ROUTINE LABORATORY DATA FOR ESTIMATING POPULATION VIRAL SUPPRESSION IN SOUTH AFRICA

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BACKGROUND

- There are few population-wide data on viral suppression (VS) that can be used to monitor programmatic targets in sub-Saharan Africa.
- We describe how routinely collected viral load (VL) data from ART programs can be extrapolated to generate population VS rates and validate this using a combination of empiric and model-based estimates.

METHODS

- We used routine VL testing data (2008-2018) for the Western Cape province obtained from the South African National Health Laboratory Service.
- A combination of deterministic and probabilistic record linkage and hierarchical clustering was used to assign tests to individuals in care.
- Test- and individual-level VS rates were based on test VL values <1000 cps/ml, and individual VL <1000 cps/mL in a calendar year, respectively.
- We calculated population VS among people living with HIV (PLWH) in the province by combining census derived mid-year population estimates, HIV prevalence estimates and individual level VS estimates from routine VL data.

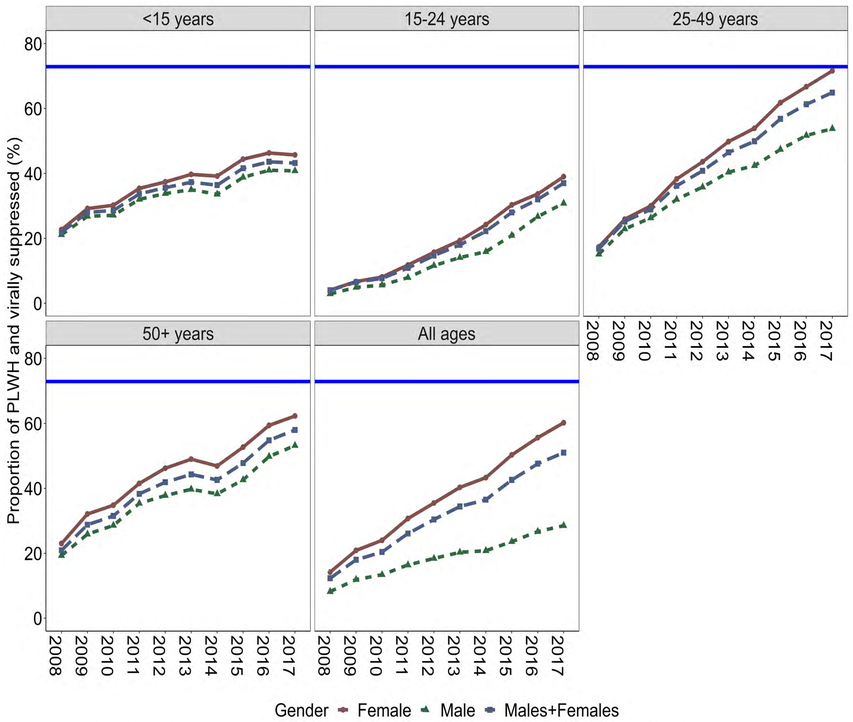

Figure 1 Estimated population viral suppression in the Western Cape, South Africa using routinely collected viral load data (2008 - 2017) disaggregated by age and sex. The blue horizontal line represents the overall 90-90-90 target (72.9%).

This approach provides a simple, robust method for estimating population VS using routine data from ART services, allowing for more frequent and less expensive program assessment.

RESULTS

- Population VS among all PLWH in the province increased from 12.2% in 2008 to 51.0% in 2017, growth of more than 300%.
- Women living with HIV had consistently higher viral suppression rates compared to men living with HIV (Figure 1).
- Estimates derived from this method were comparable to those from other published studies including surveys designed to estimate HIV prevalence and population viral suppression (HSRC National HIV Prevalence, Incidence, Behaviour and Communication Survey - SABSSM V), where 54.7% of PLWH had VS in 2017 (Figure 2).
- Sensitivity analyses showed that the results are robust to variations in linkage method, but sensitive to the extreme combinations of assumed ART coverage and population HIV prevalence.

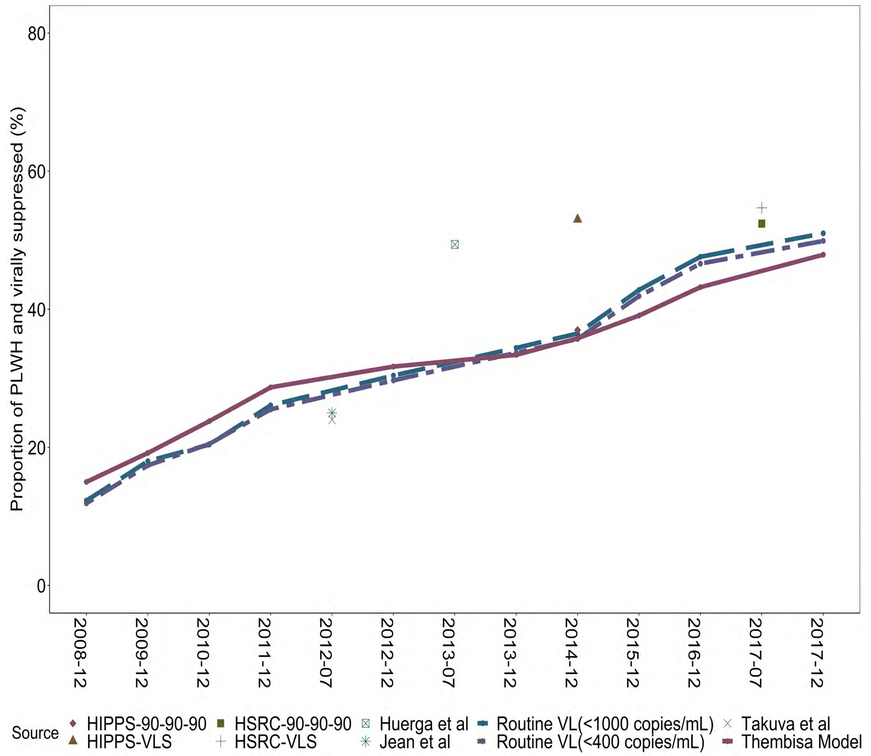

Figure 2 Method based estimation of population viral suppression among all people living with HIV (PLWH) in the Western Cape (dashed lines), compared to mathematical model based (purple solid line) and cross-sectional survey estimates (points) from 2008 - 2017.

CONCLUSIONS

- Regular use of routine viral load data can help bridge the gaps of knowledge and aid in identification of vulnerable populations that require concerted efforts to achieve UNAIDS targets.
- While validation of this method in other settings is required, this approach provides a simple, robust method for estimating population VS using routine data from ART services that can be employed by national programmes in high-burden settings.

ADDITIONAL KEY INFORMATION

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