The Ethiopian Public Health Institute

Scale-Up of HIV Recent Infection Testing in Ethiopia:

Early Results from the Field and Lessons Learned

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Acknowledgement

Abstract

Ethiopia is scaling up HIV-1 recent infection testing within routine HIV testing services to better target prevention services and accelerates epidemic control.

Rapid test for HIV-1 recent infection (RTRI)is an antibody test that distinguishes a probable recent HIV-1 infection (acquired within the last 12 months) from a long-term infection (acquired more than 12 months ago). Asante^{TM} HIV-1 RTRI was used following HIV positive diagnosis by the national HIV rapid testing algorithm. RTRI was offered to all newly diagnosed HIV positive clients 15 years and older after obtaining verbal consent among a convenient sample of clinics. We examined proportion of probable recent infection among newly diagnosed clients by sociodemographic and clinical characteristics using bivariate logistic regression.

From June 2019 – February 2020, 402/1165(35%) health facilities, accounting for 72% of new HIV diagnoses in the country in FY 2018, began implementing RTRI. 380/432(88%) health facilities reported 4567newly diagnosed clients receiving RTRI. Among newly diagnosed HIV positives, Proportion of Asante recent infections was significantly higher (P values ≤ 0.05) in the younger age groups, in Gambella, Harari , Tigray, SNNPR regions , among female sex workers, students, never married individuals , homeless people , VCT clients and patients with WHO stage I. Intensifying case finding strategy through index case testing, and provision of differentiated care and treatment services focusing on these sub-population groups will speed up the country's efforts towards reaching epidemic control. Since viral load testing was not done on Asante recent cases, there could be individuals that are virally suppressed and misclassified by the assay. Using RTRI in conjunction with viral load would help reduce misclassification.

Background

In countries nearing HIV epidemic control, like Ethiopia, cross-sectional surveys are insufficient to monitor a waning national epidemic and emerging micro-epidemics. We describe the context, process of implementation and lessons learned in establishing HIV case surveillance, in integration with the routine public health emergency management system (PHEM) in Ethiopia. Implementation phase-I is currently implemented in 432 high HIV load public and private health facilities. Data is collected using paper-based case report form (CRF) at HIV testing points. The CRF captures information on client identifiers, demographic, baseline clinical, laboratory, and risk assessment data, and rapid recency test (Asante[TM])Result. The CRFs are entered into an electronic database (REDCap)through a secure internet connection, stored at Ethiopian National Public Health Institute (EPHI) data servers. De-duplication and matching will be done through defined algorithms derived from multiple client identifiers. Data analysis and visualization is done weekly, to describe new HIV cases by place, person, and time. EPHI shares the report regularly with all stakeholders to guide individual and cluster HIV response. Phase II implementation will build on phase-I and will be upgraded to longitudinal HIV case surveillance system to capture data all sentinel events[1], after the new diagnosis, along the care cascade.

The key to successful implementation is the integration of case reporting with PHEM. The government of Ethiopia developed national HIV case reporting guidelines, specifying the implementation methodology and the roles and responsibilities of the PHEM and HIV/TB research departments – starting from facilities up to the Federal Ministry of Health. The collaboration between PHEM and HIV/TB research directorates in the public health institute has enabled to leverage the human and financial resources from both departments in moving the surveillance forward. The platform built can serve other PHEM disease reporting as well.

Ethiopia has demonstrated that HIV case reporting can be established in resource limited settings, even in the absence of a strong patient level information system. Introduction of HIV case reporting has shifted Ethiopia's HIV program from measuring aggregated services to tracking interventions at individual level and access to differentiated HIV services.

Table 1: Characteristics associated with HIV recent infection, among newly identified HIV positive with RTRI information, June, 2019 –Feb, 2020

