

Supplemental Digital Content 1. Characteristics of Children at ART Start and at First Episode of Virological Failure (two consecutive viral load > 1000 copies/ml) (n=982)

		TOTAL	Remain on failing regimen (n=557)	Switch to second-line (n=335)	Switch to holding regimen (n=25)	Treatment interruption (n=65)	
Female		453 (46%)	277 (50%)	137 (41%)	11 (44%)	28 (43%)	
Median (IQR) age (years)	At ART start	4.1 (1.1-8.3)	2.2 (0.7-6.9)	6.8 (3.9-9.9)	4.6 (1.0-6.7)	2.9 (0.7-7.1)	
	At failure	6.1 (2.7 - 10.7)	4.1 (2.2-9.0)	9.1 (5.7-12.0)	6.3 (3.7-10.1)	4.5 (1.8-10.1)	
Age categories at failure	<3	273 (28%)	212 (38%)	31 (9%)	5 (20%)	25 (39%)	
	3-5	154 (16%)	103 (19%)	35 (10%)	5 (20%)	11 (17%)	
	5-10	277 (28%)	128 (23%)	129 (39%)	8 (32%)	12 (19%)	
	>= 10	278 (28%)	114 (20%)	140 (42%)	7 (28%)	17 (26%)	
Year of ART start	2004-2005	380 (39%)	216 (39%)	134 (40%)	4 (16%)	26 (40%)	
	2006-2007	341 (35%)	193 (35%)	120 (36%)	10 (40%)	18 (28%)	
	2008-2010	261 (27%)	148 (27%)	81 (24%)	11 (44%)	21 (32%)	
Median (IQR) duration on ART prior to failure (years)		1.4 (1.0-2.3)	1.4 (1.0-2.1)	1.6 (1.0-2.5)	1.7 (1.1-3.4)	1.2 (0.8-2.3)	
Severe Immune Suppression*	At ART start	420/703 (60%)	231/389 (59%)	148/245 (60%)	8/18 (44%)	33/51 (65%)	
	At failure	159 (16%)	79 (14%)	60 (18%)	3 (12%)	17 (26%)	
Median CD4% (IQR)	At ART start, n	11.6 (6.4-16.4), 697	12.9 (7.8-18.0), 386	9.1 (4.4-14.9), 243	11.9 (8.0-16.2), 18	10.9 (5.3-16.0), 50	
	At failure	21.6 (14.9-27.9)	22.5 (16.9-29.0)	19.2 (12.6-26.0)	23.7 (18.5-31.2)	20.4 (13.3-26.2)	
	Nadir	10.4 (6-15.9)	11.5 (7.4-16.5)	8.4 (4.0-14.3)	10.0 (7.0-15.3)	9.5 (5.3-15.0)	
Median CD4 (IQR)	At ART start, n	328 (137-639), 706	403 (195-751), 393	222.5 (83.5-448), 244	366.5 (210-623), 18	295 (103-611), 51	
	At failure, n	708 (400-1192), 979	888.5 (471-1418), 554	527 (321-838), 335	763 (510-1128), 25	661 (379-1041), 65	
Median Log ₁₀ Viral Load (IQR) at failure		4.1 (3.5-4.8)	4.0 (3.5-4.8)	4.1 (3.6-4.7)	4.5 (3.8-4.9)	4.7 (3.9-5.2)	
Weight-for-age Z-score < -2	At ART start	331/608 (54%)	200/356 (56%)	98/196 (50%)	7/16 (44%)	26/40 (65%)	
	At failure	142/678 (21%)	78/412 (19%)	46/203 (23%)	7/17 (41%)	11/46 (24%)	
Median Weight-for-age Z-score	At ART start, n	-2.2 (-3.4; -1.2), 608	-2.3 (-3.5; -1.3), 356	-2.0 (-3.1; -1.2), 196	-1.6 (-3.5;-0.1), 16	-2.9 (-4.1;-1.5), 40	
	At failure, n	-1.0 (-1.9; -0.3), 678	-0.9 (-1.8;-0.2), 412	-1.1 (-1.9;-0.3), 203	-1.5 (-2.2;-0.6), 17	-1.5 (-2.0; -0.5), 46	
Regimen at failure	NRTI backbone	Stavudine/lamivudine	833 (85%)	462 (83%)	298 (89%)	19 (76%)	54 (83%)
		Third Drug	Nevirapine	39 (4%)	21 (4%)	13 (4%)	2 (8%)
	Efavirenz	545 (56%)	211 (38%)	290 (87%)	14 (56%)	30 (46%)	
	LPV/r	327 (33%)	274 (49%)	19 (6%)	8 (32%)	26 (40%)	
	Ritonavir alone	48 (5%)	31 (6%)	12 (4%)	0 (0%)	5 (8%)	
	LPV/r + Ritonavir	23 (2%)	20 (4%)	1 (0%)	1 (4%)	1 (2%)	
	Level of care	Primary	116 (12%)	87 (16%)	27 (8%)	1 (4%)	1 (2%)
	Secondary / Tertiary	866 (88%)	470 (84%)	308 (92%)	24 (96%)	64 (99%)	
PMTCT Exposure	Yes	128 (13%)	96 (17%)	22 (7%)	2 (8%)	8 (12%)	
	No	86 (9%)	49 (9%)	27 (8%)	0 (0%)	10 (15%)	
	Unknown	768 (78%)	412 (74%)	286 (85%)	23 (92%)	47 (72%)	

*Immune suppression defined according to WHO 2005 classification for severe immune suppression in children: age <13 months with CD4% <20% or age 13-59 months with CD4% <15%, or 5 years and older with CD4<=200

LPV/r: Lopinavir/ritonavir

PMTCT: Prevention of Mother to Child Transmission