



## A Cross Sectional Study on Uptake of Antiretroviral Drugs and Survival of People Living with HIV/AIDS (PLHIVs) at a Tertiary Hospital in the Gambia

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### Abstract

**Background:** Over two decades HIV/AIDS was a devastating diagnosis causing millions of deaths around the globe but especially in sub Saharan Africa (SSA) about the same time the first case of AIDS was diagnosed in the Gambia (1986). The advent of ART (anti-retroviral therapy) has changed this dramatically and HIV/AIDS has become a chronic disease with a good quality of life. In this survey we looked at five years trend of uptake of Anti-retro viral therapy (ART) and survival of people living with HIV infection in our setting.

**Methodology:** This was a cross sectional quantitative study. Data was collected from the ART registers and care and support registers using a structured data collection tool from January 2010 to December 2014. Data was analysed using excel spreadsheet.

**Results:** The peak age of occurrence and detection of HIV infection was 25-49 years irrespective of sex. New infections progressively increased and had a 2.2-fold increase in 2013. HIV type 1(80.7%) was the leading strain of virus in male and female PLHIVs. A total of 1093 were approved for ART, 1033 (94.5%) started, 104 (10%) were children under 10 years and 60 (5.5%) were lost to follow up. The uptake of ARVs increased 2 to 3-Fold in male and female PLHIVs respectively. Death rate decreased 2.5-fold between 2010 and 2014 for both female and male cohort.

**Conclusion:** The commencement and continuation of ARV drugs amongst PLHIV cohort is associated with reduction of AIDS related death and remarkable survival advantage.

**Keywords:** HIV/AIDS; Uptake of ART; Survival; Death; Tertiary; Hospital

### Abbreviations

ARV: Antiretroviral; ART: Antiretroviral Therapy; PLHIV: People Living with HIV.

### Introduction

Over two decades, HIV/AIDS was a devastating diagnosis causing millions of deaths around the globe but especially in sub Saharan Africa (SSA). The advent of ART (anti-retroviral therapy) has changed this dramatically and HIV/AIDS has become a chronic disease with a good quality of life.

Since the start of the AIDS epidemic, more than 78 million people have been infected with HIV and 39 million have died [1]. Acquiring HIV no longer means certain death. A person on HIV treatment in a high-income setting now has nearly the same life

expectancy as a person who does not have the virus [2]. However, only two out of five people living with HIV have access to antiretroviral therapy [3]. Among people who do have access, great inequities exist. People living with HIV are being left behind because they are not benefitting from health care, employment, education or social protection [3]. This is often due to stigma, discrimination, prohibitive laws and policies or a lack of services [4].

Between 2011 and 2012, the largest acceleration ever of people enrolled on ART was achieved, with an extra 1.6 million people benefitting from antiretroviral therapy, increasing the total to 9.7 million people [3]. Furthermore, increased coverage of treatment occurred in every region of the world, with Africa leading. Four out of 5 people who started treatment in 2012 were living in sub-Saharan Africa [5].

The Gambia as a country in sub-Sahara Africa has a considerable burden of the disease in her population of 1.9 Million with HIV prevalence rate of 1.9% [6] The first case of AIDS was diagnosed in May 1986 [7]. Initially the HIV epidemic was dominated by HIV-2, but since the mid 1990’s this changed into an HIV-1 driven epidemic. As at December 2013, 4, 006 PLHIV are on ART based on CD4 <350 with about 21% coverage [8]. About 90% of the PLHIV on ART are adults over 15 years while children make up about 10% [9]. The infectious disease clinic (IDC) of Edward Francis Small Teaching Hospital offer care and support to PLHIV since the inception of the program in the country in 2005. In this survey we looked at five years trend of uptake of Anti-Retro viral therapy (ART) and survival.

**Methodology**

This was a cross sectional quantitative study of uptake and survival of PLHIVs on anti-retroviral therapy at infectious disease clinic- Edward Francis Small Teaching Hospital from January 2010 to December 2014. Data was collected from the ART registers and care and support register using a structured data collection tool. Data was analysed using excel spreadsheet.

**Results**

Overall, 1093 PLHIV were approved for ART in the period under review, 1033 (94.5%) started ART and 104 (10%) were children under 10 years. Therefore 60 (5.5%) PLHIV did not start ART.

