TRENDS IN PERSISTENT HIV VIREMIA DURING UNIVERSAL TEST AND TREAT SCALE-UP IN UGANDA

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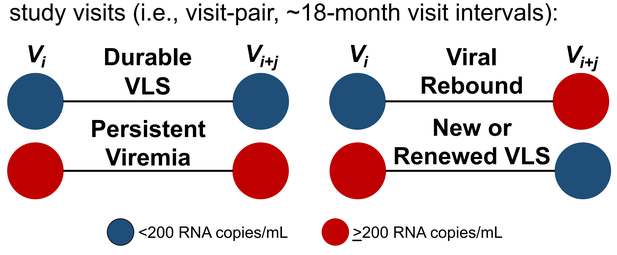
BACKGROUND

- **There are limited population-level data on durable HIV viral load suppression (VLS) following Universal Test and Treat (UTT) implementation in Africa**
- We assessed trends in durable VLS among persons living with HIV in 40 Ugandan communities (36 inland, 4 Lake Victoria fishing communities) during UTT scale-up

METHODS

- From 2015 to 2020, we measured VLS (<200 HIV RNA copies/mL) among persons in the Rakai Community Cohort Study, a population-based study in Uganda
- Two types of viremia were identified: low-level (200-999 copies/mL) and high-level (≥1,000 copies/mL) viremia
- Four individual virologic outcomes were assessed over 2 study visits (i.e., visit-pair, ~18-month visit intervals):



- Prevalence and individual-level predictors of persistent high-level viremia were assessed using robust Poisson regression with generalized estimating equations

Calendar period: Oct. 2016 – May 2018 vs. Feb. 2015 – Sep. 2016

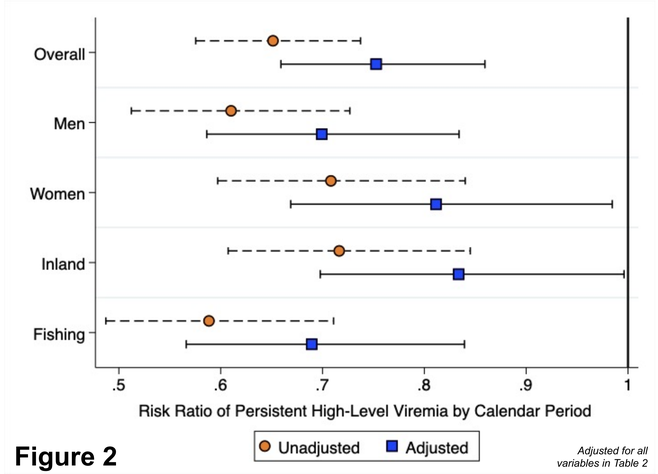


Figure 2

Most persons are **durably suppressed (72%)**. Of those exhibiting viremia initially, **47% maintain viremia** for **≥1 year**, **>90%** being **high-level viremia**

One in five persons with **high-level viremia** self-report **ART use for ≥1 year**

Persistent high-level viremia was **twice** as high in **young men (ages 15-29)** relative to all other groups

RESULTS

- Overall, **3,080 persons** contributed **4,604 visit-pairs** to the analysis
- **Durable VLS** was the most prevalent outcome (**72.4%**) (Table 1)
- Among persons exhibiting viremia at the initial visit, **46.9%** stayed viremic through follow-up, **91.3%** being high-level viremia (Fig. 1)
- **20.8%** of persons with high-level viremia were on **ART ≥12 months**
- Persistent high-level viremia **declined significantly during UTT scale-up** overall, by gender, and across community types (Fig. 2)
- Persistent high-level viremia significantly clustered in **younger ages**, **men**, and **individuals with higher-risk behaviors** (Table 2)

Table 2. Adjusted risk ratios of persistent high-level viremia

Characteristics	Risk Ratio (95% CI)	*p*-value
Age group		
15-29 years	**2.96 (2.21–3.96)**	**<0.001**
30-39 years	**1.63 (1.24–2.15)**	**<0.001**
40-49 years	1.00	*Ref.*
Gender		
Man	**2.40 (1.87–3.07)**	**<0.001**
Woman	1.00	*Ref.*
Condom use		
Steady partners only	1.00	*Ref.*
Consistent use w/ casual partners	1.26 (0.99–1.61)	0.062
Inconsistent use w/ casual partners	**1.38 (1.10–1.74)**	**0.006**
Alcohol use consequences (*range*: 0-8)	**1.09 (1.03–1.16)**	**0.005**

Figure 1

Table 1. Prevalence of visit-pair virologic outcomes

Virologic Outcomes	n/N	Weighted %
Durable VLS	3,408/4,604	**72.4%**
New/Renewed VLS	575/4,604	**13.3%**
Persistent Viremia	508/4,604	**11.8%**
Viral Rebound	113/4,604	**2.5%**

CONCLUSIONS

- Following universal ART rollout, most persons living with HIV in southern Uganda are durably suppressed
- Among persons exhibiting viremia initially, nearly half maintain high-level viremia for ≥1 year and exhibit higher-risk behaviors associated with onward HIV transmission
- Targeted HIV testing, enhanced linkage to HIV care, and optimized treatment retention could accelerate momentum towards HIV epidemic control

ADDITIONAL KEY INFORMATION

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