IDENTIFYING RECENT HIV INFECTIONS IN REAL-WORLD SETTINGS IN KENYA AND ZIMBABWE

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BACKGROUND

Distinguishing recently acquired infection from "long-standing" infection among persons newly diagnosed with HIV can help guide prevention programming. Focusing on the procedures required to accurately determine recent infection, we present the results of three pilots of HIV recency testing in Kenya and Zimbabwe.

METHODS

What?

LAg-avidity recency testing using Maxim HIV-1 LAg-Avidity EIA dried blood spot and plasma kits

Where & when?

- Antenatal clinics providing PMTCT services in Siaya County, Kenya
- Routine HIV testing clinics in Nairobi, Kenya
- National programme for female sex workers (FSW) in Zimbabwe.
- Conducted between February-November 2018.

How?

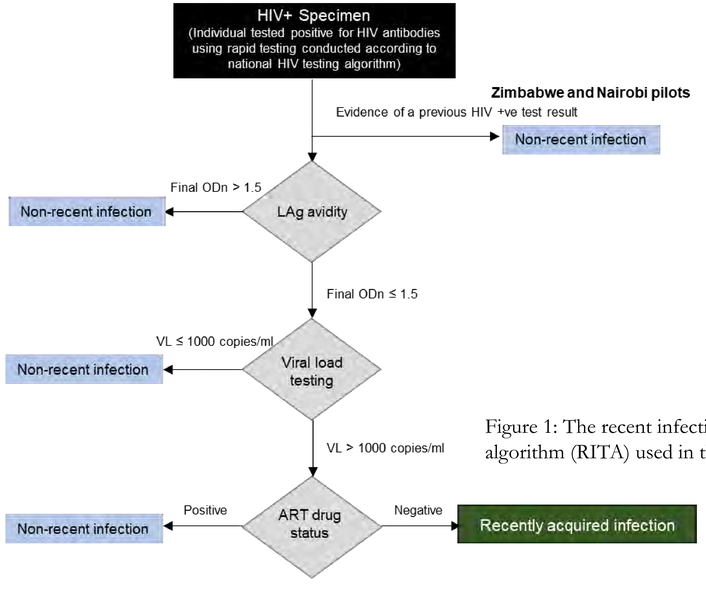
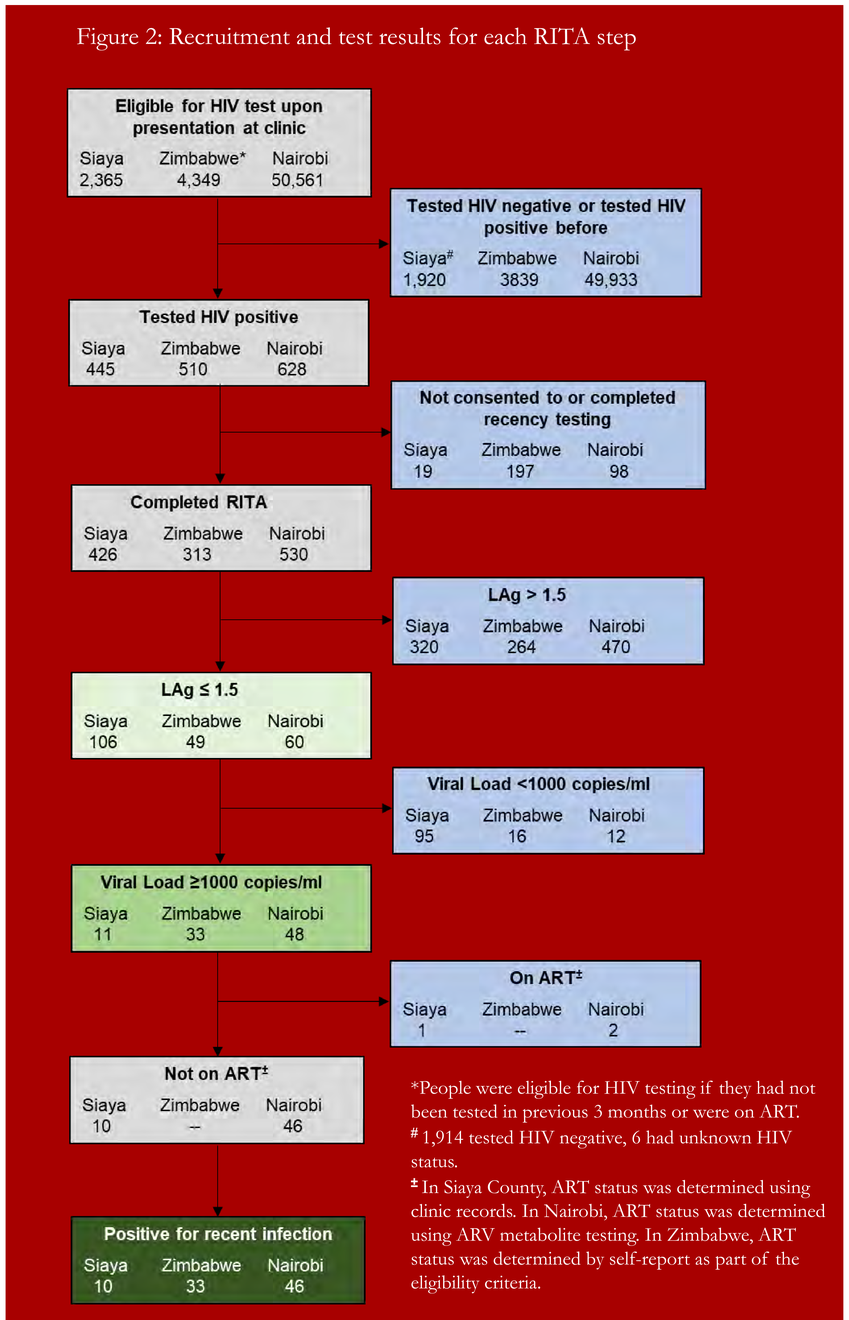


