

## Short Communication

# Loss of follow-up among HIV infected female sex workers receiving antiretrovirals in Dakar, Senegal

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Accepted 23 March, 2011

**A better understanding of the significance and determinants of loss of follow-up and key potential related outcome measures, such as death and missed study visit would assist program evaluation and provide basis for future interventions. Senegal has one of Africa's lowest HIV/AIDS infection rate, less than 1%. But vulnerable groups such as sex workers have higher HIV prevalence. Currently, HIV infection among legal sex workers in Dakar has risen to 27.1%, compared to 1% 20 years ago, (Fact sheet, 2004). The prostitution in Senegal has been regulated since 1969. Sex workers register at public health clinics like ours, where they receive photo identity cards and make monthly visits for medical checkups. However, many operate outside the system. We estimate that more than 80% of Senegal sex workers do not register. In a retrospective cohort analysis, loss of follow-rates and death were assessed among HIV infected female sex workers receiving antiretroviral drugs at the "Institute d'Hygiene Social" (IHS) of Dakar, Senegal. Records of 74 HIV infected female sex workers receiving antiretroviral treatment, and followed at the IHS from April 2001 to August 2008 were reviewed. Overall, 15 patients (20.3%) died and 42 (57%) were lost during an average follow-up period of 26 months (SD = 18.9). The mean age of patients was 46.6 years old (SD = 7.8) and the mean CD4 count at entry was 215 (SD = 68.6). Using Cox Regression models, we did not find a significant relationship between age, ethnicity, CD4 count at entry or HIV-1 vs. HIV-2 type and loss of follow-up. These findings indicate the need to obtain better longitudinal follow-up data for optimal assessment of the reasons for loss-of follow up among HIV infected female sex workers receiving ARV in Senegal.**

**Key words:** Sex workers, loss of follow-up, HIV, antiretroviral therapy.

## INTRODUCTION

In sub-Saharan Africa (Hunter, 1993) and specifically in Senegal (UNAIDS/WHO, 2006), services for human immunodeficiency virus (HIV) care and treatment have expanded rapidly over the past decade. Antiretroviral therapy is provided to most HIV infected persons in need of treatment (Laurent et al., 2005). Despite demonstrable health gains by those on treatment (Laurent et al., 2005). Many programmes in the region are now reporting substantial loss to care of HIV

infected individuals (Laurent et al., 2005). Senegal has one of Africa's lowest HIV/AIDS infection rate, less than 1%. But vulnerable groups such as sex workers have higher HIV prevalence. Currently, HIV infection among legal sex workers in Dakar has risen to 27.1%, compared to 1% 20 years ago, (Fact sheet, 2004). The prostitution in Senegal has been regulated since 1969.

Sex workers register at public health clinics like ours where they receive photo identity cards and make monthly visits for medical checkups; however, many operate outside the system. We estimate that more than 80% of Senegal sex workers do not register. Although, it is one of the poorest countries in the world, with a per capita annual income less than \$600 in 2008,

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**Table 1.** Socio demographic characteristics of the females sex workers.

Variable		Exp (Beta)	95% CI	P-value
CD4 Count	≥ 250	1		0.51
	< 250	1.25	(0.64 – 2.42)	
Age		0.99	(0.96 – 1.03)	0.653
Ethnicity	Wolof	1		0.857
	Sérère	0.82	(0.34 -2.01)	
	Fulani/Toucouleur/Peulh	0.75	(0.28 – 2.00)	
	Other	0.7	(0.28 -1.74)	
HIV Type	HIV-1	1		0.951
	HIV-2	0.86	(0.32 – 2.23)	
	HIV-1/2	0.85	(0.20-3.58)	

Senegal is considered one of the world's success stories in HIV prevention. So, unprotected or the lack of information intercourse may have bad effects like health problems related to reproduction and HIV/AIDS infection (UNAIDS/WHO, 2009).

