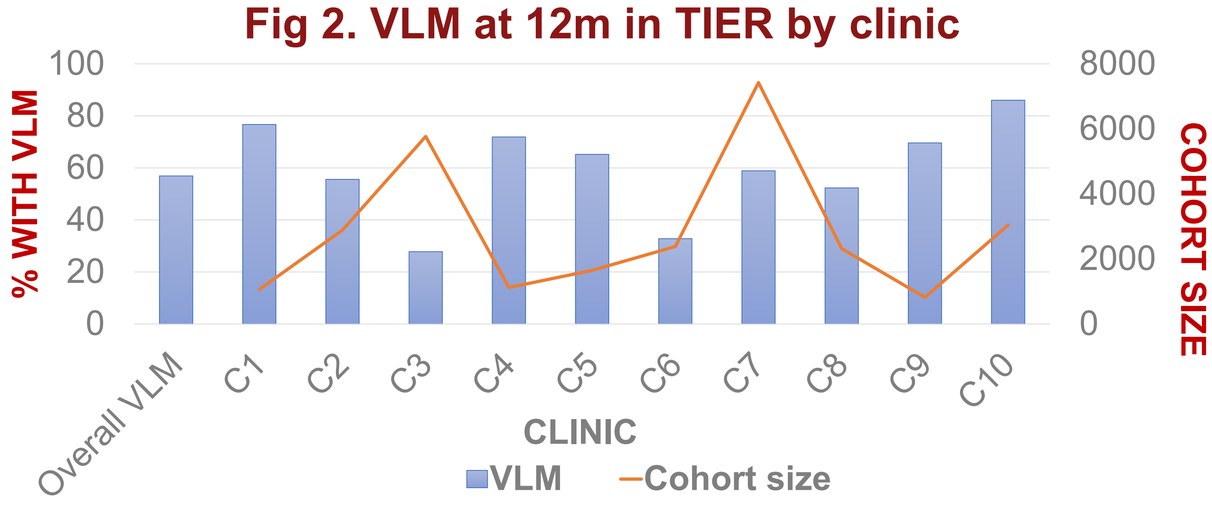
RESULTS

- Of 1413 individuals that were eligible, 800 (56.6%) were randomly selected
- 69.4% were female, median age 32.5 years (IQR 25, 39)
- VLM was associated with clinic cohort size (**Fig 1** & **2**)
- Overall, 492 (61.5%) of patients had documentary evidence of VLM (**Fig 3**)
- Only a third (33.4%) of individuals had VL documented in clinic charts

Fig 1. VLM at 12m by clinic using chart records

- Programmatic reports of VLM which depends on TIER.Net will be based on just over half of individuals on ART
- Viral suppression estimated from data in both clinic chart and TIER.Net were similar

Fig 2. VLM at 12m in TIER by clinic



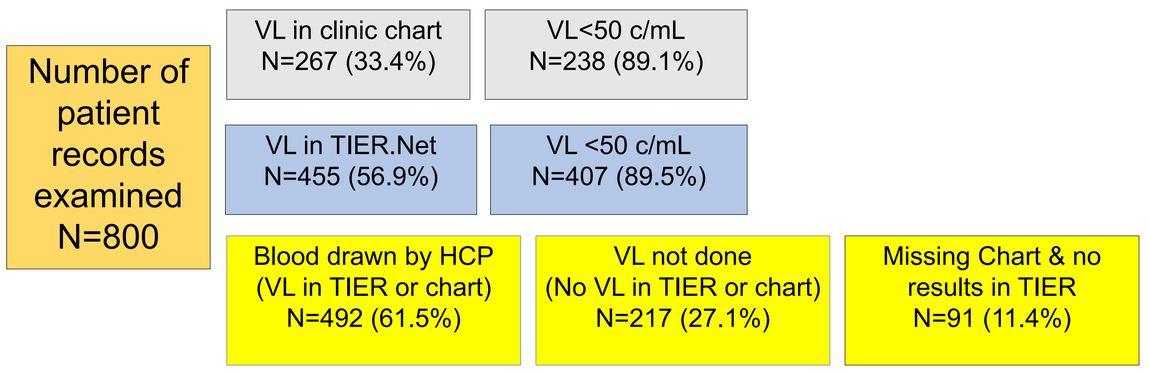


Fig 3. Flow chart of viral load monitoring

-With completion rates of approximately 60%, viral load monitoring performance remains well below goals in public sector clinics of rural KwaZulu-Natal
-System-level interventions are needed to respond to this gap and ensure the achievement of national HIV control milestones

CONCLUSIONS

- This study confirms earlier analyses suggesting suboptimal VLM in public sector clinics in rural South Africa (2)
- Reassuring that amongst those with VL measured viral suppression was high
- There is an urgent need to improve VLM to enable early detection and prompt management of viral failure in order to achieve UNAIDS 95-95-95 targets by 2030
- This informed the design of a cluster-randomised trial to improve VLM in public sector clinics

ACKNOWLEDGEMENTS

- We thank the community for their continued support and participation in AHRI population intervention platform, and AHRI staff. We also thank the South African Department of Health for their support of this project
- FUNDING: Royal Academy of Engineering under the Frontiers Follow-On Funding Scheme Grant No: FF\1920\1\23.
  Wellcome Trust through core funding to AHRI Grant No: 201433/Z/16/A

REFERENCES

1. UNAIDS (2014). FAST-TRACK. Ending the AIDS Epidemic by 2030
2. Iwuji C et al. Clinical outcomes after first-line HIV treatment failure in South Africa: the next cascade of care. HIV Med, 21: 457-462