Variables		HIV recency status		
	Categories	Long-term	Recent	P-value
		N(%)	N(%)	
Age	15-19	140 (70%)	61 (30%)	.000
	20-24	468 (74%)	163 (26%)	.000
	25-49	2826(86%)	479(14%)	.034
	50+	384(89%)	46(11%)	REF
	Total	3818(84%)	749(16%)	
Sex	Female	2336(83%)	475(17%)	.251
	Male	1482(84%)	274(16%)	REF
	Total	3818(84%)	749 (16%)	
Occupation/ population group	House wives	419(84%)	77(16%)	REF
	Daily laborer's	1449 (83%)	292(17%)	.509
	Drivers	144(87%)	21(13%)	.382
	Farmers	290(87%)	43(13%)	.295
	FSWs	92(65%)	49 (35%)	.000
	GO/NGO employees	562(86%)	89(14%)	.377
	Job less	130(82%)	28(18%)	.513
	Merchants	184(86%)	29(14%)	.514
	Students	110(73%)	40(27%)	.002
	Other	210(85%)	37(15%)	.846
	Total	3590(84%)	705(16%)	

Residence	Addis Ababa	1237(87%)	192 (13%)	REF
	Afar	33(73%)	12 (27%)	.014
	Amhara	720(85%)	125 (15%)	.367
	Benishangul-Gumuz	59(91%)	6 (9%)	.332
	Diredawa	79(82%)	17 (18%)	.241
	Gambella	76 (67%)	37 (33%)	.000
	Harari	36 (69%)	16 (31%)	.001
	Oromia	964 (85%)	172 (15%)	.219
	Other country	4(80%)	1(20%)	.671
	SNNPR	340(81%)	81(19%)	.003
	Somali	43 (83%)	9(17%)	.425
	Tigray	198(73%)	74(27%)	.000
	Total	3789(84%)	742(16%)	
Type of current residence	House/apartment	3076 (84%)	578 (16%)	REF
	Prison	33(75%)	11(25%)	.103
	Homeless	193(78%)	56(22%)	.006
	Shelter	274(81%)	63(19%)	.169
	Other	93(82%)	20(18%)	.590
	Total	3669(84%)	728(16%)	
Marital status	Married	1622(84%)	299(16%)	REF
	Never married	766 (78%)	214 (22%)	.000
	Divorced/Separated	908(85%)	158(15%)	.589
	Widow/Widower	399(88%)	55(12%)	.064
	Living together	84(84%)	16(16%)	.907
	Total	3779(84%)	742(16%)	
Pregnancy status	No	1900(83%)	387 (17%)	REF
	Yes	290(83%)	61(17%)	.832
	Total	2190(84%)	448(16%)	
Testing outlet	OPDs	1176 (86%)	196 (14%)	REF
	VCT	1217(80%)	300(20%)	.000

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	ART/PMTCT clinic	388(84%)	73(16%)	.416
	MCH	433(85%)	75(15%)	.793
	In-patient	24385%)	42(15%)	.843
	Other	240(84%)	46(16%)	.434
	TB Clinic	97(87%)	14(13%)	.627
	Total	3794(84%)	746(16%)	
WHO staging	I	2127 (81%)	487 (19%)	.001
	II	568(86%)	89(14%)	.943
	III	684(87%)	106(13%)	REF
	IV	166(93%)	13(7%)	.026
	Total	3545(84%)	695(16%)	
Initiated on ART with in same week	No	270 (84%)	53 (16%)	REF
	Yes	2704 (83%)	543 (17%)	.885
	Total	2974(83%)	596(17%)	

Discussion and Conclusions:

From June 2019 – February 2020, 402/1165(35%) health facilities, accounting for 72% of new HIV diagnoses in the country in FY 2018, began implementing RTRI. 380/432(88%) health facilities reported 4567newly diagnosed clients receiving RTRI. Of these,749 (16%) were classified as Asante recent. Among newly diagnosed HIV positives, Proportion of Asante recent infections was significantly higher (P values ≤ 0.05) in the younger age groups, in Gambella, Harari, Tigray, SNNPR regions, among female sex workers, students, never married individuals, homeless people, VCT clients and patients with WHO stage I. We did not observe any difference by sex and pregnancy status.

RTRI can signal emerging epidemics in different geographies and sub-populations by indicating where and among whom likely recent infections are occurring. We have found that, significantly high proportion of HIV recent infections are occurring among Young Adults, Female Sex Workers, Students, Never Married individuals and homeless people. Intensifying case finding strategy through index case testing, and provision of differentiated care and treatment services focusing on these sub-population groups will speed up the country's efforts towards reaching epidemic control. Since viral load testing was not done on Asante recent cases, there could be individuals that are virally suppressed and misclassified by the assay. Using RTRI in conjunction with viral load would help reduce misclassification.