Our objectives were to estimate the rate of HIV-infected female sex workers who are lost to follow-up in the Dakar region and to study the risk factors associated with being "lost to follow-up" among HIV-infected FSWs.

## MATERIALS AND METHODS

This was a retrospective study of infected female. 74 sex workers receiving antiretroviral drugs at the "Institute d'Hygiene Social" (IHS) of Dakar, Senegal. The location of the site is called the Institute d'Hygiene Sociale located in Dakar, where female sex workers were registered. It is a public health clinic where female sex workers receive photo identity cards and make monthly visits for medical checkups. The females sex workers adults 18 years of age and older will be enrolled in the programme (18 years of age and older) are eligible and will be registered to participate in the study after signing the consent form. The female sex workers will have physical examination, laboratory test, X-ray and medication

### Study variables including their definitions and measurements

We collected quantitative data on sexual, demographic, behavioural and STI/HIV/AIDS and they will be measured by epi-info or ssp and the health mapper we also conducted focus groups in order to appreciate and analyse the qualitative variables (Table 1):

1. The HIS site serves primarily female sex workers, a well characterized high risk population that has been followed for over 15 years.

### Measurements

1. Outcomes
2. Loss of follow-up (LFU) was defined as any patient who missed a study visit and could not be contacted for 6 consecutive months or has died after being lost for > = 6 months.
3. Death
4. Covariates such as age, ethnicity, CD4 count at entry or HIV-1 vs HIV-2 type infections were taken into account.

### Statistics

1. Cox Regression models were used to assess the relationship between the outcome variables and age, ethnicity, CD4 count at entry or HIV-1 vs HIV-2 type and duration of loss of follow-up.
2. Associations were examined at a P < 0.05 significance level (2-sided test).
3. Statistical analyses were performed using SAS software (version 9.1; SAS Institute, Cary, NC).

## RESULTS

Records of 74 HIV infected female sex workers receiving antiretroviral treatment, and followed at the IHS from April 2001 to August 2008 were reviewed in the study. Among those, 61 had non-missing visit attendance data and were included in this analysis. Overall, 15 patients (20.3%) died and 42 (57%) were lost during an average follow-up period of 26 months (SD = 18.9). The mean age of patients was 46.6 years old (SD = 7.8) and the mean CD4 count at entry was 215 (SD = 68.6). The median follow-up period was 23 months (min = 0 months – max = 72 months). Among the 13 patients who died, approximately 70(69.2%) were lost to follow-up.

1. Using Cox Regression models, we did not find a significant relationship between age, ethnicity, CD4

count at entry or HIV-1 vs. HIV-2 type and loss of follow-up.

2. However, a longer duration of loss of follow-up, lower CD4 count at entry and HIV-1 type (versus HIV1-2) were all significantly associated with death in this study.

## DISCUSSION

Studies conducted in resource limited settings have shown loss of follow-up rates as high as 40% after 2 years (Dalal et al., 2008). The risk factors, patient-level and program-level characteristics, associated with loss of follow-up have received little attention in our context (Karcher et al., 2007). A better understanding of the significance and determinants of reasons of loss of follow-up and key potential related outcome measures, such as death, would assist program evaluation and provide basis for future interventions.

## Conclusions

The LFU rate was very high (> 50%) among HIV infected FSWs on ARV in the Dakar region in Senegal, with a median follow-up period of 23 months. These findings indicate the need to obtain better longitudinal follow-up data for optimal assessment of the reasons for loss-of follow-up among HIV infected female sex workers receiving ARV in Senegal. The significant association between longer duration of loss-of follow up and death, highlights also the need to address this issue and to plan for future related interventions in this population.

## ACKNOWLEDGMENTS

This study was presented at the XVIII International AIDS conference, Vienna, Austria, 18 to 23 July 2010 (abstract TUPE0360). The authors are very grateful to the female sex workers and the staff of the institute hygiene social, where the research work took place for their contributions toward the success of this research.

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