	MALE						FEMALE						TOTAL
	0-4	5-9	10-14	15-24	25-49	>49	0-4	5-9	10-14	15-24	25-49	>49	
2010	5	3	3	8	63	20	4	5	4	20	139	30	304
2011	2	3	1	6	59	33	2	6	0	27	213	25	377
2012	24	8	6	7	106	36	21	3	1	35	234	61	542
2013	6	4	5	11	139	68	10	7	6	47	373	82	758
2014	1	3	4	5	144	53	3	1	3	37	247	70	571
TOTAL	38	21	19	37	511	210	40	22	14	166	1206	268	2552

**Table 1:** The age strata and sex distribution of newly enrolled PLHIVs into care.

New infections progressively increased and had a 2.2-fold increase in 2013. The peak age of occurrence and detection of HIV infection was 25-49 years irrespective of sex. The female age group 15-24 years had increase of new infection however, for male age group 15-24 years there was a reduction of new HIV infection.

MALE	New patients sex and age from 2010 to 2014						TOTAL
AGE in years	0 - 4	5 - 9	10 -14	15 -24	25 -45	>45	
2010	4	3	1	0	33	16	57
2011	6	3	0	6	37	25	77
2012	12	4	2	1	34	12	65
2013	4	3	4	5	49	15	80
2014	7	3	9	7	55	21	102
TOTAL	33	16	16	19	208	89	381

**Table 3.1:** Sex and Age strata of newly enrolled PLHIV on ART.

MALE: The enrolment into ART for the male folk had static uptake in the under 10s (paediatric HIV). However, the adolescent and adults had remarkable increased ARV uptake from 2010 – 2014. Overall there was a 2-fold increase in the male (Table 3.2).

FEMALE: Also Paediatric HIV had minimal/static ARV uptake. The uptake of ARVs among female new HIV patients enrolled in each year increase 3-Fold from 2010 to 2014 (Table 4).

	MALE			FEMALE			TOTAL
	S1	S2	S3	S1	S2	S3	
2010	57	0	2	95	5	6	165
2011	60	1	16	111	10	45	243
2012	53	1	10	98	8	20	190
2013	72	5	3	139	9	10	238
2014	77	7	18	120	19	16	257
TOTAL	319	14	49	563	51	97	1093

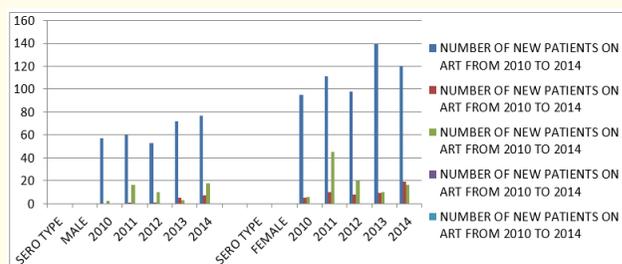
**Table 2:** HIV serotype of new patients approved for art from 2010 TO 2014.

S1 (HIV 1), S2 (HIV 2), S3 (HIV 1 and 2)

HIV type 1(80.7%) is the leading strain of virus in male and female PLHIVs. Overall there were more female on ART.

FEMALE AGE	0-4	5-9	10-14	15-24	25 -45	>45	TOTAL
2010	7	3	5	7	13	13	48
2011	5	2	0	20	122	17	166
2012	6	3	2	9	86	19	125
2013	11	6	9	18	96	18	158
2014	10	2	7	13	102	21	155
TOTAL	39	16	23	67	419	88	652

**Table 3.2:** Sex and Age strata of newly enrolled PLHIV on ART.



**Figure 1:** Trend of ARV Uptake.

The trend is on the increase from 2010 to 2014 irrespective of gender.