Figure 1: The recent infection testing algorithm (RITA) used in this study

1) Hargreaves, J., Mtetwa, S., et al. (2016). Implementation and Operational Research: Cohort Analysis of Program Data to Estimate HIV Incidence and Uptake of HIV-Related Services Among Female Sex Workers in Zimbabwe, 2009-2014. JAIDS Journal of Acquired Immune Deficiency Syndromes, 72(1), pp.e1-e8.
2) Borgdorff, M., Kwaro, D., et al. (2018). HIV incidence in western Kenya during scale-up of antiretroviral therapy and voluntary medical male circumcision: a population-based cohort analysis. The Lancet HIV, 5(5), pp.e241-e249.
3) National AIDS and STI Control Programme (NASCOP), Preliminary KENPHIA 2018 Report. Nairobi: NASCOP; 2020

Figure 2: Recruitment and test results for each RITA step



*People were eligible for HIV testing if they had not been tested in previous 3 months or were on ART.
1,914 tested HIV negative, 6 had unknown HIV status.
± In Siaya County, ART status was determined using clinic records. In Nairobi, ART status was determined using ARV metabolite testing. In Zimbabwe, ART status was determined by self-report as part of the eligibility criteria.

RESULTS

1269 HIV positive men and women were tested for recent infection.

Table 1 highlights how combining recency assay results with viral load and ART data greatly reduced the number of people classified as recent positive in all three settings, thereby improving the estimates.

Location	Recency rate based on:		
	LAg avidity	LAg + viral load	LAg + viral load + ART
Siaya County	24.9% (106/426)	2.6% (11/426)	2.3% (10/426)
Nairobi	11.3% (60/530)	9.1% (48/530)	8.7% (46/530)
Zimbabwe	15.6% (49/313)	10.5% (33/314)	10.5% (33/314)

Table 1: Recency rates for the three pilot studies based on LAg avidity, LAg avidity + viral load, and LAg avidity + viral load + ART

CONCLUSIONS

- We successfully identified recently acquired infections among persons diagnosed with HIV in real-world settings.
- Our recency percentages would have been substantially inflated without the inclusion of clinical information.

Other literature

- In Zimbabwe, similar estimates have been reported. HIV incidence was estimated at 10-12% per year between 2009-2014 in FSW in Zimbabwe by Hargreaves et al[1].
- In Siaya county, incidence was estimated at 7.7/1000 person years in the female adult population[2] between 2011-2016. Annual HIV incidence in Kenya was 0.14% in 2018[3].

In using recency assays to accurately distinguish recent from long-standing infection in routine settings, we highlight the importance of considering a person's previous HIV test history, ART use, and viral load.

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