

Title: Compounding factors that affected viral load scale-up and viral load coverage in Kenya, before and during the COVID-19 pandemic

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Background

- Viral load (VL) testing among people living with HIV (PLHIV) receiving antiretroviral treatment (ART) is key to measuring progress towards achieving the last 95 in the 95:95:95 global goal.
- Kenya scaled-up VL testing through a network of ten national laboratories (Figure 1).
- The laboratories serve the country through a robust referral networks.

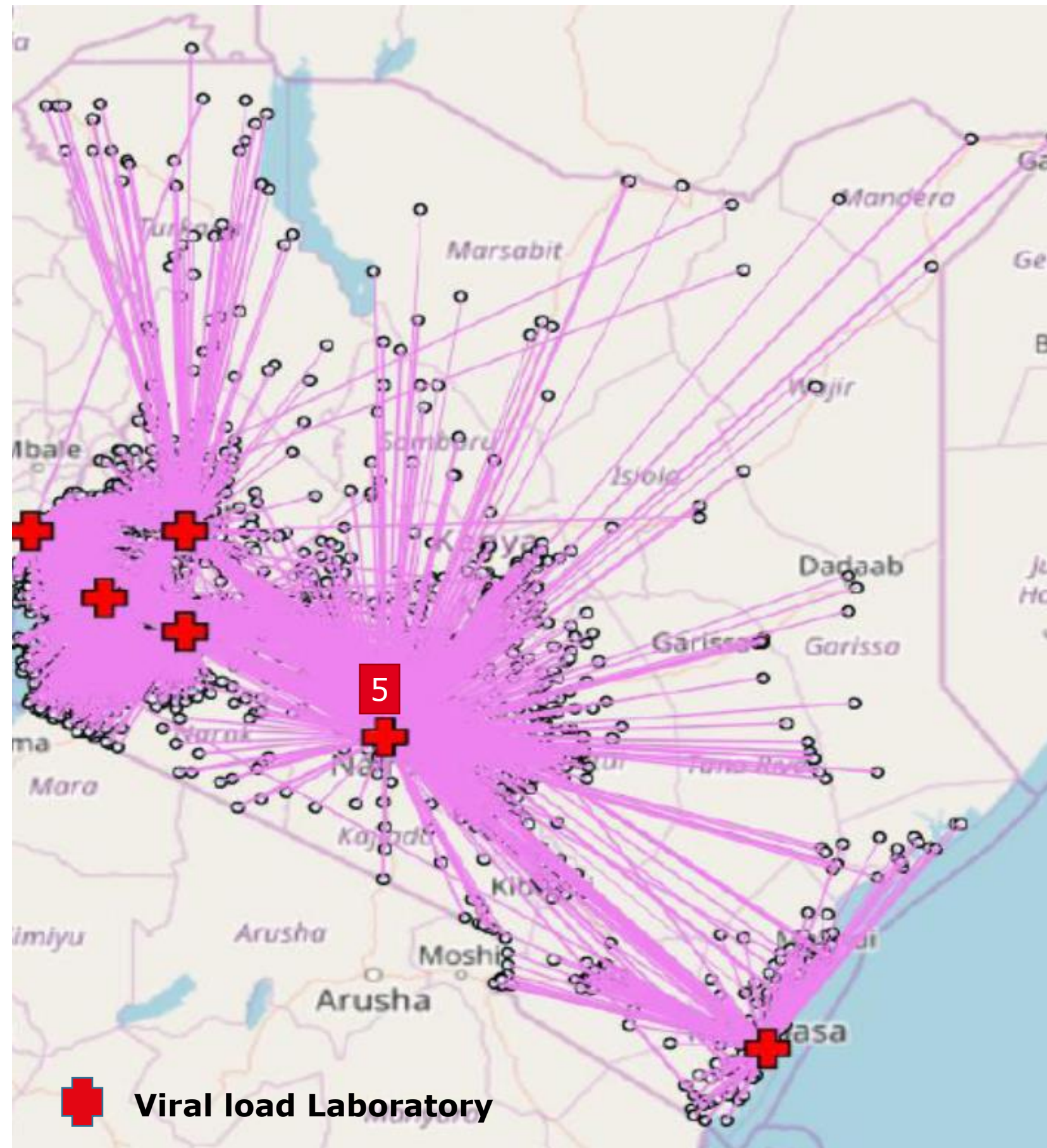


Figure 1: The national network of viral load testing laboratories in Kenya, 2020

SARS-Cov-2 testing in Kenya

- The first case of COVID-19 in Kenya was reported in March 2020.
- Initial testing was performed at the national influenza center.
- As the cases increased additional laboratories were included in the SARS-CoV-2 testing.
- The VL testing laboratories were repurposed to also test for SARS-CoV-2 through:
 - Training on testing methods
 - Training on enhanced biosafety measures
 - Additional enhanced personal protective equipment (PPE) [Fig 2]
 - Reorganization of work schedules to allow for additional testing
- This additional testing was likely to impact routine VL testing.
- We compared VL testing before and during COVID-19 pandemic.