	MALE						FEMALE						TOTAL
	0-4	5-9	10-14	15-24	25-49	>49	0-4	5-9	10-14	15-24	25-49	>49	
2010	0	0	0	0	5	3	2	0	0	1	12	2	25
2011	0	0	0	2	6	2	0	0	0	0	2	2	14
2012	0	0	1	1	2	2	1	0	0	0	7	0	14
2013	1	0	0	0	4	1	1	0	0	0	8	1	16
2014	0	0	1	0	2	2	0	0	0	1	3	1	10
TOTAL	1	0	2	3	19	10	4	0	0	2	32	6	79

**Table 4:** Number of deaths in each year

## Discussion

The period under review had remarkable enrolment of PLHIV (1093) into care and support and a good number were started on ARVs (1033) for their own health. Overall there was a 2.2-fold increase in the number of people enrolled into care from 2010 to 2014 both years inclusive. Majority of them were female. The age strata of the PLHIVs showed remarkable variation in the proportion of new cases enrolled into care and uptake of ARVs. The peak age of acquiring HIV infection was at 25-49 irrespective of gender. The most at risk population 15-24 years was not the peak age of enrolment into care in our study. The reports of WHO and UNAIDS regarding demographic features of HIV epidemic has recurrently reported that the most at risk population are the 15-24 years, MSM and commercial sex workers and those in conflict zone [1,3,5]. Young people, aged 15 to 24 years old, accounted for 40% of all new HIV infections among adults in 2009 [1].

In our study we did not explore the impact of MSM, Sex work and conflict zones, however, we looked at gender and age which showed remarkable variation as, female sex was the majority despite similar peak age (25-49 years) of acquiring HIV infection.

It is pertinent to explore further the factors implicated in the difference observed between female and male folk in the age strata of 15-24 years (most vulnerable age of HIV acquisition and transmission). In this study new HIV infection occurred more in the female than in the male of this age group. This is a quantitative retrospective study that may not provide reasons for an observed event, however; overall the peak age was 25-49 which may not be similar to Gap report [5]. We suggest further qualitative study to explore the factors responsible as former study in the same population has suggested that female gender access health facilities more than their male counterparts [6].

The paediatric age 0-10 years had low enrolment into care which invariably reflect in the poor uptake of ARVs observed. However, there are known factors that could mitigate poor ARVs uptake and enrolment; these include linkage system between PMTCT sites and ART sites and most ART sites do not have paediatricians who may have high index of suspicion of disease and request for HIV screen. Our centre is a referral site therefore few referrals may lead to low enrolment observed in this age strata compared to other age groups. This was the same irrespective of gender. The uptake of

ARVs in this age group was poor and overall on ART was 10% of total people enrolled on ART during the period under review. The design of the study which was a survey did not include qualitative elements that would help ask further questions to explore potential risk factors and causes, therefore, we strongly recommend further research. Although this was not different from the UNAIDS report on uptake of ARV as paediatric HIV had the lowest uptake rate [3].

The trend of ARV uptake had 2-fold increase from 2010 to 2014 both years inclusive. This was irrespective of gender and adult age. The increased ARV uptake was similar to report of UNAIDS during the period under review that 4 in 5 PLHIV in sub-Sahara Africa had ARV leading to tremendous enrolment into ART of 1.6 Million PLHIVs world-wide between 2012 and 2013 [5].

In our study, out of 1033 people that started ART during the period under review 10% (104) were children under 10 years.

Also out of 1093 approved for ART in the period under review 1033 started therefore 60 (5.5%) PLHIV did not start. In our setting non-starters of ARV may have many reasons behind it some could be seeking for alternative treatment modality such as visit to herbalists etc but for the record purpose we categorize them as lost to follow up. The social worker and home based care team were notified.

The death rate decreased 2-fold as the number started on ART increased 2.3-fold. However, in some settings and studies despite advances in HIV therapy, the mortality rate remains high [10,11]. This was attributed to advanced disease condition at initiation of ARV drugs. In comparison, these studies [10,11] did not evaluate the trend over a period to determine whether or not there is a reduction as we investigated. There is no doubt, AIDs related death, despite increased access to ARV drugs is a significant contributor to mortality rate. Therefore, it is imperative to evaluate programmatic response in other to re-strategize to achieve desirable outcome. In the current dispensation we now do see and treat to avoid ART initiation at advanced disease. Further research is required and some have commenced to explore the impact of see and treat among people living with HIV (PLHIV) survival in our setting.

Regarding improvement in the quality of health and survival potential, a population based cohort study showed worse survival in intravenous drug user (IDU) and heterosexuals than in men having sex with men (MSM) [12]. At risk group stratification did not occur in our study however, because of decreasing trend in death and increasing uptake of ARVs among PLHIV it is more likely than not that survival is improved.

Therefore we can deduce that commencement and continuation of ARV drugs amongst PLHIV cohort is associated with reduction of AIDS related death and remarkable survival.

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