

# Retention on ART among HIV patients in Côte d'Ivoire and eSwatini†

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## Background

The ultimate success of antiretroviral therapy (ART) initiation is dependent on achievement of high retention and adherence. Data are needed on factors that influence retention of ART patients in resource-limited settings (RLS).

## Methods

We used routinely collected data to separately evaluate 12-month retention among ART patients at PEPFAR-funded, ICAP-supported health facilities (HF) in Côte d'Ivoire and eSwatini.

- Proportions of retained ART patients were calculated for quarterly cohorts that initiated ART from January 2014 to September 2015 to examine trends over time and by subgroup.
- Adjusted relative risk ratios estimated with Poisson regression models that specified binomial outcome distribution, log link and generalized estimating equation (GEE) were used to examine trends in retention over time and significant demographic and health facility factors associated with retention.
- This project was approved by the Columbia University IRB, CDC, eSwatini Ethics Committee, Côte d'Ivoire National Ethics Committee for Science of Life and Health.

## Results

Data from 6,923 HIV patients from Côte d'Ivoire (87 HF) and 19,118 from Swaziland (93 HF) who initiated ART from January 2014 to September 2015 were included in the analysis (Table 1).

### Côte d'Ivoire

- 71.4% of patients were female and 94.2% were aged  $\geq 15$  years.
- 12-month retention increased from 74.4% for the first cohort (January-March 2014) to 88.8% for the last cohort (July-September 2015), an average of 2.6% per quarter increase after adjusting for sex and age ( $p_{\text{trend}} < 0.001$ ).
- Female had higher retention than male ( $p < 0.0001$ ) and those at secondary ( $p < 0.0001$ ) or tertiary ( $p = 0.02$ ) HF had lower retention than those at primary HF; there was no difference by age ( $p = 0.92$ ).

### eSwatini

- 66.2% of patients were female and 94.3% were  $\geq 15$  years old.
- 12-month retention was 92.7% for the first cohort and 88.2% for the last cohort, with no significant change over time ( $p_{\text{trend}} = 0.34$ ).
- Children aged 5-14 years old ( $p = 0.001$ ) were more likely to be retained than adults; children aged  $< 5$  years did not ( $p = 0.69$ ).
- Patients at semi-urban HF ( $p = 0.02$ ) were more likely to be retained than those at urban HF, while those at tertiary HF ( $p = 0.04$ ) had lower retention compared to primary HF.

## Conclusion

- Retention on ART was high in both countries compared to earlier reports from sub-Saharan Africa.
- Demographic and health facility factors such as sex, age, location and type of HF are possible correlates of retention on ART, and the associations might vary across social contexts (countries).
- The HF in the study were not randomly selected and thus the generalizability of the findings is limited to the ICAP supported HF in these countries. Additionally, undocumented transfers could not be accounted for.
- Overall, these findings are encouraging and bode well for achieving the individual and societal benefits of ART. Viral load data are needed to confirm this potential.

**Table 1. Proportions and correlates of 12 months retention on ART among HIV patients initiating treatment from January 2014- September 2015 in Côte d'Ivoire and eSwatini**

	Côte d'Ivoire			eSwatini		
	Patients enrolled	% retained	RR ratio (95%CI)	Patients enrolled	% retained	RR ratio (95% CI)
Total	6923	79.8		19118	90.9	
<b>Sex</b>						
Male	1978	76.3	ref.	6468	90.2	ref
Female	4945	81.2	<b>1.05 (1.03, 1.08)</b>	12650	91.3	1.01 (0.99, 1.03)
<b>Age</b>						
<5 y	147	76.9	0.97 (0.88, 1.07)	523	89.3	1.01 (0.95, 1.07)
5 - 14 y	256	78.5	1.01 (0.94, 1.08)	566	96.3	<b>1.08 (1.03, 1.15)</b>
$\geq 15$ y	6520	79.9	ref	18029	90.8	ref.
<b>Location of health facility</b>						
Urban	6171	79.5	ref.	9738	89.0	ref.
Semi-urban	561	80.7	1.00 (0.96, 1.06)	2150	95.2	<b>1.08 (1.01, 1.14)</b>
Rural	191	85.9	1.09 (0.99, 1.19)	7230	92.1	1.04 (0.97, 1.11)
<b>Type of facility</b>						
Public primary	2619	83.5	ref.	6778	92.4	ref.
Public secondary	2647	75.4	<b>0.90 (0.86, 0.94)</b>	2462	94.2	1.01 (0.7, 1.06)
Public tertiary	649	78.9	<b>0.94 (0.89, 0.99)</b>	3364	83.6	<b>0.89 (0.8, 1.0)</b>
Private	1008	82.3	0.99 (0.94, 1.04)	6514	91.9	0.99 (0.94, 1.03)
<b>Patient cohorts initiating ART</b>						
Jan-Mar 2014	1121	74.4	ref.	3287	92.7	ref.
Apr-Jun 2014	988	78.2	1.05 (1.00, 1.11)	2949	92.3	1.00 (0.99, 1.01)
Jul-Sep 2014	1117	80.8	<b>1.09 (1.04, 1.14)</b>	6081	90.5	0.99 (0.96, 1.01)
Oct-Dec 2014	989	74.2	1.00 (0.94, 1.07)	1721	90.1	0.98 (0.94, 1.02)
Jan-Mar 2015	982	79.7	<b>1.08 (1.02, 1.14)</b>	1769	91.1	0.99 (0.97, 1.02)
Apr-Jun 2015	845	84.6	<b>1.14 (1.08, 1.21)</b>	1738	89.4	0.98 (0.94, 1.02)
Jul-Sep 2015	881	88.8	<b>1.20 (1.12, 1.28)</b>	1573	88.2	0.97 (0.92, 1.01)

\*Highlighted in **bold** indicates statistical significance at alpha=0.05 ( $p < 0.05$ ).

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† eSwatini was formerly known as Swaziland.

