

Background

- Participants in ART programs in rural African settings are challenged by the high costs of transportation which can lead to high rates of loss-to-follow-up (LTFU) and death
- We examined program retention among long-term participants of an ART program in rural Uganda which has used a community-based distribution of ART and satellite clinics since its inception in 2004

Methods

- We conducted a retrospective cohort analysis of all patients >18 years who initiated ART at TASO-Jinja between January 1, 2004 and July 31, 2009
- We identified all clients in community and facility-based ART delivery arms using an electronic clinical monitoring database. The catchment area included participants in villages up to 75km away from Jinja town
- Enrollees were expected to attend regular clinic or outreach visits every one- to-three months. CD4 cell count testing was offered every six months
- We calculated the proportion of participants who had at least one recorded clinic or outreach visit in the six months before June 1, 2013 and examined associations with the combined outcome of LTFU or death using Cox proportional hazards model.
- P-values were calculated using chi-square test for categorical variables and Wilcoxon's rank sum test for continuous variables

Results

- A total of 3340 participants began ART during 2004 – 2009 and the median time on ART in June 2013 was 5.7 years (IQR=4.1-7.2)
- 2379(71%) were females the median age was 40 years (IQR= 34- 46) and the median CD4 count at initiation was 184 cells/μL (IQR= 95 – 298)
- 1335 (40%) were residents of Jinja district and 2005 (60%) resided in outlying districts. Of these,-2317(69%) were retained in care, 577 (17%) died, 161 (5%) transferred out, 285 (9%) were LTFU
- The mortality rate was 3.22/100 and LTFU rate were 1.59/100 person years respectively

Table 1:

Bivariate analysis of participants who initiated ART between 2004 and 2009 categorized on the basis of their participation status in 2013

	Active or transferred out (N=2478)		Dead or Lost to follow-up (N=862)		P-value
	Total N	N/Median (%)	N/Median (%)		
Gender	3340				<0.001
Female	1839	(77)	540	(23)	
Male	639	(66)	322	(34)	
CD4 at ART initiation	3094				<0.001
<50	253	(52)	230	(48)	
50-199	936	(76)	298	(24)	
>=200	1212	(88)	165	(12)	
Hemoglobin count of participant at ARV initiation or clinical visit	2219				<0.001
<8	53	(63)	31	(37)	
>=8	1717	(80)	418	(20)	
WHO stage	2824				<0.001
Stage 1	38	(76)	12	(24)	
Stage 2	1142	(85)	205	(15)	
Stage 3	950	(77)	280	(23)	
Stage 4	140	(71)	57	(29)	
District of residence at ART initiation	3340				0.152
Iganga	370	(77)	113	(23)	
Jinja	960	(72)	375	(28)	
Kamuli	233	(73)	88	(27)	
Buikwe	438	(76)	136	(24)	
Mayuge	332	(76)	103	(24)	
Other	145	(76)	47	(24)	
Occupation	2915				0.045
Casual Labourer	189	(72)	72	(28)	
Paid Employee	178	(76)	57	(24)	
Peasant	907	(75)	299	(25)	
Vendor/Business person	322	(77)	96	(23)	
Other	220	(72)	86	(28)	
None	336	(69)	153	(31)	
Education level	2915				0.798
None/Preprimary/Other	352	(73)	129	(27)	
Some Primary	1186	(73)	429	(27)	
Some secondary	541	(75)	178	(25)	
Higher education	73	(73)	27	(27)	
First ARV regimen	3071				0.065
Efavirenz /zidovudine/lamivudine	259	(80)	63	(20)	
Efavirenz/stavudine/lamivudine	151	(76)	49	(25)	
Nevirapine/stavudine/lamivudine	715	(75)	234	(25)	
Nevirapine/zidovudine/lamivudine	1086	(80)	273	(20)	
Other ARV regimen	191	(79)	50	(21)	
Age at ART initiation	3340	40 (34-46)	39 (33-47)		0.344
CD4 at ART initiation	3094	201 (120-332)	110 (28-196)		<0.001
Year of ART initiation	3340	2006 (2005-2008)	2006 (2006-2008)		0.581

Table 2:

Multivariate analysis to time to morality and/or lost-to-follow-up

	HR (95% CI)	P-value		HR (95% CI)	P-value
Age at ART initiation	1.00 (0.99, 1.01)	0.720	Year of ART initiation	1.32(1.2, 1.46)	<0.001
Gender			first ARV regimen		
Female	1.00 (-)	<0.001	NVP/ AZT/ 3TC	1.00 (-)	0.003
Male	1.6(1.3, 1.97)		EFV/D4T/3TC	0.87(0.53, 1.44)	
CD4 at ART initiation			EFV/ AZT/ 3TC	0.74(0.51, 1.09)	
>=200	1.00 (-)	<0.001	NVP/D4T/ 3TC	1.38(1.08, 1.76)	
50-199	1.86(1.46, 2.37)		Other ARV regimen	1.41(1.00, 1.99)	
<50	4.11(3.13, 5.4)		Education level		
WHO stage			None/Preprimary	1.00 (-)	0.400
Stage 1 & 2	1.00 (-)	0.002	Higher education	0.73(0.39, 1.38)	
Stage 3	1.36(1.1, 1.67)		Some secondary	0.81(0.58, 1.12)	
Stage 4	1.72(1.21, 2.43)		Some Primary	0.97(0.74, 1.28)	
District of residence at ART initiation			Occupation		
Jinja	1.00 (-)	0.562	Peasant	1.00 (-)	0.065
Buikwe	0.92(0.69, 1.22)		Casual Labourer	1.13(0.81, 1.58)	
Iganga	0.77(0.58, 1.03)		None	1.34(1.02, 1.74)	
Kamuli	0.92(0.66, 1.28)		Other	1.13(0.8, 1.58)	
Mayuge	0.95(0.7, 1.28)		Paid Employee	0.92(0.61, 1.39)	
Other	0.77(0.5, 1.19)		Vendor/Business person	0.79(0.57, 1.08)	

Conclusion

- Among participants enrolled in an ART program for a median of over 5 years, rates of mortality and LTFU were very low and did not differ based on the geographic residence of program participants.
- This suggests that community-based distribution systems can effectively mitigate the time and cost constraints associated with transportation to ART clinic sites

PRESENTING AUTHOR:

Stephen Okoboi  
Program officer-research  
The AIDS Support Organization (TASO)-Uganda  
P.O BOX 10443  
okobois@tasouganda.org