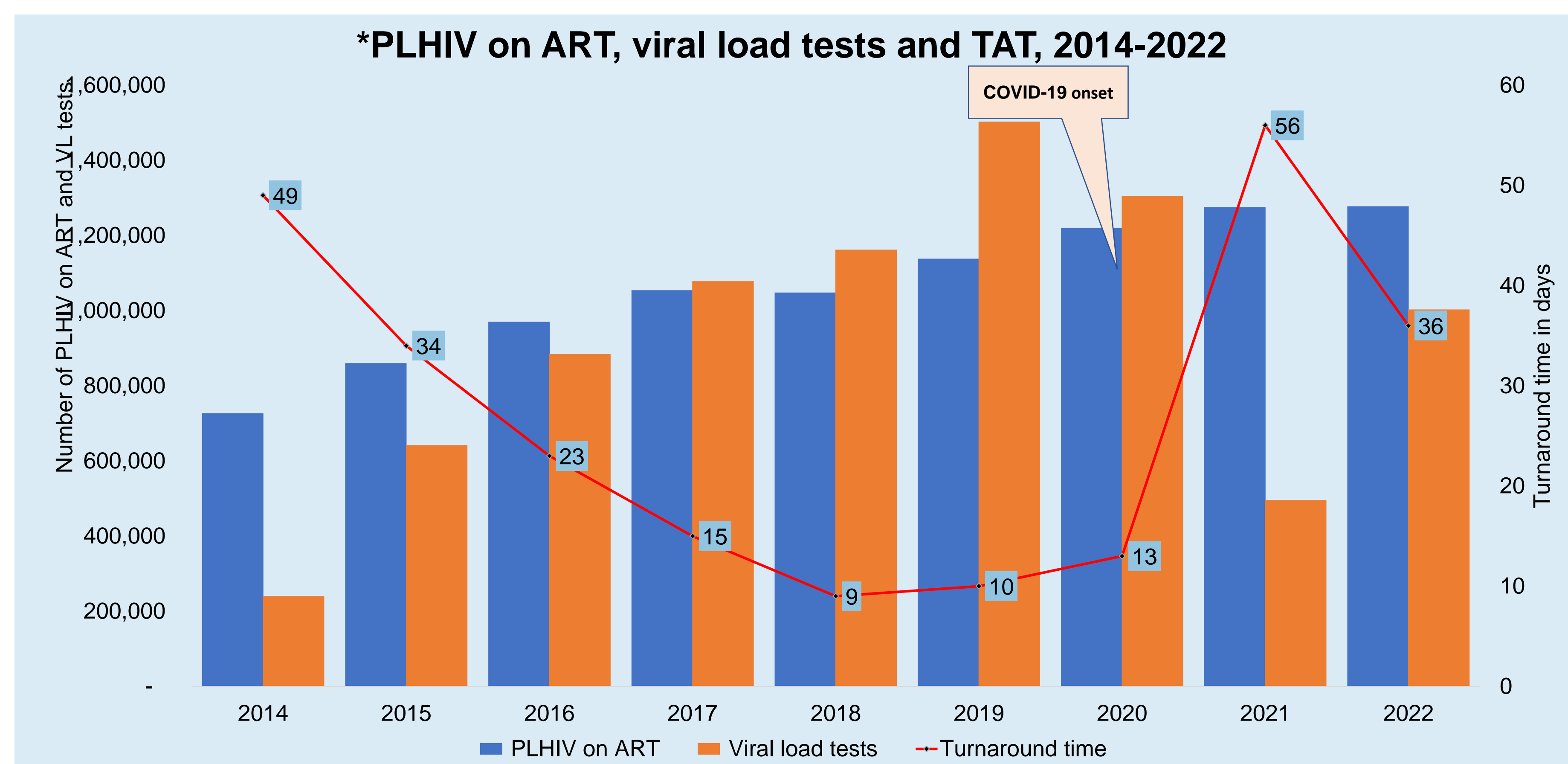
Figure 2: A laboratory worker handling SARS-CoV-2 sample

Methods

- Retrospective data on VL testing volumes and mean turnaround time (TAT) from sample collection, laboratory testing to results release, were abstracted from the national VL dashboard for 2014-2022.
- Additionally, data on proxy viral load coverage (VLC) - number of patients with documented VL test results divided by eligible patients on treatment in previous reporting period, for 2020-2022 were abstracted from the PEPFAR Panorama dashboard.
- Frequencies and trend analysis were performed.

