Antiretroviral treatment outcomes from a decentralised ART programme in rural Zimbabwe

Impact of targeted adherence strategies and extended ART supply

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Introduction

Zimbabwe has an adult HIV prevalence of 14.3% and an estimated 582,000 people requiring antiretroviral treatment.

In 2004, Médecins sans Frontières and the MoH launched a decentralised HIV/TB programme in the rural Buhera district of Zimbabwe. To date 16,217 patients have ever been initiated on antiretroviral therapy (ART). Care is provided at two rural hospitals and in 22 primary health care clinics. Follow up of ART is performed by nurses and initiation of ART supervised by an MSF mobile medical team. Patients are followed intensively for three months and thereafter 3 monthly, being seen by a clinician and counsellor at each visit up to 18 months. Beyond 18 months patients are seen only by a clinician and formal counseling is triggered by signs of clinical failure, immunological failure or poor adherence. Patients are routinely given a 3 month drug supply.

During the 21 month period from March 2007 untill November 2008, Zimbabwe experienced it's first ever period of hyperinflation, leading to an extinction of the Zimbabwean Dollar.

We describe programme outcomes for this rural ART cohort and assess the impact on retention in care during the period of economic and political instability.

Methods

Data were prospectively entered into an electronic patient register. Kaplan Meier survival method was performed to calculate rates of mortality and loss to follow-up using time from initiation of ART as the timeline. Time was censored on the 31/12/2008. Calendar -time was divided into two periods prior to 2007 (period before instability) and after 2007 (during instability).
Cox regression was used to assess the effect of instability and hazard ratios adjusted for confounders were determined. Cofounders (age at ART initiation, sex and decentralised clinic) were identified a prior. Hazard ratios were determined for 0-6 months , 6 months -1 year and 1-1.5 years on ART. Hazard proportionality was assessed by analysis of scaled Schoenfeld residuals

Mutepfe Clinic Buhera District

ART preparation session

Results

A total of 7922 patients were included in the analysis. Baseline characteristics are presented in table 1. The mean follow-up time was 0.8 years (9.6 months). Overall mortality rate was **8.8/100** person-years (95% confidence interval 8.1-9.5) and overall loss to follow-up rate was **9.5/100** person-years (95% confidence interval 8.8-10.3) .

Table 1: Baseline characteristics of individuals in care before and during political unrest

Baseline Variables	Number (%) median (interquartile range)
Women	5223 (65.5)
Age (years)	36.2 (29.9-44.7)
WHO clinical stage 3	3938 (49.7)
WHO clinical stage 4	1974 (24.9)
CD4 <100 cells/uL	2164 (27.3)
CD4 100-200 cells/uL	1402 (17.1)
CD4 >200 cells/uL	1620 (20.5)
CD4 missing	2735 (34.5)

Figure 1: Kaplan Meier estimates - loss to follow-up

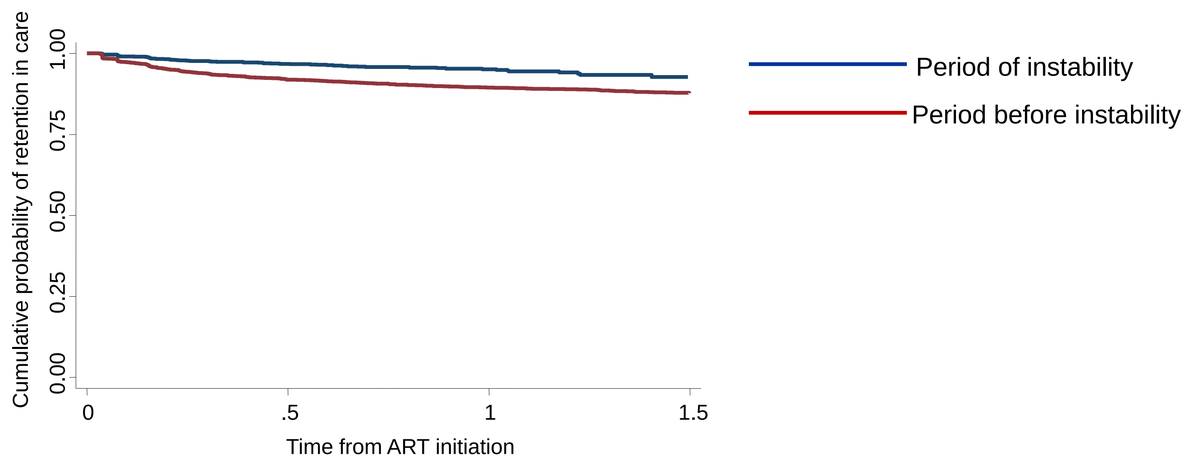


Table 2: Adjusted hazard ratios for loss to follow-up and death comparing time of instability with the time period before

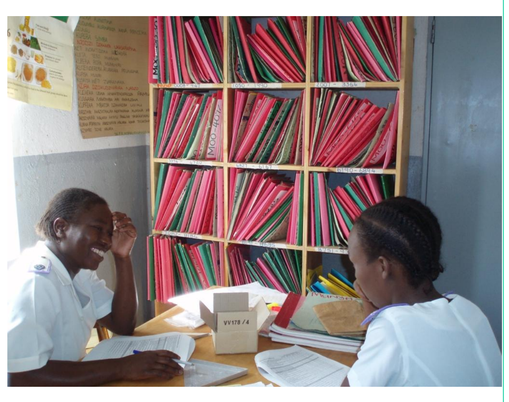
	0-6 months on ART		6 months to 1 year on ART		1 year to 1.5 years on ART	
Outcome	**Adjusted hazard ratio**	**95% Confidence intervals**	**Adjusted hazard ratio**	**95% Confidence intervals**	**Adjusted hazard ratio**	**95% Confidence intervals**
Loss to follow-up	3.75	2.78-5.06	2.14	1.20-3.83	0.90	0.40-1.99
Death	0.47	0.38-0.56	0.66	0.38-1.15	0.95	0.41-2.20

Discussion

Prior to the period of instability the higher rates of death may be explained by a higher proportion of patients presenting at a more advanced stage of disease. A limitation of our analysis due to a high proportion of missingCD4 data was an inability to adjust for CD4 at baseline. In addition during the period of economic instability there may be a selection bias caused due to the inability of the most sick patients being unable to access care at the clinics due to increasing financial constraints. Finally misclassification of death as loss to follow up may be higher during the period of instability due to greater difficulties for both clinic staff and patient families, in ensuring the notification of death.

Overall outcomes from this cohort compare favorably to other ART cohorts treated in a rural resource poor setting. The logistics of providing a regular three month drug supply were feasible and by reducing patient visits from twelve to four per year significantly reduced the burden on both the patient and the health system. Defining the best strategies for long term adherence is a challenge many ART programmes are facing. Focusing on quality adherence interventions during the first months of ART whilst spending longer with patients with identified problems resulted in good long -term outcomes in this cohort.

Severe economic constraints and the accompanying political environment likely lead to patients struggling to access care. Assessing the impact of the period of economic instability highlights the need to adapt counseling and adherence strategies during such situations. Anticipating the likelihood of a similar situation developing in Zimbabwe is crucial. Measures to consider should include provision of lists of alternative ARV sites within the district or province, having an up to date patient held record, discussion at each visit of the importance of any anticipated movements or increasing difficulty in reaching the clinics, the possibility of providing a longer ART supply and provision of emergency tail protection should the patient be forced to stop ART.



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