Title: Who does HIV viral load testing reach first? Lessons from Tanzania's first year of scaling up HIV viral load accessibility

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Introduction: Tanzania scaled-up HIV viral load (HVL) testing in 2016 through expanding laboratory capacity and specimen transport to processing hubs, with policies stating that all ART patients should have HVL at 6, 12 and every 12 months after antiretroviral (ART) initiation. This analysis examines factors associated with HVL testing among eligible patients during early scale-up.

Methods: Electronic medical records from the national care/treatment database (n=198 clinics, six regions) were analyzed descriptively, and with logistic regression. 86,260 patients on ART visiting a clinic that provided HVL testing from October 2016-September 2017, and who were retained at least six months, were analyzed. Patients with their first HVL test during the study period were compared to patients who did not receive an HVL test. Independent variables included age, pregnancy, sex, CD4, ART regimen and duration on ART.

Results: HVL testing reached 22% of eligible ART patients overall: 17% of youth (15-24 years) received HVL testing, significantly less than the 23% in children <15 and 22% in adults 25+ (p<.0001). Women recently or currently pregnant were more likely (33%, p<.0001) to receive HVL testing compared to non-pregnant women (22%) or men (21%). Patients with an unknown baseline CD4 were more likely to have an HVL test (23%), while patients with low baseline (<200) CD4 were less likely (16%, p<.0001). HVL testing was more likely among patients on ART for more than one year (1-3 years: 19%, 4+ years: 26%) compared to those on ART 6-12 months only (14%; p<.0001), and patients on 2nd line ART were more likely to be tested (33%) compared to 1st line (22%). Selected adjusted odds ratios and 95% confidence intervals are presented in Table 1.

Conclusions: With HVL services still being scaled-up in Tanzania, these results describe how clinicians currently prioritize certain patients for HVL testing, such as those with a recent or current pregnancy, no baseline CD4 measure, on ART for longer, or on 2nd line ART already. As the program continues to scale-up, emphasis should be on ensuring adequate program support and clinician education to increase timely HVL monitoring for all eligible patients.

Table 1: Factors associated with HVL testing among eligible patients

Variable	Category	Number HVL tested	%	p-value (bivariable)	Adjusted Odds Ratio and 95% Confidence Interval		
Age in years	<15	1,949	23%		1.07	0.94	1.23
	15-24	1,095	17%		0.70	0.65	0.77
	25+	15,922	22%	p<.0001	1.00		
Recent or current pregnancy (<12 months prior to HVL)	no	12,696	22%		1.00		
	yes	772	33%		2.47	2.08	2.94
	male	5,498	21%	p<.0001	0.89	0.85	0.93
Baseline CD4 (at ART initiation)	unknown	15,973	23%		1.16	1.07	1.24

	<200	762	16%		0.84	0.73	0.96	
	200+	2,231	19%	p<.0001	1.00			
Duration on ART in years	6-12 mo	905	14%		1.00			
	1-3	7109	19%		1.57	1.38	1.77	
	4+	10952	26%	p<.0001	2.04	1.74	2.40	
ARV regimen group	1st line	18,131	22%		1.00			
					1.40	1.16		1.70
	2nd line	835	33%	p<.0001	1.16	1.70	1.16	
Facility type	Hospital	12,602	26%		1.52	1.06	2.18	
	Primary	6,364	17%	p<.0001	1.00			