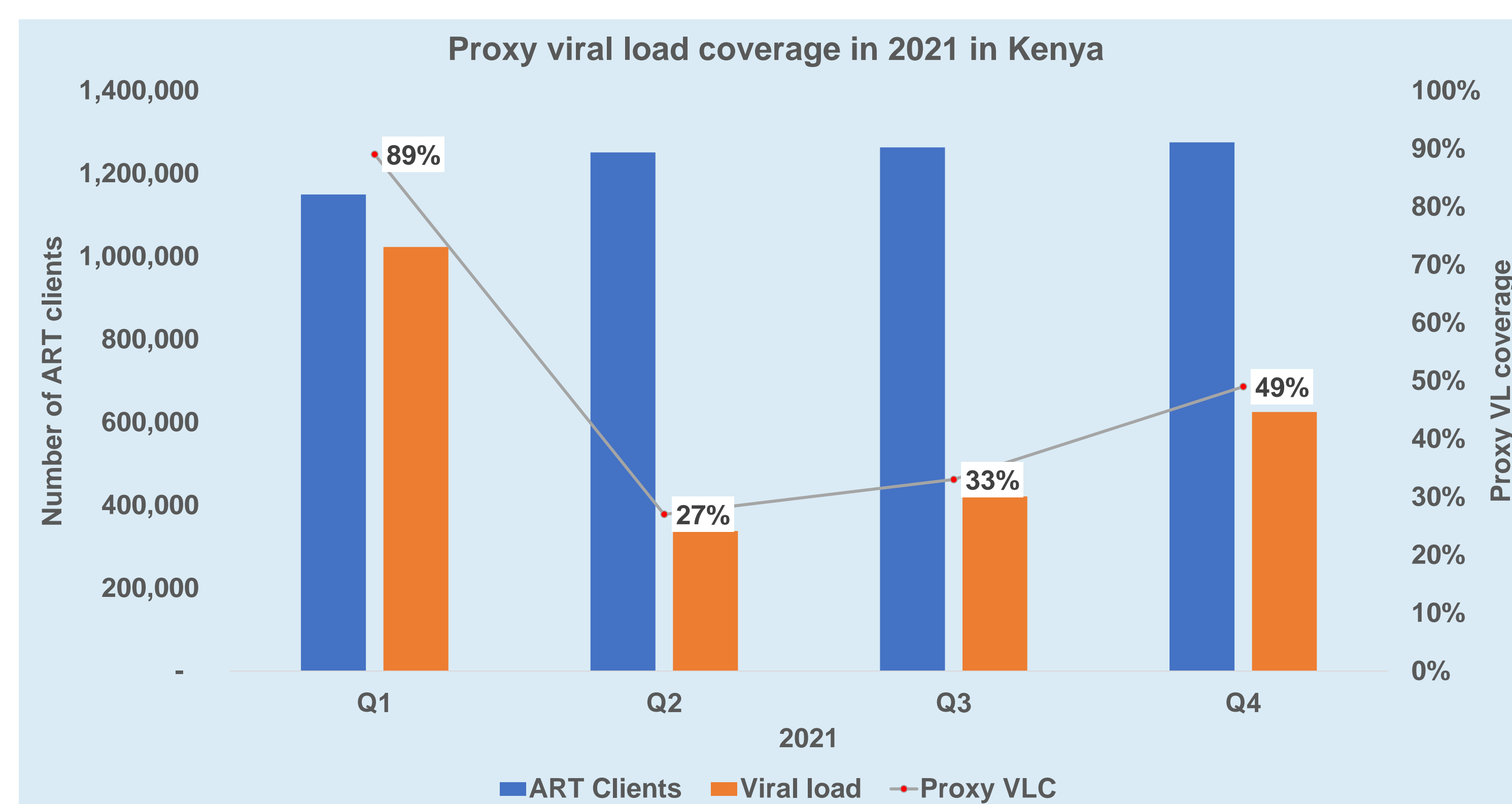
Results

- During VL testing scale-up (2014-2019), the number of ART clients increased from 727,072 to 1,138,386.
- Despite COVID-19 onset, ART clients continued to increase to 1,219,369, 1,275,391 and 1,278,006 in 2020, 2021 and 2022, respectively.
- The number of VL tests increased from 240,008 to 1,502,950 between 2014 and 2019 (Figure 3).
- This dropped to 496,131 tests in 2021 but recovered to 1,003,125 in 2022.
- The mean TAT fell from 49 to 10 days between 2014 and 2019.
- This rose to 56 days in 2021 but recovered to 36 days in 2022.
- The proxy VLC dropped from 1,022,869 (89%) in 2021 Quarter One (Q1) to 337,751 (27%) in 2022 Q2 before recovering to 624,819 (49%) in 2022 Q4 (Figure 4).



*PLHIV-People living with HIV; ART-Antiretroviral therapy; TAT-Turnaround time; VL-Viral load

Figure 3: Number of People living with HIV on antiretroviral therapy, viral load testing volumes and turnaround time in Kenya, 2014-2022



*VLC-Viral load coverage; Q-Quarter

Figure 4: Number of People living with HIV on antiretroviral therapy, number with documented viral load testing results and proxy viral load coverage in Kenya in 2021

Conclusions

- Reduced VL testing during the COVID-19 pandemic disrupted monitoring of viral suppression among PLHIV which may have impacted quality of care.
- The disruption could have been compounded by:
 - Staffing: there was a constraint on available staff some of whom got infected with COVID-19
 - Commodity constraints: there was global commodity shortages due to the increased SARS-CoV-2 testing demand
 - Increased laboratory equipment breakdown: testing equipment was running longer to accommodate both VL and SARS-Cov-2 testing
- In future, careful consideration on using VL testing platforms and staff for other disease testing in addition to VL testing should be made.
- Ensuring commodity security is critical to avoid such program impacts during a pandemic.

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